



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2025

Centre Number

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Candidate Number

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Economics

StemUp Model Solution

Assessment Unit AS 2

assessing

Managing the National Economy



[SEC21]

SEC21

MONDAY 19 MAY, MORNING

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page. Answer **all** questions in Sections **A** and **B**, and **one** question in Section **C**.

You are permitted to use a calculator in this paper.

You must answer the questions in the spaces provided.

Do not write outside the boxed area on each page or on blank pages.

Complete in black ink only. **Do not write with a gel pen.**

INFORMATION FOR CANDIDATES

The total mark for this paper is 80.

- Section A: 25 Marks
- Section B: 35 Marks
- Section C: 20 Marks

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question. This paper is accompanied by a Case Study Booklet.

ADVICE TO CANDIDATES

You are advised to take account of the marks for each part question in allocating the available examination time. In questions involving calculations, you are advised to show your workings.

Quality of written communication will be assessed in Questions **6**, **7(b)**, **(c)** and **(d)**, **8** and **9**. Quantitative skills will be assessed where appropriate.

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Section A (25 marks)

Answer all questions

- 1 Corporation tax fell from 28% in 2010 to 19% in 2017, only to increase to 25% in 2023. Whilst excise duties on fuel haven't increased since 2010, VAT went up from 17.5% to 20%.

With reference to the statement above, distinguish between direct and indirect taxation.

[4]

A direct tax is a tax levied on income, wealth or profit, paid directly to the government by the person or firm on whom it is imposed, so the burden cannot be passed on to anyone else. Corporation tax, a tax on company profits which fell from 28% to 19% and then rose to 25% in 2023, is an example of a direct tax.

An indirect tax is a tax on spending on goods and services. It is charged to producers or sellers, who can pass at least part of the burden on to consumers through higher prices. VAT, which rose from 17.5% to 20%, and excise duties on fuel are examples of indirect taxes.

[Turn over]



- 2 The table below shows national income statistics for a country over two years.

Year	GDP at factor cost (£bn)	Net foreign factor income (net primary income) (£bn)
2023	355	15
2024	366	14

Using the information in the table, calculate the percentage change in Gross National Product (GNP) between 2023 and 2024. [3]

$$\text{GNP} = \text{GDP} + \text{net foreign factor income (net primary income)}$$

$$2023: \text{GNP} = £355\text{bn} + £15\text{bn} = £370\text{bn}$$

$$2024: \text{GNP} = £366\text{bn} + £14\text{bn} = £380\text{bn}$$

$$\% \text{ change} = (380 - 370) \div 370 \times 100 = 10 \div 370 \times 100 = 2.70\%$$

GNP increased by 2.70% between 2023 and 2024.



- 3 In March 2023 the UK rate of inflation was 10.1%. In the same month the average instant access savings account paid a rate of interest of 3.5%.

Using the information above, explain what is meant by the real rate of interest. [4]

The real rate of interest is the nominal (money) rate of interest adjusted for inflation, so it measures the change in the purchasing power of savings. Real rate = nominal rate - rate of inflation.

In March 2023: real rate of interest = 3.5% - 10.1% = -6.6%.

The real rate was negative: although savers earned 3.5% in money terms, prices rose by 10.1%, so the purchasing power of their savings fell by about 6.6% over the year, which discourages saving. (Using a deflator: $1.035 \div 1.101 - 1 = -6.0\%$.)

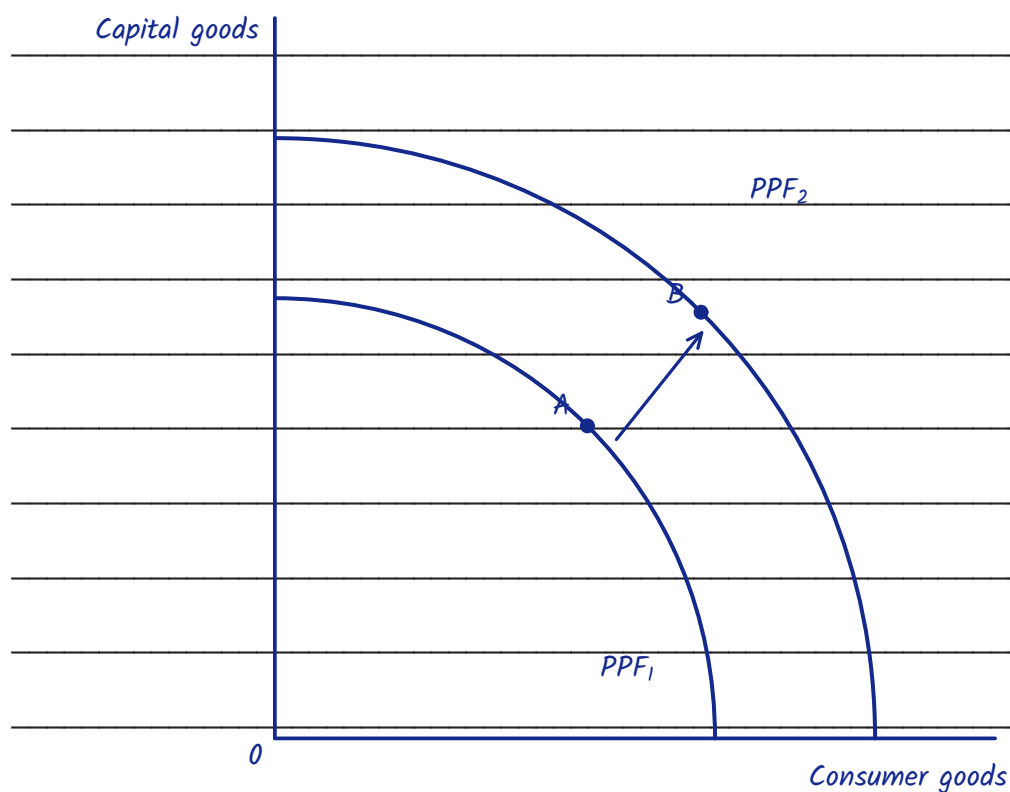
[Turn over]



- 4 In 2022, 297 000 people entered the UK to seek work. Assume that all other things have remained equal. With the aid of a PPF diagram, explain the impact this is likely to have on the UK economy. [4]

The inflow of 297 000 workers increases the quantity of labour, a factor of production, available to the UK. This raises the productive potential (capacity) of the economy, so, all other things equal, the PPF shifts outwards from PPF_1 to PPF_2 , as shown in the diagram below.

The UK can now produce more of both capital and consumer goods, e.g. move from point A to point B: this is long-run economic growth. If the migrants find work, real GDP and tax revenue also rise.



- 5 The table below shows the three main categories of spending in a country, the percentage weight of spending on each category, and an index of the price of each category of spending in 2024.

Category of spending	Weight	2024 price index
Food, drink and clothing	35	94
Housing	40	115
Transport and leisure	25	102

The base year was 2023. Using the information in the table above, calculate the rate of inflation in 2024. [4]

Weighted index = weight $\times$ price index

Food, drink and clothing: $35 \times 94 = 3290$

Housing: $40 \times 115 = 4600$

Transport and leisure: $25 \times 102 = 2550$

Sum of weighted indexes = $3290 + 4600 + 2550 = 10\,440$

Price index for 2024 = $10\,440 \div 100$ (total weight) = 104.4

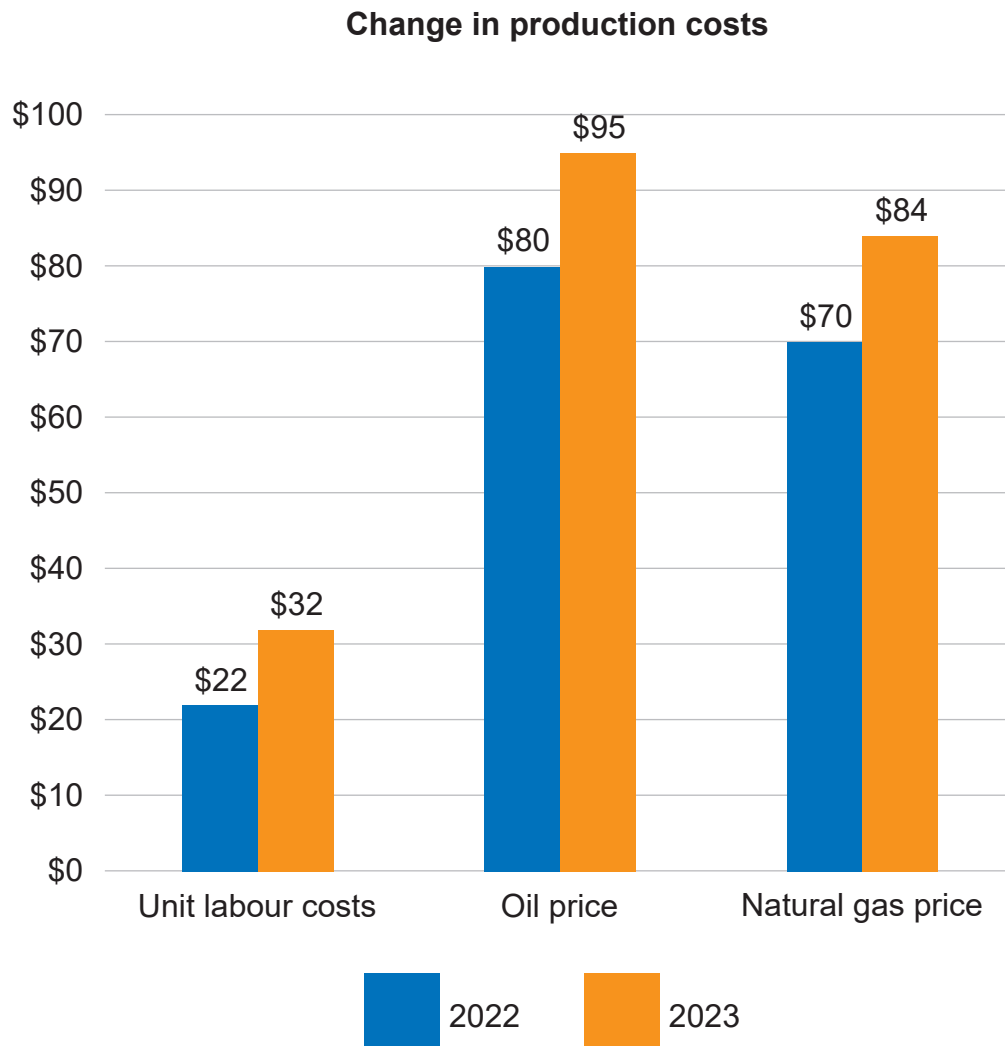
2023 is the base year (= 100), so inflation in 2024 = $(104.4 - 100) \div 100$

$\times 100 = 4.4\%$

[Turn over]



- 6 The graph below shows the change in various production costs for an economy between 2022 and 2023.



With the aid of an aggregate demand and aggregate supply diagram, analyse the likely impact these changes in production costs will have on the economy in 2023. [6]

Quality of written communication will be assessed in this question.

All three production costs shown rose between 2022 and 2023. Unit labour costs rose from \$22 to \$32, an increase of $(32 - 22) \div 22 \times 100 = 45.5\%$; the oil price rose from \$80 to \$95 (+18.75%) and the natural gas price rose from \$70 to \$84 (+20%).

These are costs of production for almost all firms: labour is the largest cost for most businesses, and oil and gas are needed for energy, transport and as raw materials. Higher costs reduce the profitability of producing each level of output, so at every price level firms supply less. The short run aggregate supply (SRAS) curve therefore decreases, shifting to the left from $SRAS_1$ to $SRAS_2$, as shown in the diagram. LRAS is unchanged because the productive capacity of the economy has not changed.

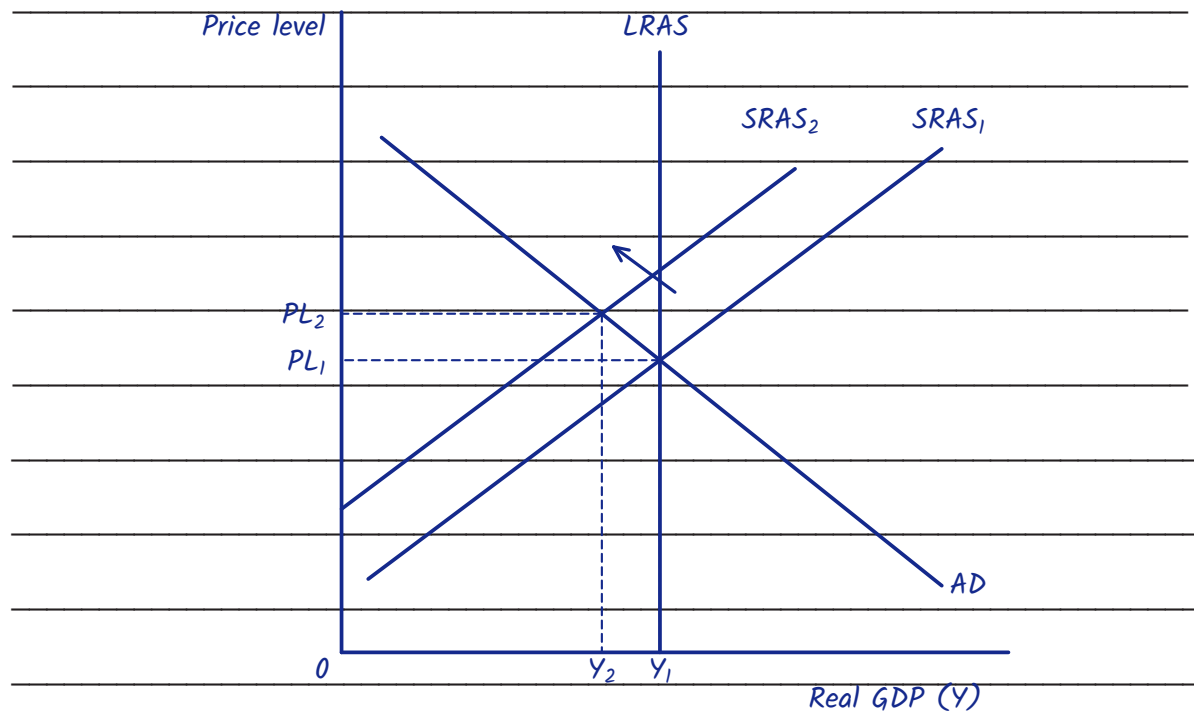
As a result the equilibrium moves up along the AD curve: the price level rises from PL_1 to PL_2 and real GDP falls from Y_1 to Y_2 . This is cost-push inflation, a sustained rise in the general price level caused by rising costs of production.

Workers may then demand higher wages to protect their real incomes, creating a wage-price spiral that shifts SRAS further left.

This harms several macroeconomic objectives at once (stagflation). Lower real GDP means slower economic growth or even recession, and as labour is a derived demand, firms need fewer workers, so unemployment rises. Higher UK prices make exports less price competitive, so the current account is likely to

[Turn over





worsen, although rival economies also face higher world oil and gas prices.

Falling real incomes reduce consumption, which may shift AD left too,

deepening the fall in output. Overall, in 2023 the economy is likely to

suffer higher inflation together with lower output and employment.



Section B (Case Study) (35 marks)

Answer all questions

Read the information in the Case Study Booklet and answer the questions below.

- 7 (a) With reference to **Fig. 1**, describe the changes in real wages in the public and private sectors over the period shown. [5]

Fig. 1 shows the % change in real wages (nominal wage growth minus inflation). Positive values mean real wages are rising; negative values mean they are falling.

From Q3 2020 to Q1 2021 real wages rose in both sectors. In Q3 2020 public sector real wages rose by about 3.4%, twice the private sector rise of 1.7%; both rose by about 4% in Q4 2020.

Private sector real wage growth then peaked at about 7.9% in Q2 2021 while public sector growth slowed to 0.6%. From Q3 2021 public sector real wages fell (-1.5%) and kept falling for the rest of the period, whereas private sector real wages still rose by 1.5% and only began to fall in Q4 2021.

Public sector real wages fell by much more. From Q1 to Q4 2022 they fell by over 5% every quarter, the largest fall being about 8.2% in Q3 2022, while private sector falls never exceeded 5%, the largest being 4.2% in Q3 2022, about half as much. By Q1 2023 the falls had eased to about 3.1% (public) and 2.0% (private).

[Turn over]



(b) Explain some of the reasons for the UK's relatively low productivity.

[6]

Quality of written communication will be assessed in this question.

Productivity is output per unit of input; labour productivity is measured as output per worker per hour (paragraph 2). The UK has lower productivity than its main rivals such as the USA and Germany for several reasons.

First, low private sector investment. UK private investment has been below the G7 average since 1990, and in 2021 the UK invested only 10% of its GDP compared with 14.2% for France and 19.6% for Ireland (paragraph 4). With less capital, technology and R&D per worker, each worker produces less output per hour. UK firms have also expanded output by hiring more workers rather than improving efficiency, with the employment rate rising from 70.2% to 76% (paragraph 3), which raises total output but not output per worker.

Second, low public sector investment in infrastructure. Had UK public investment matched the G7 average, it would have been £208.4 billion higher between 2006 and 2021, enough for 416 hospitals and 8300 schools. Poor infrastructure, such as the 104 schools declared unsafe and hospital waiting lists of 7.4 million, makes public services less efficient and keeps sick people out of work.

Third, a poor record on education and training means the workforce is less skilled. The quality of labour (human capital) is lower, so workers



produce less and cannot use new technology effectively.

In addition, falling real wages may demotivate workers, and staff shortages such as the NHS being 154 000 staff short leave workers overstretched, lowering productivity. Other causes include difficulty for firms in accessing finance for investment, over regulation and a lack of effective competition in some industries, which reduces the incentive for firms to innovate and cut costs.

[Turn over



- (c) With the aid of an appropriate diagram, analyse the likely impact of an increase in productivity on the UK economy. [9]

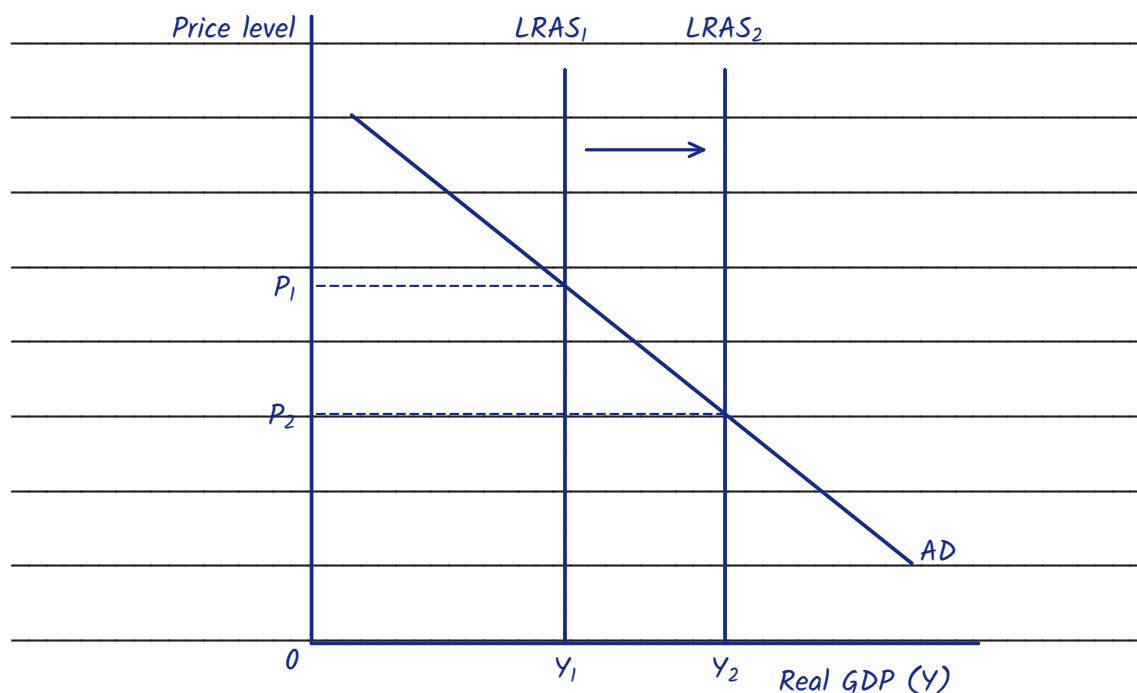
Quality of written communication will be assessed in this question.

An increase in productivity means more output is produced from the same quantity of inputs, e.g. more output per worker per hour. This increases the productive potential of the economy, shifting the PPF outwards and the long run aggregate supply curve to the right, from $LRAS_1$ to $LRAS_2$, as shown in the diagram.

Lower inflation: paragraph 2 explains that a 5% rise in productivity lets firms raise wages by 5% without increasing average costs. Any productivity gain above wage growth lowers unit labour costs and average costs of production, which firms can pass on to consumers as lower prices. The price level falls from P_1 to P_2 , reducing inflationary pressure and helping the Bank of England meet its 2% CPI target, possibly allowing lower interest rates.

Higher economic growth: real GDP rises from Y_1 to Y_2 . Unlike growth from simply hiring more workers, which hits a limit when the economy runs out of workers (paragraph 3), productivity-led growth is sustainable, so output can rise in response to rising demand without causing inflation.





Higher wages and living standards: productivity gains can be shared with workers as higher real wages, reversing the stagnation since 2008, after which average real wages could have been £11,000 a year higher (paragraph 1). Higher real incomes raise consumption, increasing AD and output further.

Employment: in the long run, higher output and lower prices raise demand for UK goods and services, creating jobs. In the short run, however, firms need fewer workers to produce the same output, so some workers could become unemployed if demand does not rise as fast as productivity.

Balance of payments: lower average costs make UK goods more price competitive relative to rivals such as the USA and Germany, so exports rise and imports fall, improving the current account.

[Turn over



Profits and investment: firms earn higher profits, which can be reinvested in new capital and R&D, creating a virtuous circle of further productivity growth.

Government finances: higher incomes and profits raise income tax and corporation tax revenue without higher tax rates, allowing more public investment in hospitals and schools and less borrowing.

Overall, higher productivity allows the UK to achieve several macroeconomic objectives at the same time, faster growth, low inflation, a stronger balance of payments and rising real wages, without the usual trade-off between growth and inflation.



- (d) Critically examine the likely impact on the UK economy of the government granting an above-inflation pay rise to public sector workers.

[15]

Quality of written communication will be assessed in this question.

An above-inflation pay rise means public sector workers' nominal pay rises faster than CPI, so their real wages increase. Public sector pay is part of government spending (G), a component of aggregate demand ($AD = C + I + G + X - M$).

Recruitment and retention: paragraph 5 shows serious staff shortages, with NHS England 154 000 staff short in March 2023 and unfilled teaching posts doubling in a year. Public sector real pay fell by almost 9% between 2008 and 2023 while pay in finance rose by almost 7%, and Fig. 1 shows public sector real wages falling by up to 8.2% in 2022. A real pay rise would make public sector jobs more attractive relative to the private sector and jobs overseas, improving recruitment, stopping doctors leaving and ending costly strikes such as the junior doctors' strike for 26% in July 2023.

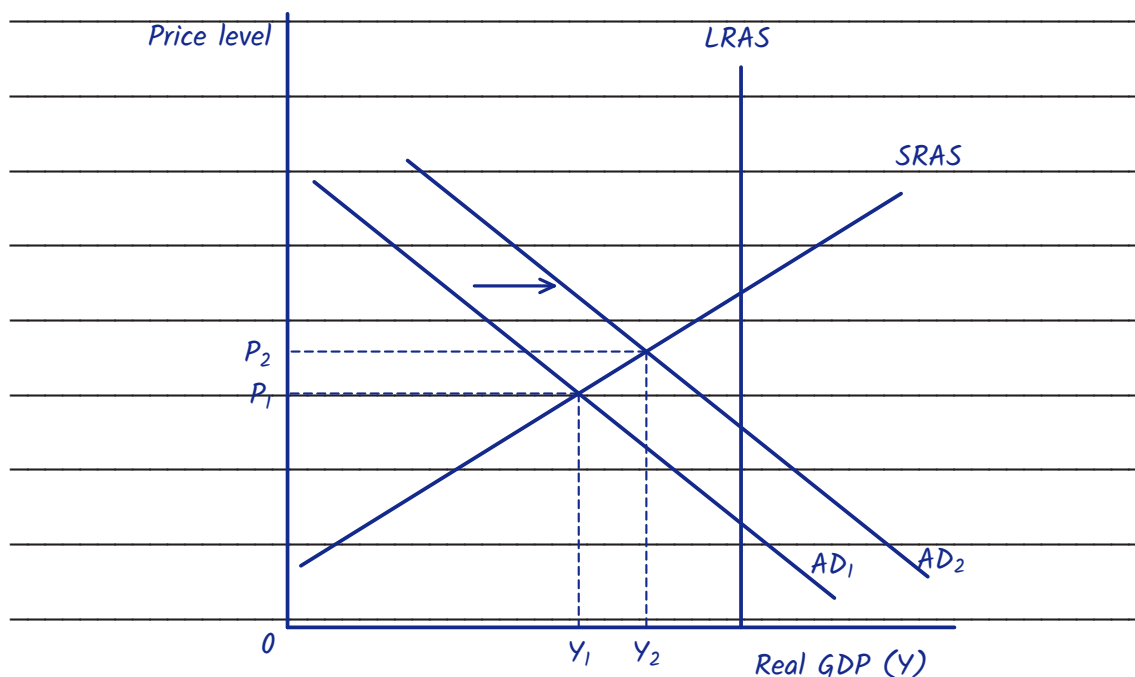
Productivity and growth: more teachers and doctors improve human capital. Better education raises the skills of the future workforce, and shorter waiting lists (7.4 million in June 2023) return sick people to work. Better motivated staff are also more productive. This tackles the UK's low productivity and shifts LRAS to the right in the long run.

Equity: public sector workers, deemed essential during the pandemic, have suffered much bigger falls in real wages than private sector workers, so a

[Turn over]



pay rise is fairer and raises their living standards.



Inflation: however, the pay rise increases G and the disposable income of public sector workers, raising consumption. Through the multiplier AD shifts right from AD_1 to AD_2 , as the diagram shows, raising real GDP and employment but also the price level from P_1 to P_2 : demand-pull inflation, the government's main concern with inflation well above the 2% target. It depends on the output gap: with employment at 76% (paragraph 3) the economy was near full capacity, so extra AD would be mainly inflationary and could start a wage-price spiral if private sector workers demand similar rises. Yet, as the union argues, health and education are mostly free at the point of use, so higher wages are not passed on as higher prices and there is little cost-push effect. Some of



the rise will also be saved or taxed, so the impact on AD may be small.

Financing and opportunity cost: the rise must be paid for by higher taxes, which reduce other workers' disposable income and offset the AD effect, or by more borrowing, raising debt interest costs. Money spent on pay cannot fund the public investment paragraph 4 says is badly needed, e.g. repairing the 104 unsafe schools.

Judgement: on balance a moderate above-inflation rise would benefit the UK. The inflationary effect is limited because there is no cost-push effect and the Bank of England can respond with interest rates, while the supply-side gains from ending staff shortages and raising productivity are large and long lasting. The impact depends on the size of the rise (26% would be very costly and inflationary, so a phased rise targeted at shortage areas is better), how it is financed and the size of the output gap at the time.

[Turn over



Section C (20 marks)

Answer **either** question 8 **or** question 9

Quality of written communication will be assessed in these questions.

- 8** As the cost-of-living crisis continued to worsen in 2023, some economists called for a change in direction from the UK government. Sir Thomas Smythe of the Institute for Free Markets declared that “the government must focus on boosting economic growth as the only way to make sure that everyone is better off”.

Critically examine the extent to which economic growth will “make everyone in the UK better off”. [20]

or

- 9** In 2010 the UK unemployment rate was 7.79%; by 2019 it had fallen to 3.74%. Over the same period, the government increased the tax-free personal allowance from £6,475 to £12,500 and imposed restrictions on people’s ability to claim benefits. A Conservative MP stated that “this proves that tax and benefit cuts are the only way to reduce unemployment. Government intervention simply doesn’t work”.

Critically examine the view that “tax and benefit cuts are the only way to reduce unemployment”. [20]



Write the number of the question you have chosen in the box below:

8

Economic growth is an increase in the real output of an economy, measured by the percentage change in real GDP (actual growth). In the long run it is an increase in productive potential, shown by an outward shift of the PPF or a rightward shift of LRAS (potential growth). Short-term growth comes from higher AD using spare capacity, i.e. closing a negative output gap; long-term growth comes from an increase in the quantity or quality of factors of production, through investment, technology, education or migration.

Arguments that growth makes everyone better off:

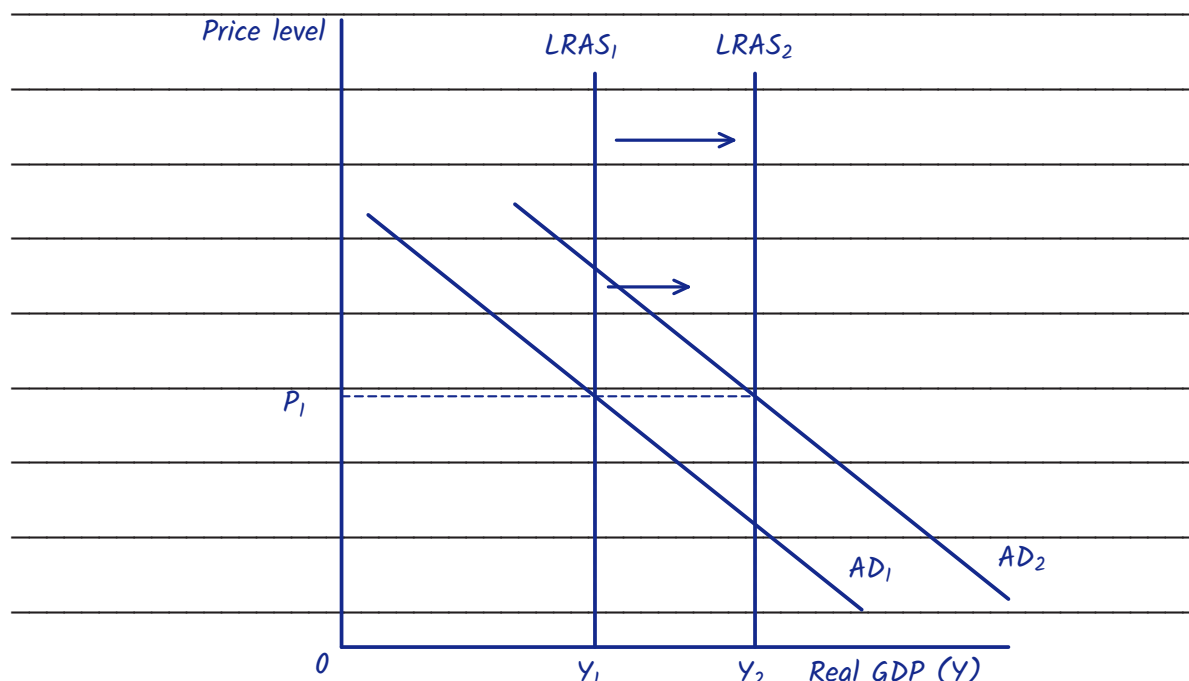
Higher incomes and living standards: higher real GDP means more goods and services are produced and available for consumption. As labour is a derived demand, higher output requires more workers, so unemployment falls and incomes rise. During the cost-of-living crisis, when real wages fell, growth that raises incomes faster than prices would directly ease the squeeze on households. If growth is driven by higher productivity, firms can pay higher real wages without raising their costs.

Better public services: higher incomes, spending and profits raise revenue from income tax, VAT and corporation tax without higher tax rates. The government can spend more on merit goods such as health and education, and on benefits, helping even people not in work, such as pensioners and the disabled. Lower spending on unemployment benefits and higher revenue also reduce the budget deficit, and the extra funds can be reinvested to fund

[Turn over



future growth. In this way growth can trickle down to everyone.



As the diagram shows, if LRAS shifts from $LRAS_1$ to $LRAS_2$ and AD grows in line from AD_1 to AD_2 , real GDP rises from Y_1 to Y_2 with no rise in the price level (P_1): sustainable, non-inflationary growth that raises average living standards.

Arguments that growth will not make everyone better off:

Distribution: the benefits of growth may not be evenly distributed. Higher incomes may go mainly to owners of capital and highly skilled workers, e.g. in finance in London and the South East, while low-skilled workers and regions such as Northern Ireland gain little, so income inequality and regional disparities can widen. People on fixed incomes such as benefits or the state pension do not gain automatically, and trickle down may be weak



unless the government redistributes income through progressive taxes and benefits.

Inflation and trade-offs: if growth comes from AD rising faster than LRAS when there is little spare capacity, a positive output gap opens and demand-pull inflation results. In 2023 inflation was already high, so demand-led growth could worsen the cost-of-living crisis and cut the real incomes of anyone whose wages do not keep up. Higher incomes also suck in imports, worsening the current account.

Costs of achieving growth: long-run growth needs more investment, so resources must be diverted from producing consumer goods to capital goods. In the short run this lowers consumption and living standards (an opportunity cost), with the benefits only arriving in the future. Growth may also be achieved by people working longer hours, reducing leisure time and worsening work-life balance.

Negative externalities: growth increases production and consumption, generating pollution, congestion, depletion of non-renewable resources and carbon emissions that add to global warming. These external costs fall on third parties, including future generations, whose welfare may fall even though GDP rises. Real GDP is also an imperfect measure of living standards, as it ignores health, leisure time, crime rates, the environment and the quality of goods, which do not necessarily improve with growth.

Evaluation: whether growth makes everyone better off depends on several

[Turn over



factors. First, the type of growth: supply-side growth from higher productivity is sustainable and non-inflationary, while demand-led growth near full capacity mainly causes inflation. Second, the rate of growth: steady growth of around 2% to 2.5% a year is more sustainable than rapid growth that overheats the economy. Third, government policy: growth only benefits everyone if the extra tax revenue is used to redistribute income and fund public services, and if external costs are controlled through taxes or regulation. Fourth, the time scale: in the short run some groups lose, but in the long run a larger economy makes it possible for the gainers to compensate the losers.

In conclusion, economic growth is necessary for raising living standards across the UK, because without it the only way to make some people better off is to make others worse off. However, it is not sufficient to "make everyone in the UK better off". Sir Thomas Smythe's claim is an overstatement: growth will raise average living standards, but not every individual or region will benefit unless the government makes sure the gains are shared fairly and the costs of growth are managed. Growth should therefore be one focus of policy alongside redistribution and protecting the environment, rather than "the only way".





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For Examiner's use only	
Question Number	Marks
Section A	
1	
2	
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Section B	
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Section c	
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Total Marks	
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Examiner Number

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Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
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Economics

Assessment Unit AS 2
assessing

Managing the National Economy

[SEC21]

MONDAY 19 MAY, MORNING

CASE STUDY BOOKLET

**For use with
Section B**

Read the following information and answer Question 7 in the question and answer booklet.

The following article was written in July 2023.

Does Britain need a pay rise?

In 2023, UK workers were facing an unprecedented squeeze on living standards. Research by the Resolution Foundation, published in March that year, showed that wage growth had stalled since the financial crash of 2008. If wages had continued to grow at their pre-crash rates, then average real wages would have been £11,000 a year higher. The graph below shows the changes in real wages in both the public and private sectors between Quarter 3 2020 and Quarter 1 2023.

1

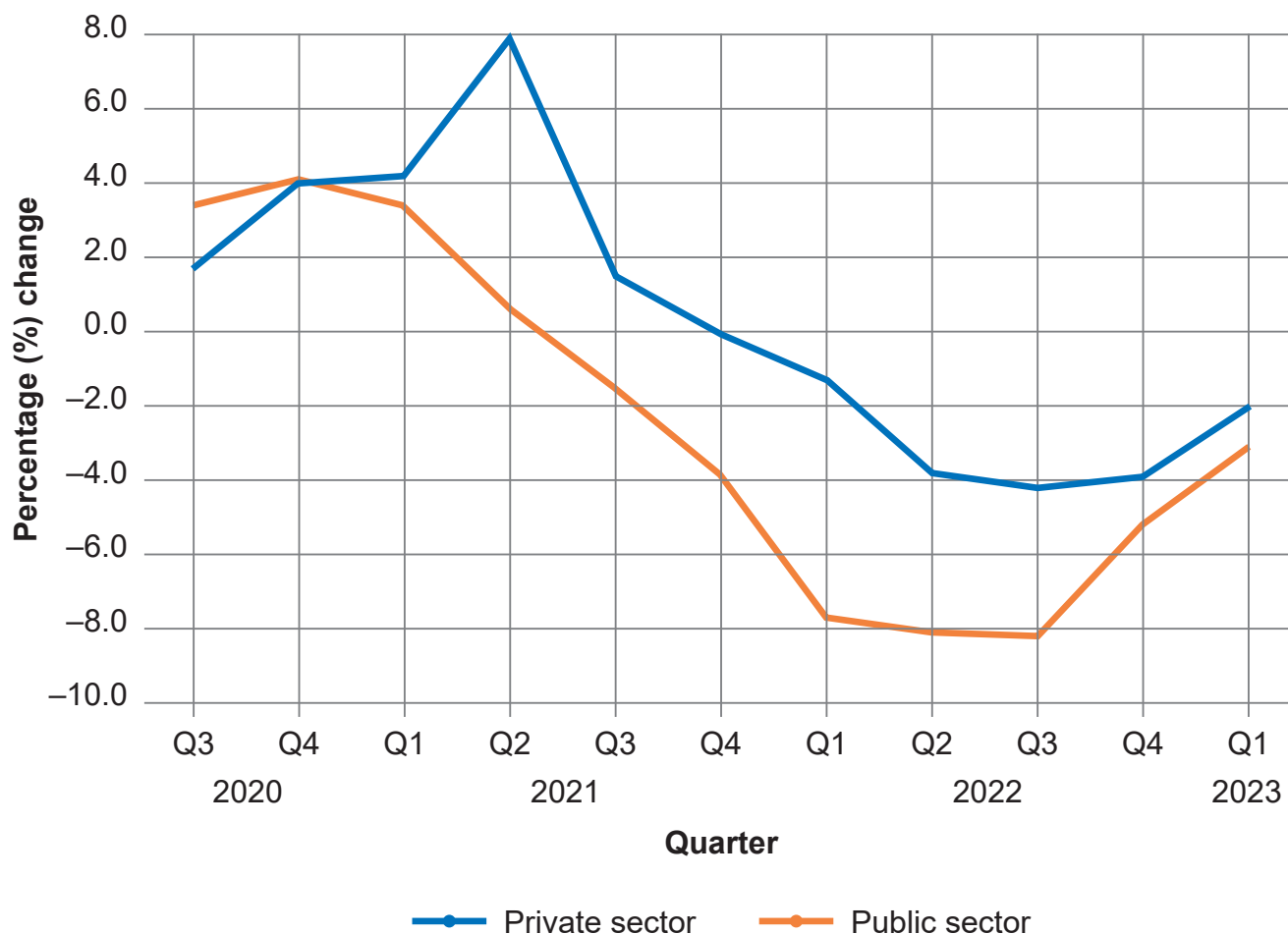


Fig. 1: Change in real wages in public sector and private sector

Source: ONS

A key reason for the stagnation in wage growth is the failure of productivity to grow since 2008. An increase in productivity, as measured by output per worker per hour, enables firms to pay higher wages. A 5% increase in productivity would enable firms to increase wages by 5% without increasing their average costs.

2

UK firms have chosen to expand output, not by improving efficiency, but by hiring more workers. Between the start of 2010 and May 2023, the employment rate increased from 70.2% to 76%, with both unemployment and economic inactivity falling. However, growth based on simply recruiting more workers will hit a problem when the economy runs out of workers, as firms will no longer be able to increase output in response to rising demand.

3

The UK has lower productivity than its main rivals, particularly the USA and Germany. Key reasons for this low productivity are its poor record on investment, education and training. Britain has had a rate of private sector investment lower than the G7 average since 1990. In 2021, the UK invested only 10% of its GDP compared to 14.2% for France and 19.6% for Ireland. Public sector investment is also low; if UK public sector investment had been at the G7 average, it would have been £208.4 billion higher between 2006 and 2021. That would have built an extra 416 hospitals and 8300 secondary schools. Instead, hospital waiting lists reached 7.4 million people in June 2023, whilst in September that year 104 schools were declared unsafe and at risk of collapse.

4

In the public sector, lack of investment isn't the only issue as staff shortages are also causing problems. In March 2023, NHS England estimated it was operating with 154 000 staff fewer than needed. In education, the number of unfilled teaching posts had doubled between June 2022 and 2023. Pay was an important cause of staff shortages. Whilst pay for workers in finance had increased by almost 7% in real terms between 2008 and 2023, in the public sector it had fallen by almost 9%. In July 2023, junior doctors were on strike seeking a pay rise of 26% to restore their real pay to its 2008 level. Increasingly, doctors were moving to better paid jobs overseas. The government, however, was refusing to grant higher than inflation pay rises. It maintained this would cause even higher inflation and, in any case, the government couldn't afford them. One trade union leader responded by saying, "The public sector is on its knees. It's simply not the case that pay rises for public sector workers will be inflationary. Without a real term pay increase, we won't be able to recruit teachers to educate children and doctors and nurses to care for the sick."

5

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