

Cambridge IGCSE · Economics 0455 · Notes

Economic growth

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Last checked 2 October 2026

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What you need to know

This topic has six syllabus outcomes. In plain words, you should be able to:

1. **Define economic growth:** a rise in a country's real output (or its productive capacity) over time.
2. **Measure it** with real Gross Domestic Product (GDP), say why real rather than money (nominal) figures are used, and use GDP per head (per capita).
3. **Explain a recession:** its meaning, causes and effects, and how it moves the economy inside its production possibility curve (PPC).
4. **Explain the causes of growth:** more total demand bringing idle resources into use (a move toward the PPC), and investment, technology and more or better factors of production shifting the PPC to the right.
5. **Weigh up the costs and benefits** of growth in different kinds of economy.
6. **Judge the policies** (fiscal, monetary, supply-side) that can promote growth.

You do not need aggregate demand and aggregate supply diagrams: write about **total demand** (all spending) and **productive capacity** in words, with a PPC where it helps.

Understand it

What growth is

Add up the market value of everything a country's farms, factories, shops and offices produce in a year and you have **Gross Domestic Product (GDP)**. **Economic growth** means this output gets bigger over time. An economy can produce more in two ways:

- **It uses more of what it already has:** in a slump, jobless workers and idle machines go back to work when spending picks up.
- **It becomes able to produce more:** more or better machines, workers and technology raise its **productive capacity** (potential output).

Only the second can keep going year after year; the first stops once every idle resource is back at work.

Measuring growth: real GDP

A money figure for GDP can rise because more is made or because the same things cost more. Only the first is growth. **Nominal GDP** values output at this year's prices, so it rises with inflation; **real GDP** removes price changes, so it shows the **quantity** of output. Growth is measured by the rise in real GDP.

A quick rule: **real growth $\approx$ nominal growth – inflation**. If nominal GDP rises by 8% and prices rise by 5%, output has grown by about **3%**. If nominal GDP rises by 4% while prices rise by 6%, real GDP has **fallen** by about 2%, even though the money figure went up. Real GDP rises only when nominal GDP rises faster than prices.

The growth rate is the percentage change in real GDP:

$$\text{growth rate} = \frac{\text{real GDP this year} - \text{real GDP last year}}{\text{real GDP last year}} \times 100$$

What GDP misses

GDP records only output that is sold and written down. It misses:

- **Output people make for themselves.** A household that grows and eats its own crops (subsistence farming) produces real output, but no sale takes place, so there is no value to record. Where many families live this way, growth is hard to measure.
- **Unpaid work, until it becomes paid.** Cooking dinner at home adds nothing to GDP. Buy the same meal from a café and the sale (and the cook's wage) appears in the figures, so GDP rises although the same food was produced.
- **Hidden (informal) work:** cash jobs that are never declared.

GDP per head

A bigger GDP does not mean each person has more. **GDP per head** (per capita) shares output among the population:

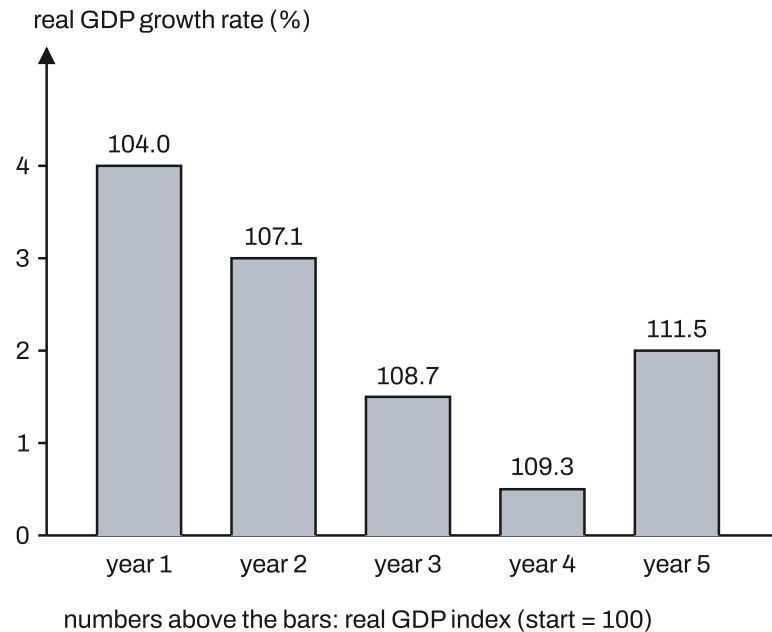
$$\text{GDP per head} = \frac{\text{real GDP}}{\text{population}}$$

It rises only if real GDP grows **faster** than the population. Suppose a country's real GDP grows by 4% in a year from \$60 billion to \$62.4 billion, while its population grows by 5% from 3 million to 3.15 million. GDP per head falls from \$60 000 million $\div$ 3 million = **\$20 000** to \$62 400 million $\div$ 3.15 million $\approx$ **\$19 810**: the country grew, but the average person ended up with less. A rough rule: **growth in GDP per head $\approx$ growth in real GDP – growth in population**.

GDP per head is an **average**. A higher figure shows that output per person grew, so somebody is better off, but it says nothing about who: the gains could be shared widely or go to a few.

A falling growth rate is not falling output

This is a common trap. Look at the bar chart.



The growth rate falls from 4% to 0.5% over years 1 to 4, but every bar is above zero, so output **rises every year**: 100 → 104.0 → 107.1 → 108.7 → 109.3 → 111.5. Output is highest at the end of the period. A falling growth rate means output is rising **more slowly**, not falling. Output falls only when the growth rate is **negative**.

Likewise, a run of rising real GDP figures proves only that output grew; the speed of growth or output per person needs rates or population figures.

Recession

A **recession** is **negative economic growth** for **two quarters in a row** (six months): real GDP falls twice running. One falling quarter is not enough.

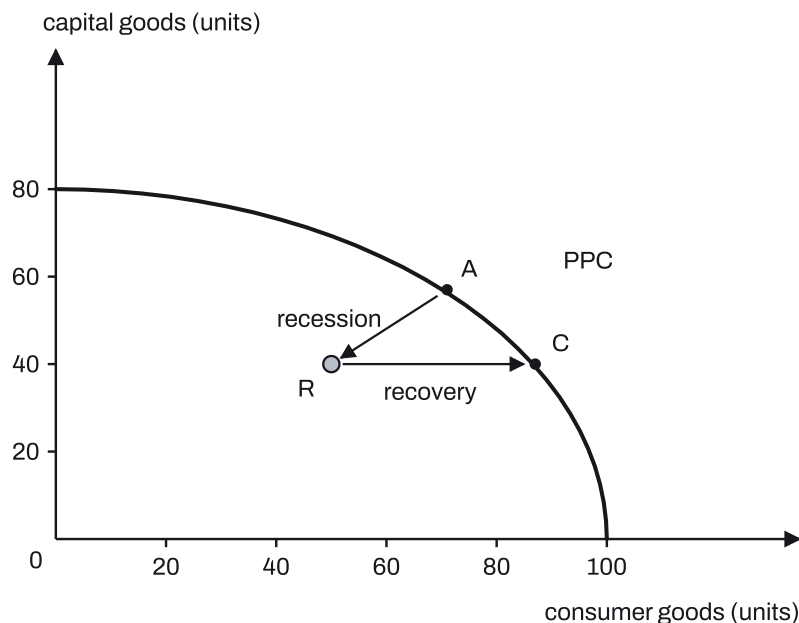
	Year 1 Q1	Q2	Q3	Q4	Year 2 Q1	Q2
Real GDP (\$bn)	250	253	252	249	250	252
Change on the quarter before		+1.2%	-0.4%	-1.2%	+0.4%	+0.8%

Output falls in Q3 and again in Q4 of year 1, so by the **end of Q4** the economy is in recession. In year 2 it recovers.

Causes. Almost always a fall in **total demand**: consumer spending, investment, government spending or net exports (exports minus imports). Households may spend less from fear for their jobs or after tax rises; **higher interest rates** make borrowing dearer and saving more rewarding, so households and firms buy less; the government may cut spending; a slump abroad cuts export orders, or spending shifts toward foreign goods; or a shock destroys confidence. Firms that sell less cut output and jobs; those workers spend less, and the fall spreads.

Effects. Cyclical unemployment rises; real incomes and living standards fall and poverty rises; profits fall, some firms close and investment is cut, holding back future capacity; tax revenue falls while benefit payments rise, widening the budget deficit; skilled workers may emigrate. The few "good" side effects: inflation eases and import spending falls.

A recession on the PPC



On the curve (point A) all resources are used. In a recession workers and machines stand idle, so the economy moves to a point **inside** the curve, such as R. The curve stays put, because the workers and machines still exist. When spending recovers, the economy moves from R **toward** the curve (to C, or back to A): growth from using spare capacity.

If the slump destroys capacity, the curve itself moves: if jobless workers emigrate for good, the PPC shifts to the **left**. So a recession can show first as a move inside the curve (short run) and later as an inward shift (long run).

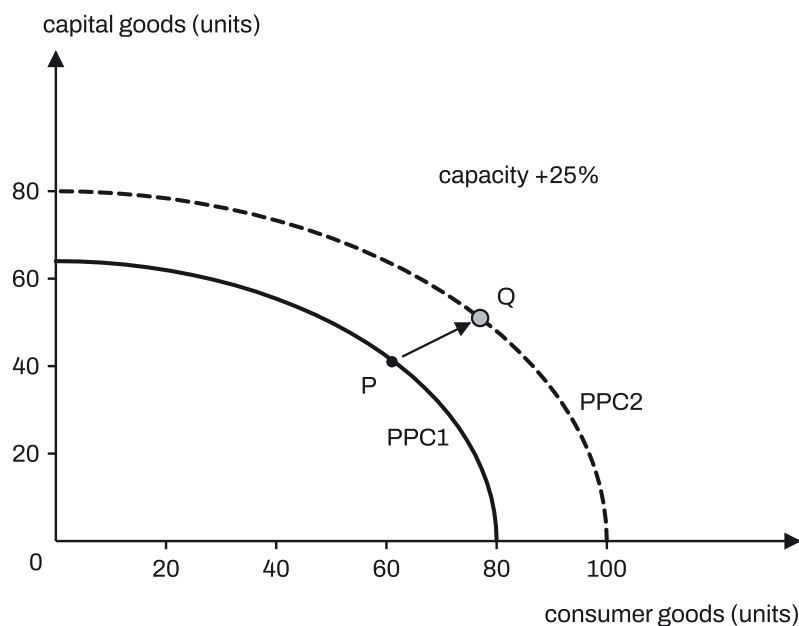
What causes growth

1. More total demand (moving toward the PPC). When anyone spends more, firms can sell more, so they use spare machines and hire unemployed workers. The new workers spend their wages, raising demand for other firms (the **multiplier** idea). Firms expecting more sales invest in new capital, which also raises capacity, and higher incomes bring the government more tax revenue to spend on roads, schools and hospitals.

Near the PPC, more spending mostly pushes up **prices** (demand-pull inflation), not output.

2. More productive capacity (shifting the PPC to the right).

Cause	Why capacity rises
Investment in capital goods	More and newer machines, factories, roads and networks mean each worker can produce more
Better technology	New methods and equipment produce more output from the same inputs: productivity rises
More factors of production	A larger labour force (immigration, more women or older people in work), new land or natural resources (an oil or mineral discovery)
Better-quality factors	Education, training and better health make workers more skilled; better management and enterprise use resources more efficiently



The reverse also holds: anything that shrinks or weakens the stock of resources slows growth, such as a smaller or less skilled workforce, long strikes, or natural resources running out.

Investment works both ways: it is spending now **and** capacity later.

Consequences of growth

Benefits	Costs
More jobs: firms producing more need more workers	Inflation: growth led by spending can outrun capacity and push up prices, hurting people on fixed incomes
More tax revenue without higher tax rates, to spend on public services or to cut borrowing	Pollution and congestion: more factories, traffic and energy use raise external costs
Higher real incomes: households can afford more of everything, including what keeps people healthy and educated	Depletion: using up oil, minerals, forests or fish faster than they renew means less growth later (growth may not be sustainable)

Benefits

Less poverty, most of all where many people live close to the minimum

More choice and bigger firms, which can gain economies of scale

Costs

Unequal gains: the rise may go mainly to owners of capital and skilled workers

Structural unemployment: new technology and industries make some skills redundant

More imports: higher incomes are partly spent abroad (see the aims table below)

Different economies. In a **low-income economy** growth can lift millions out of absolute poverty, though growth resting on one export can be unstable. In a **high-income economy** basic needs are already met, so extra output adds less to wellbeing and the costs (pollution, congestion, stress, housing shortages) weigh more.

Growth and the other macroeconomic aims

Other aim	How growth can help	How growth can conflict
Full employment	More output needs more workers	Growth from new technology can cause structural unemployment
Stable prices	Growth from more capacity lowers costs and holds prices down	Growth driven by spending can cause demand-pull inflation
Balance of payments stability	Growth led by exports or by more competitive firms raises export earnings	Higher incomes suck in imports, and goods sold at home are not exported
Redistribution of income	Higher tax revenue can fund benefits and services for the poor	The gains may go mostly to the rich

Whether growth conflicts with them depends on **where it comes from**: spending-led growth tends to bring inflation and imports; capacity- and export-led growth can avoid both.

Policies to promote growth

Policy	Measures	Strengths	Weaknesses
Fiscal (expansionary)	More government spending; lower taxes on income or profits	Directly raises total demand; spending on infrastructure and education also raises capacity	Widens the budget deficit; tax cuts may be saved or spent on imports; spending can be wasteful
Monetary (expansionary)	Lower interest rates; more money supply; a lower exchange rate	Cheaper borrowing encourages spending and investment; a cheaper currency helps exports	Weak if confidence is low (people will not borrow); time lags

Policy	Measures	Strengths	Weaknesses
Supply-side	Education and training, tax incentives to work and invest, deregulation, privatisation, infrastructure	Raises capacity, so growth can last without extra inflation	Slow (years), costly, uncertain results

Effectiveness depends on the situation. In a recession there are idle resources, so demand-side policy is the quickest way to raise output. Near full capacity, extra spending mostly raises prices, so lasting growth needs supply-side measures. Low confidence, a high share of imports, time lags and the opportunity cost of the money all weaken any policy.

Key facts and formulas

There is no formula list for 0455. "Learn it" means you must remember it.

Formula or fact	Status
Economic growth: a rise in real GDP (real output) over time; a rise in productive capacity	Learn it
GDP: the total value of goods and services produced in a country in a year	Learn it
Growth rate = $\frac{\text{real GDP this year} - \text{real GDP last year}}{\text{real GDP last year}} \times 100$	Learn it
Real growth $\approx$ nominal growth – inflation	Learn it
GDP per head = $\frac{\text{real GDP}}{\text{population}}$	Learn it
Growth in GDP per head $\approx$ growth in real GDP – growth in population	Learn it
Recession: real GDP falls for two consecutive quarters (negative growth)	Learn it
Total demand = consumer spending + investment + government spending + (exports – imports)	Learn it
PPC: recession = move inside; recovery = move toward it; more capacity = shift right	Learn it

How to do it

We have tagged 74 questions on this topic (2021–2025): 41 multiple choice on Paper 1 and 33 structured questions on Paper 2. Some multiple-choice questions were set more than once, so 71 are different; repeats are counted below. Six structured questions have parts of two different types, so the counts add up to 80.

Question type	Questions
Explain or analyse how a change causes growth (or a fall in GDP)	18
Judge whether a policy or change will raise growth or end a recession	16
Explain or discuss the benefits and costs of growth	13

Question type	Questions
Define economic growth and say how it is measured	11
Explain the causes and effects of a recession	6
Interpret GDP, real GDP and growth-rate figures	5
Define and identify a recession, and show it on a PPC	5
Explain how growth conflicts with (or links to) other aims	3
Analyse a data relationship involving GDP or growth	3

Written answers. Explain (4 marks) and Analyse (4–6 marks) earn a mark per point and per developing link: **two developed points** for 4 marks, **three** short chains for 6. Discuss is 8 marks in Section B (Level 3 needs both sides developed and a judgement) or 6 in Section A (up to 4 a side, using the source). Plan: **point** → **developed chain** → **the other side, with new reasons** → **a judgement saying what it depends on**.

1. Explain or analyse how a change causes growth (or a fall in GDP) (18 questions)

Paper 2: Explain (4 marks) or Analyse (4–6 marks); multiple choice: what causes growth, or a fall in real GDP.

1. **Decide which route the change takes.** Does it raise **spending** (total demand), **capacity** (investment, technology, quantity or quality of resources), or both?
2. **Demand route:** more spending → firms sell more → they raise output and hire → those workers spend their wages → output rises further → real GDP rises.
3. **Capacity route:** more or better capital, labour or technology → higher productivity → the economy can make more → the PPC shifts out.
4. **Use both routes** for a 6-mark answer: firms that sell more may invest; more tax can fund infrastructure or training.

Variations you will meet:

- **A tax cut.** Ask which tax: lower income tax means more household spending and more reason to work; lower tax on profits means more to invest and more foreign firms. The wrong tax scores nothing.
- **Infrastructure:** building it creates jobs now; once finished, goods and workers move more cheaply, so costs fall and markets widen. **One industry** (tourism, an airline): jobs, local suppliers, foreign currency, taxes.
- **Population change:** more workers can raise capacity; an older population brings experience but fewer workers and more dependants, so argue both ways. **Limits on using a resource** keep output possible in future years.
- **Multiple choice.** Test each option: does it add to spending, or to the amount or quality of labour, capital or land? Then it helps growth; anything that shrinks or weakens resources, or cuts spending, harms it. If the question says "in the short run", prefer a change that adds workers now over one that adds them only when today's babies grow up. If real GDP has fallen, look for the option that cuts spending.

2. Judge whether a policy or change will raise growth or end a recession (16 questions)

1. **Say how it might work:** two chains, through total demand, capacity, or both (as in type 1).
2. **Say why it might not:** two new chains, from the policy weaknesses in "Understand it" (confidence, leakages, lags, cost, inflation near capacity), waste, or damage to resources.
3. **Judge:** it depends on the size of the change, spare capacity, confidence, imports, funding and time scale.

Variations you will meet:

- **"Will it end a recession?"** Start by saying what a recession is. Demand-side measures fit best, because there are idle resources to bring back into use; but the measure may be too small to make up for falls elsewhere in spending.
- **A bigger industry or sector** (a larger fleet, more mines, more hotels). For: it can sell abroad or replace goods now bought from overseas; its wages and taxes flow into the rest of the economy; a larger scale can cut its cost per unit. Against: the country leans on one industry whose sales could collapse; its pollution can harm industries such as tourism; the jobs may be poorly paid or risky; a natural resource may be taken faster than it renews; and the money and workers could have been used elsewhere. In Section A, tie every point to the source's industry.
- **A resource discovery, more bank lending or more investment:** more output, spending and capital; but resources run out and world prices swing, and loans may go on imports or become a burden if interest rates rise.
- **Multiple choice:** choose the measure that pushes spending or capacity **up**. When two measures are paired, both must point the same way; a pair that pulls in opposite directions is weaker than one where both expand.

3. Explain or discuss the benefits and costs of growth (13 questions)

Paper 2: effects of growth (4 marks) or whether growth (or lower growth) helps or harms (8 marks); multiple choice: the likely result of growth.

1. **Identify who is affected** (a population, a city, everyone, the government) and keep every point about them.
2. **Take points from the benefits and costs table** in "Understand it", each with its "because".
3. **Judge:** it depends on whether output grows faster than population, how the gains are shared, what is produced (more weapons or cigarettes do not make lives better), and whether the growth can last.

Variations you will meet:

- **Health, education and income measures of welfare** (such as the Human Development Index). For: more tax revenue builds clinics and schools, and richer households can afford medicine and longer schooling. Against: the output may be weapons or harmful goods; dirtier air and longer hours can shorten lives; the poorest may gain little; and income per head does not rise if population grows faster than output.
- **A named place or group** (a city, "everyone"): examiners rewarded answers that asked **who** gains and who loses there, and capped answers that ignored the place.

- **Is lower growth (or lower GDP) a disadvantage?** Usually yes, but slower growth can ease inflation and protect resources, and if population falls faster than GDP, GDP per head can still rise.
- **Multiple choice:** ask what more output does to incomes, the tax take, the use of resources, jobs and prices. Growth led by spending usually moves unemployment and inflation in opposite directions. It does not by itself make incomes more equal.

4. Define economic growth and say how it is measured (11 questions)

Written definition (2 marks) or multiple choice.

- **Define:** a rise in real GDP (1) over time (1); or a rise in the economy's productive capacity (1) over time (1). Say **real**: examiners reported that "a rise in GDP" alone is weaker, because a money figure can rise with prices alone.
- **Multiple choice:** the right option is about the **quantity of output** or the **capacity to produce**, measured in real terms. An option about anything else is wrong, however closely it is linked to growth.
- **How GDP is measured:** by adding up the value of everything produced inside the country.
- **What GDP misses:** see "What GDP misses" in "Understand it": output nobody sells cannot be valued, and moving a job from unpaid to paid raises measured GDP.

5. Explain the causes and effects of a recession (6 questions)

Paper 2: causes or disadvantages of a recession (4 marks), how something could cause one (6 marks); multiple choice.

1. **Causes:** name a fall in one part of total demand, then its reason (from "Understand it").
2. **Chain:** less spending → firms sell less → they cut output and jobs → incomes fall → spending falls again → real GDP falls for two quarters.
3. **Effects:** give each one a consequence, such as cyclical unemployment → lost income → poverty, or less tax and more benefits → a bigger budget deficit.

For a **rise in interest rates**, cover both: households borrow less and save more; firms face dearer loans **and** weaker sales, so invest less; total demand and output fall, and two quarters of this is a recession.

Multiple choice: a recession starts with a fall in total demand, so pick the change that **takes spending away** from home producers. Living standards fall mainly because real incomes fall.

6. Interpret GDP, real GDP and growth-rate figures (5 questions)

All multiple choice.

- **Nominal and real:** real GDP rises only when nominal GDP grows faster than prices. To compare countries, work out nominal growth minus inflation for each and pick the largest.
- **A growth-rate chart:** if every bar is positive, output rose every year and is highest in the **last** year, even when the bars get shorter.

- **Real GDP figures:** claim only what the data can show (see "A falling growth rate is not falling output" and "GDP per head").

7. Define and identify a recession, and show it on a PPC (5 questions)

All multiple choice.

- **Definition:** two quarters in a row in which real GDP falls (negative growth). It is about output, not prices or jobs.
- **Quarterly data:** find the **second** of two falls in a row; the recession is confirmed at the end of that quarter (examiners report many pick the first fall).
- **On a PPC:** a recession is a movement from the curve to a point **inside** it; if the jobless then leave the country, the long-run effect is a **leftward shift** of the curve.

8. Explain how growth conflicts with (or links to) other aims (3 questions)

Paper 2, 6 or 8 marks. Use the aims table in "Understand it": give the conflict as a chain (growth → higher incomes → more imports → the current account worsens), then the other side (export- or productivity-led growth avoids it). For inflation, high inflation can deter investment, but mild inflation often comes **with** fast growth; judge by its cause and size.

9. Analyse a data relationship involving GDP or growth (3 questions)

Paper 2 Section A, 4–5 marks, with a table or chart in the source. Use this structure:

1. **The expected relationship:** positive (direct) or negative (inverse), in one sentence, such as "countries that invest more should grow faster".
2. **Back it up:** pick two years (or countries) where the two measures move as expected and say so in words.
3. **Why:** the economics (investment adds to total demand now and to productivity later).
4. **An exception,** naming the years or countries.
5. **Explain the exception:** other drivers of growth can outweigh this one; new capital can take years to raise output; and a percentage of GDP is not an amount (a rich country's low share can still be a lot).

Worked examples

Example 1

The table shows data for a country.

	Year 1	Year 2
Nominal GDP	\$80bn	\$86bn
Inflation rate		4%

	Year 1	Year 2
Population	4.0 million	4.1 million

- (a) Calculate the percentage increase in nominal GDP. **[1]**
- (b) Calculate, approximately, the country's rate of economic growth in year 2. **[2]**
- (c) Explain whether real GDP per head rose in year 2. **[2]**
- (d) Explain why a rise in real GDP per head may not mean that everyone in the country is better off. **[2]**

(a) $\frac{86 - 80}{80} \times 100 = 7.5\% \text{ (1)}$

(b) Economic growth is measured by the rise in real GDP, so remove the effect of prices (1): $7.5\% - 4\% \approx 3.5\% \text{ (1)}$.

(c) The population grew by $\frac{4.1 - 4.0}{4.0} \times 100 = 2.5\%$, which is less than the 3.5% growth in real GDP (1), so real GDP per head rose, by about $3.5 - 2.5 = 1\% \text{ (1)}$. Check: real GDP in year 2 at year-1 prices is about $\$80\text{bn} \times 1.035 = \82.8bn , so real GDP per head rises from $\$80\,000\text{m} \div 4.0\text{m} = \$20\,000$ to $\$82\,800\text{m} \div 4.1\text{m} \approx \$20\,195$.

(d) Real GDP per head is an average (1); if most of the extra income goes to the richest households, many people may have no more than before, or less (1).

Example 2

Analyse how an increase in spending on research and development by firms could increase a country's economic growth. **[6]**

Firms pay scientists and engineers and buy equipment for their laboratories (1), which adds to total demand in the economy now (1). Those workers spend their incomes, so other firms sell more and raise their output too (1). Research leads to new technology and better production methods (1), so each worker and machine can produce more: productivity rises (1). The economy's productive capacity increases, shifting its PPC to the right (1). New and better products can also be sold abroad, raising exports (1) and giving firms more profit to invest in further capital (1), so real GDP keeps rising. (Any 6.)

Example 3

A government plans to pay firms a subsidy towards the cost of every new machine they buy. Discuss whether or not this will raise the country's long-run economic growth rate. **[8]**

Economic growth is a rise in real GDP over time, and in the long run it depends on a rise in the economy's productive capacity.

Why it might. Cheaper machinery means firms buy more capital than they otherwise would. Newer machines usually carry better technology, so each worker produces more; across many firms this raises capacity, shifting the PPC to the right for years ahead (developed point for).

Buying the machines is also spending: the firms that make and install them hire workers, who spend their wages, and the larger output later brings in tax that can fund training or infrastructure (developed point for).

Why it might not. The subsidy must be paid for. If the government cuts schools or roads to fund it, capacity is lost elsewhere; if it raises taxes, households spend less (developed point against).

Firms may claim the subsidy for machines they would have bought anyway, imported machines leak spending abroad, and if demand is weak the new capacity stands idle (developed point against).

Judgement. It is most likely to work if it creates investment that would not otherwise happen, is funded without cutting other capacity-building spending, and demand is strong enough for the extra output to sell; even then the effect takes years. Both sides are developed and the judgement says what it depends on: Level 3 (6–8 marks).

Common mistakes

- **Defining growth as "a rise in GDP".** Say **real** GDP (a money figure can rise with prices alone) and "over time".
- **Reading a falling growth rate as falling output.** While the rate is positive, output is rising; examiners reported this error on growth-rate charts.
- **Calling one bad quarter a recession.** It takes two in a row.
- **Shifting the PPC for a recession.** Idle resources still exist, so the economy moves **inside** the curve.
- **Stating points without the "because".** "Growth causes inflation" earns little on its own.
- **A thin other side.** Examiners saw many answers on lower GDP that could not say why it might *not* harm; think of inflation, resources and GDP per head.
- **Drifting from the question.** When the question names **everyone** or a **city**, general advantages of growth miss the point.
- **Copying the source.** Say what it means for output, jobs or incomes.

How to get the marks

- **Define** (2 marks): two parts, such as "a rise in real GDP (1) over time (1)" or "a recession: real GDP falls (1) for two consecutive quarters (1)".
- **Calculate** (1 mark): show the working and give units (\$, %, billion). Read whether the figures are nominal or real.
- **Explain** (4 marks): two points, each identified (1) and explained (1).
- **Analyse** (6 marks): a mark for each link. Use both routes (demand and capacity) to get enough links; a repeated idea scores once. Mentioning the multiplier is credited but not required.

- **Discuss** (8 marks): a short definition, two developed points each side, then a judgement saying **what it depends on**. In Section A (6 marks), up to 4 marks a side; a point can score on one side only, unless the other side gives a **new reason**, not just the first one reversed.
- **PPC**: label both axes and the curve, and say whether the economy moves (inside, toward the curve) or the curve shifts.
- **Multiple choice**: 1 mark each, no penalty for guessing. Ask: does this option change spending, capacity, or neither?

Quick check

1. A country's real GDP rises by 3% in a year and its population rises by 4%. What happens to its real GDP per head?
 - **A** it rises by about 7%
 - **B** it rises by about 1%
 - **C** it falls by about 1%
 - **D** it does not change
2. An economy's real GDP changed by these percentages in six quarters in a row: +0.6, -0.2, +0.3, -0.4, -0.1, +0.5. Has the economy had a recession? If so, in which quarters?
3. Nominal GDP rises by 6% in a year. Find the approximate rate of economic growth if inflation is (i) 2%, (ii) 8%, and say what has happened to output in each case.
4. Describe how each change is shown on a country's PPC diagram: (i) unemployed workers find jobs as consumer spending recovers; (ii) a large rise in the number of school leavers with technical skills; (iii) many skilled workers leave the country for good.
5. Explain two reasons why rapid economic growth may make some people in a country worse off. **[4]**

Answers

1. **C.** Real GDP per head changes by about $3\% - 4\% = -1\%$. Exactly: $\frac{1.03}{1.04} = 0.990$, a fall of about 1.0%.
Output grew, but the population grew faster. (1)
2. Yes. Quarter 2 (-0.2) is a single fall, so it does not count. Quarters 4 and 5 (-0.4 then -0.1) are two falls in a row, so the economy was in recession by the end of quarter 5.
3. (i) $6\% - 2\% \approx 4\%$: output rose by about 4%. (ii) $6\% - 8\% \approx -2\%$: output fell by about 2%; the rise in nominal GDP was all higher prices, and more.
4. (i) A movement from a point inside the PPC toward the curve (the curve does not move). (ii) The PPC shifts to the right (outwards), because the quality of labour has risen. (iii) The PPC shifts to the left (inwards), because the quantity and quality of labour have fallen.
5. Growth based on rising spending can push up prices (1), so people on fixed incomes, such as pensioners or those living on savings, can buy less than before (1). New technology that drives growth can make some skills out of date (1), so workers in declining industries may become structurally unemployed and lose their income (1). (Also: pollution near new factories; rising rents in booming cities.)

Past questions to try

- 0455/22/F/M/22 Q2: part (d), whether a cut in income tax will end a recession.
- 0455/22/M/J/21 Q4: part (c), how a rise in the interest rate could cause a recession.
- 0455/22/M/J/23 Q5: part (d), whether fast growth leads to a current account deficit.
- 0455/12/O/N/22 Q19: reading a chart of growth rates.