

Scarcity, Choice, Methodology and Factors of Production



Syllabus topics 1.1–1.3 · AS Level: Paper 1 (Multiple Choice) and Paper 2 (Data Response and Essays)

For the Cambridge International AS & A Level Economics 9708 syllabus, exams in 2026, 2027 and 2028

Syllabus statements covered in this chapter

Syllabus ref.	What you must be able to do	Level
1.1.1–1.1.2	Explain the fundamental economic problem of scarcity and why choices must be made at all levels (individuals, firms, governments)	AS
1.1.3–1.1.4	Define opportunity cost and explain its nature; the basic questions of resource allocation: what, how and for whom to produce	AS
1.2.1–1.2.2	Explain why economics is a social science; distinguish positive and normative statements (facts and value judgements)	AS
1.2.3–1.2.4	Explain the meaning of <i>ceteris paribus</i> and the importance of the time period (short run, long run, very long run)	AS
1.3.1–1.3.3	Define land, labour, capital and enterprise; distinguish human and physical capital; the rewards to the factors of production	AS
1.3.4	Explain the division of labour and specialisation, with their advantages and disadvantages	AS
1.3.5	Explain the role of the entrepreneur in contemporary economies: risk and organisation of the other factors	AS

What is inside

1. Concept notes, diagrams and 8 worked examples (calculations and model answers)
2. Exam skills for Paper 2; common mistakes from the examiner report
3. 20 Paper 1 style multiple-choice questions, explained
4. One Section A data-response question and one Section B essay (Paper 2 style), with full mark schemes
5. Quick-reference table, "I can" checklist

How to read these notes

red = key term green = definition

① = one mark in the mark scheme

★ **Exam tip:** Economics starts from **scarcity**: limited resources force **choices**, and every choice has an **opportunity cost**. At AS Level you must also **explain the chain** (cause → mechanism → effect) and **judge** (it depends on ...).

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1.1 Scarcity, choice and opportunity cost

1.1.1 The fundamental economic problem

- The **fundamental economic problem** is that resources are limited (finite) while human wants are unlimited (infinite), so not every want can be satisfied. This is **scarcity**.
- Scarcity** is the situation in which there are not enough resources to produce all the goods and services that people want. It is **relative**: even a rich country has finite land, workers and time compared with its wants. Economics studies how scarce resources are **allocated** between competing uses.



★ **Exam tip:** Scarcity is not the same as poverty or a shortage. A **shortage** is a temporary market situation (demand exceeds supply at the current price); **scarcity** is permanent and affects every economy.

1.1.2 Choices at all levels

decision-maker	scarce resource	example of a choice	usual aim
individuals (consumers and workers)	income, time, skills	spend £60 on books or cinema tickets; take a job or stay in education; work overtime or keep leisure time	the most satisfaction (utility)
firms	finance, labour, machines, factory space	which products to make; whether to buy a new machine or train staff; where to locate	usually profit
governments	tax revenue and borrowing	healthcare, education, defence, roads or lower taxes; spend now or repay debt	social welfare, re-election

Rational decision-makers think **at the margin**: they compare the **marginal benefit** of one more unit of an activity with its **marginal cost**, e.g. a firm hires one more worker only if that worker adds more to revenue than to costs.

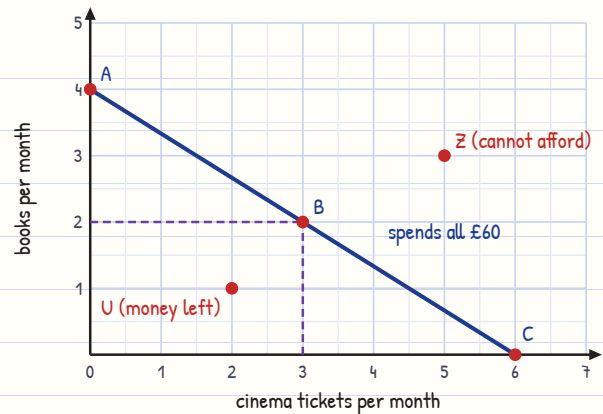
1.1.3 Opportunity cost

- Opportunity cost** is the benefit of the next best alternative forgone (given up) when a choice is made.
- It arises **because of scarcity**: choosing one use of a resource means it cannot be used for anything else.
- It is measured in **real terms** (what is given up), not simply the money price; money is a convenient way to value it (e.g. earnings forgone). It is **one** alternative only, the best one rejected, and it exists even when the price is zero.

Opportunity cost of one extra unit of X

= units of Y given up ÷ extra units of X gained

With a constant trade-off (a straight line) the opportunity cost is the same at every point; when resources are not equally suited to both uses it rises (Chapter 2, PPCs).



A student has £60 a month. Tickets cost £10, books £15.

Every point on the line spends all £60: one more book costs

1.5 tickets; one more ticket costs $\frac{2}{3}$ of a book. U leaves

money unspent; Z costs £95 and cannot be afforded.

A consumer's choice: £60 a month.

Worked example 1: an individual's opportunity cost

After school Tomás could take a full-time job paying £1,600 a month, his next best option. Instead he studies for a three-year degree with fees of £9,000 a year. (a) Identify and value his opportunity cost. (b) Explain why he may still be making a rational choice.

(a) The next best alternative is the job: earnings forgone = $1600 \times 36 = \text{£}57,600$. The fees ($3 \times 9000 = \text{£}27,000$) are a money cost that also has an opportunity cost (what else that money could have bought), so the full sacrifice is about £84,600.

(b) He expects the **benefit** (higher lifetime earnings, more satisfying work) to exceed this sacrifice: a rational choice compares benefits with opportunity cost, not with the money price alone.

Worked example 2: a government's choice at the margin

A health ministry has £36 million. It can vaccinate children at £12 each or repair rural roads at £1.5 million per km. (a) What is the opportunity cost of repairing 1 km of road? (b) It repairs 10 km. How many children can it vaccinate?

(a) $1\,500\,000 \div 12 = \text{125,000 vaccinations}$ per km of road. (b) Roads cost $10 \times 1.5 = \text{£}15$ million; $36 - 15 = \text{£}21$ million is left; $21\,000\,000 \div 12 = \text{1,750,000 children}$. Each extra km of road means 125,000 fewer vaccinations: the government must judge which use adds more to welfare.

1.1.4 The basic questions of resource allocation

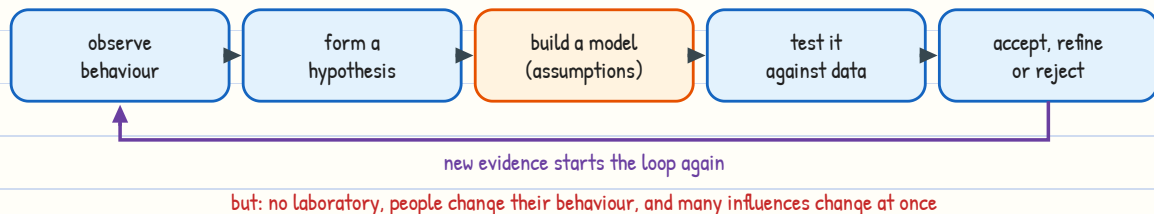
question	what it asks	example
What to produce?	which goods and services, and how much of each	more hospitals or more stadiums; more consumer goods now or more capital goods for the future
How to produce?	which combination of factors and methods	labour-intensive (many workers, few machines) or capital-intensive (automated) production of cloth
For whom to produce?	how output is distributed between people	to those able and willing to pay the price, or according to need (free healthcare)

Market, planned and mixed economies answer these questions in different ways: through prices, through state planning, or through a mix of both (Chapter 2).

1.2 Economic methodology

1.2.1 Economics as a social science

- A **social science** is the study of human behaviour in society using a scientific method. Economics studies how people, firms and governments behave when they make choices about scarce resources.
- Like natural scientists, economists **observe**, form **hypotheses** (testable predictions such as "a rise in price reduces quantity demanded"), build **models** (simplified versions of reality based on **assumptions**) and **test** them against data.



The scientific method used in economics.

A **science** because it builds testable theories and checks them with data, aiming to be objective. A **social science** because its subject is people: there are no controlled laboratory experiments (many variables change at once), people do not always act rationally and change behaviour as they learn, data can be inaccurate or late, results depend on time and place, and value judgements enter policy choices.

★ **Exam tip:** Models are useful **because** they simplify. In an evaluation, question the **assumptions**: "this assumes consumers are rational / other things stay the same / firms aim for profit".

1.2.2 Positive and normative statements

	<i>positive statement</i>	<i>normative statement</i>
meaning	a statement about what is, was or will be, which can be tested against evidence	a statement about what ought to be, based on a value judgement, which cannot be proved true or false
signals	numbers, cause and effect: "will", "rose by", "leads to"	"should", "ought", "too high", "fair", "better", "more important"
example	"Youth unemployment rose from 12% to 15% last year." "A higher tax on sugary drinks will reduce consumption."	"Youth unemployment is too high." "The government should tax sugary drinks."

✗ **Don't do this:** A positive statement does not have to be **true**: "a minimum wage never affects employment" is positive (it can be tested and shown false). Ask "**could evidence settle it?**", not "do I agree?".

Worked example 3: positive or normative?

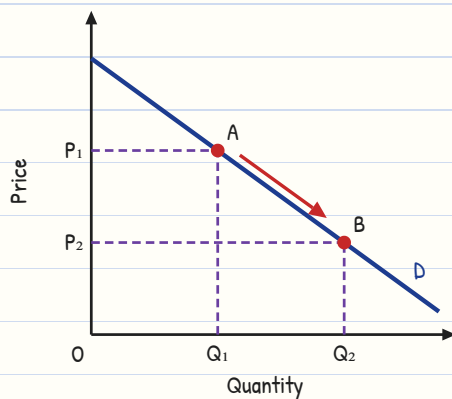
Classify each statement and give a reason. (1) "Inflation in the country was 6.2% in 2025." (2) "Inflation is more harmful than unemployment." (3) "If interest rates rise, borrowing by households will fall." (4) "The rich should pay a higher share of their income in tax." (5) "Doubling the tax on fuel would cut car use by half."

(1) **Positive**: a fact that can be checked in the statistics. (2) **Normative**: "more harmful" depends on whose welfare is valued more. (3) **Positive**: a cause-and-effect prediction that data can test. (4)

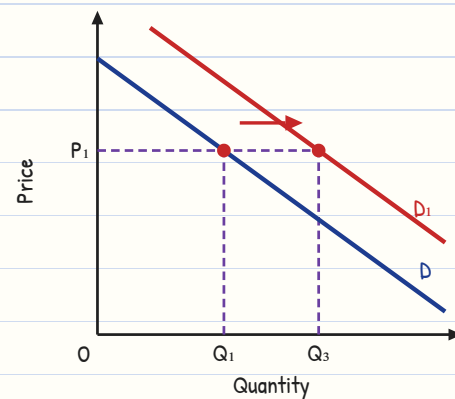
Normative: "should" and a judgement about fairness. (5) **Positive**: testable, even though it is probably an over-estimate.

1.2.3 Ceteris paribus

- **Ceteris paribus** means "other things being equal": all other influences on a variable are assumed to stay constant, so the effect of one change can be studied on its own.
- It is how economists deal with the lack of laboratory experiments: e.g. the demand curve shows how quantity demanded responds to **price alone**, holding income, tastes and the prices of other goods constant. If one of those changes, the whole curve **shifts**.



Price falls, *ceteris paribus*: movement A to B.



Income rises: *D* shifts to *D*₁ at the same price.

Worked example 4: why ceteris paribus matters when reading data

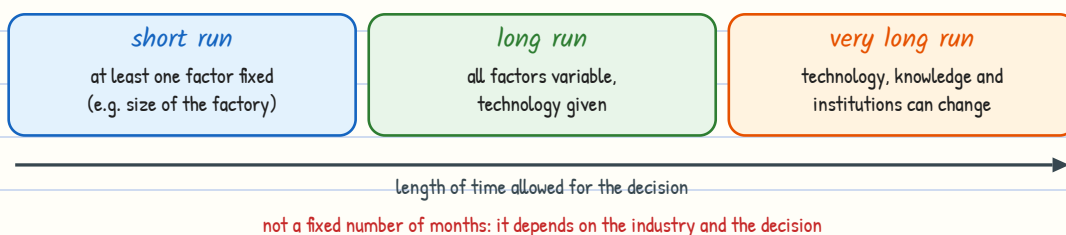
A café cut the price of coffee from £2.50 to £2.00. Weekly sales rose from 1,200 to 1,560 cups. In the same month a large office block opened next door. A second branch of the café, with no new office nearby, made the same price cut; its sales rose from 1,000 to 1,180 cups. (a) Calculate the percentage changes. (b) Explain what the data show about the effect of the price cut.

(a) Price: $(2.00 - 2.50) \div 2.50 \times 100 = -20\%$. Sales: first branch $360 \div 1200 \times 100 = +30\%$; second branch $180 \div 1000 \times 100 = +18\%$.

(b) In the first branch other things were **not** equal: demand also **increased** (more office workers), so the 30% overstates the effect of price. The second branch is closer to *ceteris paribus*: the price cut alone raised sales by about 18%. Applied to the first branch, $1200 \times 1.18 = 1416$ cups, so about $1560 - 1416 = 144$ extra cups a week came from the office block (assuming the branches are otherwise similar).

1.2.4 The importance of the time period

period	definition	what a firm can do
short run	the period in which at least one factor of production is fixed in quantity (usually capital: buildings, large machines)	change output only by using more or less of the variable factors: overtime, extra shifts, temporary workers, more raw materials
long run	the period in which all factors of production are variable, but the state of technology is given	build a new factory, buy more machines, enter or leave an industry; change the scale of production
very long run	the period in which technology, knowledge and the institutional framework (laws, regulations, social attitudes) can also change	use new production methods and products that did not exist before (e.g. automated warehouses, online platforms)



Economic time periods are defined by what can change, not by the calendar.

Why the time period matters: responses are rarely instant. **Supply** responds more in the long run (farmers can add fertiliser this season but plant more land next year: Chapter 4); **demand** adjusts with time (after a fuel price rise people first cut journeys, later buy smaller cars); **policies** such as training have an opportunity cost now and benefits later. A strong evaluation asks "**in the short run or the long run?**".

Worked example 5: which time period?

A bakery's sales rise sharply. State which time period each response belongs to and why: (a) staff work an extra evening shift; (b) the bakery rents a second building and installs two more ovens; (c) it switches to bread-making robots invented this decade.

(a) **Short run:** labour is varied while the building and ovens (capital) stay fixed. (b) **Long run:** all factors, including capital, are varied, using existing technology. (c) **Very long run:** the technology itself has changed. One year could be short run for a steel plant but long run for a market stall: it depends on **what can be varied**.

1.3 Factors of production

1.3.1 The four factors of production

Factors of production are the resources (inputs) used to produce goods and services.

factor	definition	examples and notes
land	all natural resources: gifts of nature used in production	soil, the sea, rivers, forests, fish stocks, minerals, oil. Renewable (forests, fish) or non-renewable (oil, coal); quality can be improved (irrigation) or damaged (erosion)
labour	the physical and mental effort of people used in production	nurses, drivers, software engineers. Quantity depends on the working-age population, participation and hours; quality on skills, health and experience

factor	definition	examples and notes
capital	human-made goods used to produce other goods and services	machines, tools, factories, vehicles, roads, computers. Investment adds to the capital stock; depreciation (wear and tear) reduces it
enterprise	the willingness and ability to organise the other factors of production and to bear the risks of production	the entrepreneur who starts or runs a business (1.3.5)

X Don't do this: Capital as a factor of production means **capital goods**, not money. Money (financial capital) only buys capital goods; a bank balance produces nothing by itself.

1.3.2 Human capital and physical capital

	physical capital	human capital
meaning	the stock of human-made goods used in production, e.g. machines, vans, ports	the knowledge, skills, health and experience of workers that make them productive, e.g. a nurse's training
increased by	investment by firms and government (helped by lower interest rates, profits, confidence)	education, training, apprenticeships, healthcare and good nutrition
features	owned by the firm; can be bought and sold; depreciates and becomes out of date	embodied in the worker: cannot be sold separately and leaves the firm when the worker leaves; skills can become out of date

Both raise **productivity** (output per worker) and are **complements**: a modern machine is of little use without workers trained to run and repair it. Human capital is part of the **quality** of labour; physical capital is the factor **capital**.

Labour productivity = total output ÷ number of workers (or hours worked)

Unit labour cost = total wage bill ÷ output **Percentage change** = (new – old) ÷ old × 100

Worked example 6: human or physical capital?

A call centre has 20 workers, each handling 40 calls a day. Option 1: training costing £18,000 raises this to 48 calls each. Option 2: new software costing £30,000 raises it to 50 calls each. (a) Calculate the percentage rise in productivity for each option. (b) Compare the cost per extra daily call. (c) Why might it still choose the software?

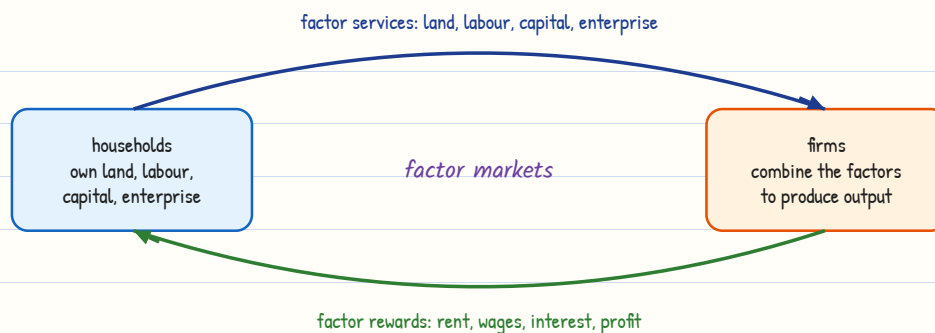
(a) Training: $8 \div 40 \times 100 = 20\%$; software: $10 \div 40 \times 100 = 25\%$.

(b) Training: $20 \times 8 = 160$ extra calls a day, $18\,000 \div 160 = \text{£}112.50$ per extra daily call; software: $20 \times 10 = 200$, $30\,000 \div 200 = \text{£}150$. Training is cheaper per extra call.

(c) Human capital is embodied in workers: if trained staff leave, the firm loses its investment, while the software stays. The choice depends on labour turnover and how long each investment lasts.

1.3.3 Rewards to the factors of production

land → rent · **labour** → wages (and salaries) · **capital** → interest · **enterprise** → profit



Factor services flow to firms; rewards flow back to households.

- Rewards are the **price** of each factor, set in **factor markets** by demand and supply. They give an **incentive** for resources to move to the uses where they are most valued (higher wages attract workers into nursing; higher rents attract land into housing).
- **Profit** is different: it is the **residual** left after rent, wages and interest are paid, so it can be negative (a **loss**). It is the reward for bearing risk and a signal that encourages entry into profitable markets.

1.3.4 Division of labour and specialisation

- **Specialisation** is the concentration of a person, firm, region or country on producing a limited range of goods, services or tasks.
- **Division of labour** is a form of specialisation in which the production process is broken down into separate tasks, each done by a different worker. Adam Smith's pin factory (*The Wealth of Nations*, 1776) is the famous example.
- Specialisation requires **exchange**: a specialist must trade for everything else, which is why it depends on money and markets. Specialisation by countries is the basis of international trade (Chapter 12).

Why division of labour raises productivity

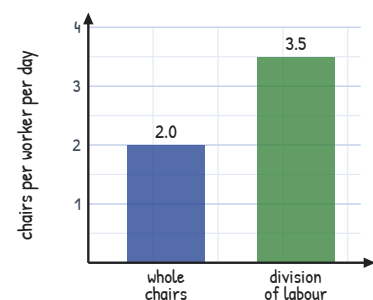
Workers become more **skilled** at a task by repeating it; no time is lost **switching** between tasks and tools; workers can be matched to the tasks that suit their **abilities**; training for one task is **quicker and cheaper**; simple, repeated tasks can be **mechanised**. Higher output per worker lowers **unit labour cost** and so can lower prices.

Worked example 7: the gain from division of labour

Six workers, each paid £90 a day, make wooden chairs. When each worker makes whole chairs, the workshop produces 12 chairs a day. When the work is divided into cutting, joining, sanding and finishing, it produces 21 a day. Calculate (a) output per worker and the percentage change; (b) labour cost per chair before and after.

(a) $12 \div 6 = 2$ chairs per worker; $21 \div 6 = 3.5$; change = $1.5 \div 2 \times 100 = +75\%$.

(b) Wage bill = $6 \times 90 = £540$ a day. Before: $540 \div 12 = £45.00$ per chair; after: $540 \div 21 \approx £25.71$, a fall of about 43%. The workshop can cut prices or earn more profit.



	<i>advantages</i>	<i>disadvantages</i>
workers	become expert; may earn higher wages from higher productivity; shorter training	boring, repetitive work: lower motivation, more absence, repetitive strain injuries; narrow skills reduce occupational mobility , so a fall in demand or automation can cause structural unemployment
firms	higher output per worker; lower unit costs; easier to use machines	bored workers make more mistakes, so quality can fall; higher labour turnover; interdependence : one absent worker or broken machine can stop the whole line
consumers and the economy	more output from the same resources, so lower prices and higher living standards	standardised products with less variety; regions dependent on one industry suffer badly when it declines

★ **Exam tip:** Division of labour is **limited by the size of the market**: it pays only if enough output can be sold. Firms reduce its drawbacks with **job rotation**, team working and automation of the most repetitive tasks.

1.3.5 The role of the entrepreneur in contemporary economies

<i>role</i>	<i>what the entrepreneur does</i>
organising the other factors	decides what to produce, how and where; hires labour, rents land, buys capital, and combines them in the lowest-cost way
bearing risk	puts savings or borrowed money into the business before knowing whether it will sell; bears uninsurable risk (no insurer will cover the risk that a product fails to sell). The reward is profit ; the penalty is a loss
innovating	introduces new products, processes and business models; this drives competition and long-run economic growth

Contemporary economies: in large public limited companies the roles are split: **shareholders** bear the risk while **managers** organise production. Many entrepreneurs today run **start-ups** and **digital platforms** needing little physical capital, or **social enterprises** with social aims. Governments encourage enterprise with low taxes on profit, easier loans and microfinance, and less regulation.

Worked example 8: assess (model answer)

Assess whether the entrepreneur is the most important factor of production in a contemporary economy. [12]

Why it may be the most important: land, labour and capital produce nothing until they are **organised**. The entrepreneur combines them at the lowest cost in the uses consumers value. By **bearing uninsurable risk**, entrepreneurs fund new firms that others will not, so new products get tried. Through **innovation** (e.g. online platforms) they raise productivity and the economy's productive capacity over time.

Why it may not be: an idea fails without skilled labour (human capital) and infrastructure such as ports and broadband (physical capital). In large firms the roles are **split** between shareholders and managers, so "the entrepreneur" is hard to identify. Many start-ups fail, wasting resources, and much new technology comes from established firms or state-funded research.

Judgement: enterprise is the factor that **combines** the others, so it is necessary but not sufficient. It matters most in fast-changing sectors where the other factors are already available; in a low-income economy short of skills and infrastructure, human and physical capital may matter more. The factors are complements, so "most important" depends on which is scarcest.

Exam skills for Paper 2

Command words and what they need

command word	what the examiner wants
calculate	work it out from the data; show the working and give units (% , million, the currency in the source)
identify / state / define	name the item, or give the precise meaning (e.g. opportunity cost: "the <i>next best</i> alternative <i>forgone</i> ")
compare / describe	similarities and differences, or the main features, using the data: do not just copy the figures out
explain / analyse	reasons with the link made clear ("because ... , so ..."); for analyse, a developed chain cause → mechanism → effect, with a diagram where it helps
consider / assess / evaluate / discuss	analysis of more than one side, then a reasoned judgement: which is stronger, what it depends on, short run or long run

How marks are earned on Paper 2

- **Section A (20 marks):** parts of about 2, 2, 4, 6, 6 marks. Use the source: quote figures, calculate, and link points to the country or firm. 4-mark "consider" parts: about 3 for explained analysis + 1 for a judgement; 6-mark "assess" parts: about 4 for analysis + 2 for evaluation.
- **Section B or C, part (a), 8 marks:** AO1 knowledge 3 + AO2 analysis 3 + AO3 evaluation 2. Define, explain the link fully, then make a judgement that answers the "consider" part.
- **Part (b), 12 marks:** AO1+AO2 out of 8 (levels: L3 6–8, L2 3–5, L1 1–2) + AO3 out of 4 (L2 3–4, L1 1–2). Analyse **both** sides; a one-sided answer stays in Level 2 and earns no evaluation marks.
- **Conclusion:** answer the exact question ("always?", "most important?") and say what it **depends on**; a summary of earlier points is not evaluation.

Common mistakes that lose marks

- **Copying the data.** The June 2023 report noted that simply restating figures earned little: describe the change or pattern ("the deficit increased"); in a calculation, show the correct figures in the correct units or currency.
- **Value words in a "compare".** "Worsened" was not credited when describing data, because it is a judgement: keep data descriptions **positive**.
- **Asserting, not explaining.** Analysis marks need the link explained; points only stated, or shown only on a diagram, stay in Level 2. Label every diagram and explain it in words.
- **Not answering the question set.** Asked whether encouraging entrepreneurs was the best way to raise long-run growth, many candidates just described the four factors of production.
- **Opportunity cost** = the **next best** alternative only, not all alternatives and not just the money price. **Capital** ≠ money.

- **Short run** is not "less than a year": it is the period when at least one factor is fixed. **Positive $\neq$ true**: a testable but false statement is still positive.

Paper 1 style multiple-choice questions

20 questions, 1 mark each. Choose one answer, A, B, C or D. Answers with explanations follow the questions.

- Why does the fundamental economic problem exist in every economy?
 - resources are limited in relation to people's wants
 - governments do not plan production carefully enough
 - some resources are unemployed
 - prices are too high for many consumers
- What is opportunity cost?
 - the money price paid for a good
 - the total of all the alternatives given up when a choice is made
 - the benefit of the next best alternative forgone when a choice is made
 - the extra cost of producing one more unit
- A field can produce either 40 tonnes of maize or 25 tonnes of beans. What is the opportunity cost of 1 tonne of maize?

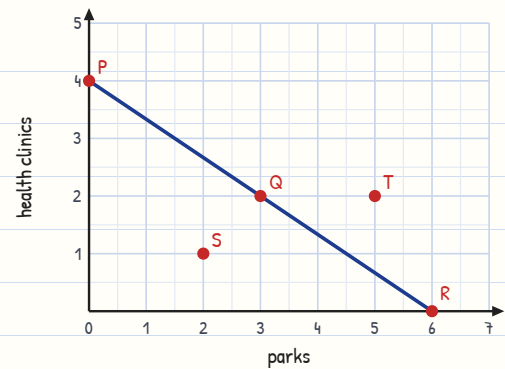
A 0.4 tonnes of beans B 0.625 tonnes of beans C 1.6 tonnes of beans D 25 tonnes of beans
- Which is **not** one of the basic questions of resource allocation?

A what to produce	B how to produce
C for whom to produce	D how to measure national income
- Why is economics described as a social science?
 - it studies only the behaviour of governments
 - it uses a scientific method to study human behaviour, but cannot usually run controlled experiments
 - its theories can always be proved true in a laboratory
 - it avoids the use of data and statistics
- Which statement is normative?
 - The government ought to spend more on public transport.
 - Bus fares rose by 8% last year.
 - A fall in fares will increase the number of bus journeys.
 - Spending on public transport is 2% of national income.
- Which statement is positive?
 - Income should be shared more equally.
 - Unemployment is a more serious problem than inflation.
 - The minimum wage is unfairly low.
 - A higher minimum wage will reduce employment of young workers.
- What does *ceteris paribus* mean?

A in the long run B at the margin C other things being equal D for the public good

9. Which statement about opportunity cost is correct?
- A a good provided free of charge to its users still has an opportunity cost
 - B opportunity cost is always measured in money
 - C opportunity cost arises only for governments
 - D opportunity cost is zero when a choice is made at the margin
10. What is possible in the very long run but not in the long run?
- A all factors of production can be varied
 - B the state of technology can change
 - C a firm can build a new factory
 - D a firm can hire extra workers
11. Which is an example of land as a factor of production?
- A a farm tractor
 - B a farmer's skills
 - C fish stocks in the ocean
 - D a fishing port
12. Which is an example of human capital?
- A the computers used by a software firm
 - B the number of people employed by a software firm
 - C money borrowed by a software firm
 - D the programming skills its engineers gained through training
13. Which is an example of physical capital?
- A a delivery van owned by a bakery
 - B money in a bakery's bank account
 - C a baker's qualification
 - D the land on which the bakery stands
14. Which correctly pairs a factor of production with its reward?
- A land - interest
 - B enterprise - profit
 - C capital - rent
 - D labour - profit
15. Which is a disadvantage of the division of labour?
- A workers become more skilled at their tasks
 - B less time is lost moving between tasks
 - C training for each task is quicker
 - D repetitive work may lower motivation and the quality of output

A town council has 12 million to spend on parks costing 2 million each and health clinics costing 3 million each. The diagram shows its choices.



16. The council moves from Q to R. What is the opportunity cost of each extra park?

- A 2 million B 1.5 clinics
C $\frac{2}{3}$ of a clinic D 3 clinics

17. Which combination can the council **not** afford?

- A T B S C Q D P

For Questions 16–17.

18. Which function distinguishes enterprise from the other factors of production?

- A supplying physical and mental effort for a wage
B lending money to firms in return for interest
C providing natural resources in return for rent
D organising the other factors and bearing uninsurable risk

19. Four workers each make a whole product and together produce 20 units a day. After introducing the division of labour, they produce 32 units a day. What is the percentage increase in output per worker?

- A 12% B 60% C 37.5% D 160%

20. A firm can hire more workers within six months but cannot extend its factory in less than two years. For this firm, a period of six months is

- A the long run. B the very long run. C the short run. D too short for output to change.

Answers and explanations

1 A · 2 C · 3 B · 4 D · 5 B · 6 A · 7 D · 8 C · 9 A · 10 B · 11 C · 12 D · 13 A · 14 B · 15 D · 16 C · 17 A · 18 D · 19 B · 20 C

- A.** Scarcity: finite resources, unlimited wants. C and D are particular problems, not the cause of scarcity.
- C.** Only the single next best alternative counts (not B); it is not simply the price (A).
- B.** 40 maize cost 25 beans, so 1 maize = $25 \div 40 = 0.625$ beans. C inverts the ratio: 1 tonne of beans costs 1.6 tonnes of maize.
- D.** Measuring national income is a statistical task, not a question of allocating resources.
- B.** It uses hypotheses, models and data, but people cannot be studied in a laboratory with other things held constant.
- A.** "Ought to" is a value judgement. B and D are facts; C is a testable prediction.
- D.** A testable prediction (true or not). A, B and C contain value judgements ("should", "more serious", "unfairly").
- C.** Other influences are held constant.
- A.** Resources are still used, so someone bears the cost (e.g. taxpayers). B, C and D are false.
- B.** In the long run all factors vary but technology is given; in the very long run technology changes too.
- C.** A natural resource. A and D are capital; B is human capital (labour).
- D.** Skills embodied in workers. A is physical capital; B is the quantity of labour; C is financial capital.
- A.** A human-made good used in production. B is money; C is human capital; D is land.
- B.** Land → rent, labour → wages, capital → interest, enterprise → profit.
- D.** A, B and C are advantages.
- C.** Q (3, 2) to R (6, 0): 3 more parks cost 2 clinics, so $2 \div 3 = \frac{2}{3}$ clinic each. A is the money price.

17. **A.** T costs $5 \times 2 + 2 \times 3 = 16$ million, more than
12. S costs only 7 million.
18. **D.** A, B and C describe labour, capital (finance) and land.
19. **B.** Output per worker $20 \div 4 = 5 \rightarrow 32 \div 4 = 8$:
 $3 \div 5 \times 100 = 60\%$.
20. **C.** Capital (the factory) is fixed, so this is the short
run, defined by what can vary, not by the calendar.

Paper 2 style questions

Total: 40 marks. Full mark schemes follow each question.

Question 1 (Section A, data response) [20 marks]

Source material: Marovia's garment workers

Garments are the largest export of Marovia, a lower middle-income country. Between 2021 and 2025 the garment sector's output rose by half, while employment hardly changed (Table 1.1 and Fig. 1.1).

Table 1.1 Marovia's garment sector

	2021	2023	2025
employment (thousand)	120	126	125
output (million garments)	300	378	450
workers with certified training (%)	18	35	52
sewing machines per 100 workers	60	64	85

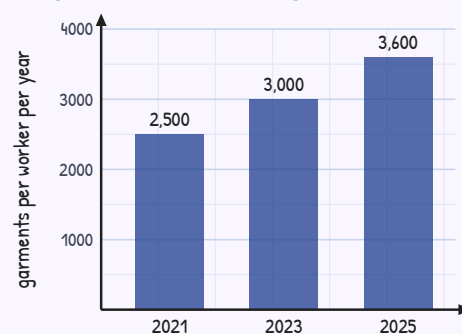


Fig. 1.1 Output per worker.

In 2021 the government began to pay for six-week courses in pattern-cutting, machine maintenance and quality control. Over the same period many factories reorganised their production lines so that each worker performs one task, such as cutting, stitching collars or packing, and the larger firms bought faster computer-controlled sewing machines. Labour turnover in the largest factories rose from 9% to 14% a year. A trade union leader said: "Factory owners should rotate jobs, because nobody should have to repeat the same task 600 times a shift."

In 2022 Lena Marek, a former factory supervisor, used her savings and a bank loan to set up StitchLink, an online platform that links about 400 small workshops with buyers abroad. StitchLink takes the orders, checks quality and guarantees delivery dates; if a workshop fails to deliver, StitchLink bears the cost. It made a loss in its first year but is now profitable.

The government now has 180 million Marovian dollars to spend. The Ministry of Industry wants to extend the training programme to 60,000 more workers, at 3,000 Marovian dollars per worker. The Ministry of Transport wants to use the same money to build a new container berth at the main port, which exporters say is badly congested.

- (a) Using Fig. 1.1, calculate the percentage change in output per worker between 2021 and 2025. [2]
- (b) Identify **one** positive statement and **one** normative statement in the source material. [2]
- (c) Consider whether the data prove that the training programme caused the rise in output per worker. [4]

(d) Assess the role played by entrepreneurs such as Lena Marek in the growth of Marovia's garment sector. [6]

(e) Using the concept of opportunity cost, assess whether the government should spend the 180 million Marovian dollars on extending the training programme rather than on the container berth. [6]

Mark scheme

- (a) correct figures: 2,500 and 3,600 garments per worker 1; $(3600 - 2500) \div 2500 \times 100 = +44\%$ 1 (44% with no working: 2 marks; "rose by 1,100 garments" only: 1 mark)
- (b) positive, e.g. "labour turnover in the largest factories rose from 9% to 14% a year" / "output rose by half" 1; normative: "factory owners should rotate jobs" / "nobody should have to repeat the same task ..." 1 (the quotation or a close paraphrase is needed)
- (c) **analysis (max 3)**: training raises human capital, so workers are more productive / the share trained rose from 18% to 52% as output per worker rose by 44% 1; but other things were not equal: machines per 100 workers rose from 60 to 85 (more physical capital) 1; and the division of labour on reorganised lines also raises productivity, so the effect of training cannot be isolated / correlation is not proof of cause 1
evaluation (1): justified conclusion, e.g. the data are consistent with training helping but do not prove it, because ceteris paribus does not hold; a comparison of trained and untrained workers would be needed 1

Mark scheme

- (d) **analysis (max 4)**: she **bears risk**: her savings and a loan, a loss in year one, and she bears the cost of failed deliveries 1; she **organises** factors: links 400 workshops, checks quality, guarantees delivery 1; this lets small workshops reach foreign buyers, raising sales and output / exports 1; **innovation**: a new business model (online platform); profit rewards the risk and attracts other entrepreneurs 1
evaluation (max 2): but most growth may come from the large factories' training, machines and division of labour; she depends on trained workers and the congested port / the size of her contribution is not given in the data 1; justified judgement, e.g. entrepreneurs are important for linking small firms to markets, but the sector's productivity growth depends more on human and physical capital 1
- (e) **analysis (max 4)**: the opportunity cost of the training is the berth (the next best use of the 180 million) 1; training: $180\,000\,000 \div 3000 = 60,000$ workers gain human capital, raising productivity and incomes, with transferable skills that also reduce structural unemployment 1; but turnover rose to 14%, so some trained workers leave the sector / the gains go partly to firms, which might pay for training themselves 1; the berth: physical capital that cuts congestion and transport costs for all exporters, so it may raise exports more widely / benefits last decades 1
evaluation (max 2): depends on which is the bigger bottleneck: if output cannot be shipped, more training adds little; the choice also involves value judgements (workers' incomes vs exporters' costs) 1; justified conclusion, e.g. the berth first if port delays limit exports, with training funded by firms that gain from it 1 (one-sided answer: max 4)

Question 2 (Section B, essay) [20 marks]

- (a) With the help of an example of each, explain the difference between a positive statement and a normative statement, and consider whether economists can avoid making value judgements when they give advice on policy. [8]
- (b) Assess whether specialisation and the division of labour always benefit an economy. [12]

Mark scheme

- (a) **AO1 knowledge and understanding (max 3)**: a positive statement is about what is, was or will be and can be tested against evidence 1; a normative statement is about what ought to be, based on a value judgement, and cannot be proved true or false 1; a valid example of each, e.g. "inflation rose to 6%" and "the government should cut inflation" 1
- **AO2 analysis (max 3)**: economists can use positive analysis to predict the effects of a policy, e.g. a tax on sugary drinks reduces consumption by a measurable amount, which data can test 1; but choosing a policy means ranking outcomes and deciding whose gains and losses matter more (e.g. lower obesity vs higher prices for poor households), which is a value judgement 1; even the choice of which problem to study, which data to use or which objective to prioritise reflects values 1
- **AO3 evaluation (max 2)**: a reasoned comparison, e.g. economists can reduce value judgements by setting out the positive effects of each option and leaving the final choice to elected governments 1; justified conclusion: the analysis can be largely positive, but advice on what a government *should* do cannot be completely free of value judgements 1

Mark split: AO1 3 · AO2 3 · AO3 2 = 8. Credit any valid examples; definitions alone without examples cap AO1 at 2.

Mark scheme

(b) **Indicative content.** AO1+AO2 out of 8 (Table A) and AO3 out of 4 (Table B).

- **Benefits:** workers repeat tasks and become more skilled; no time lost switching tasks; workers matched to their abilities; simple tasks can be mechanised; so output per worker rises and unit costs fall (e.g. labour cost per unit falls when output per worker rises at the same wage). Lower costs allow lower prices and higher real incomes; firms are more competitive and can export. Specialisation by regions and countries uses resources where their opportunity cost is lowest, raising total output, and increases the gains from trade.
- **Costs:** repetitive work lowers motivation, causes more absence, labour turnover and mistakes, so quality and productivity can fall; narrow skills reduce occupational mobility, so automation or a fall in demand causes structural unemployment; interdependence: a breakdown or strike at one stage stops the whole process (supply-chain risk); standardised products with less variety; a region or country specialised in one product is exposed when its price or demand falls.

Table A: A01+A02	marks	description (written for these notes)
Level 3	6-8	Accurate definitions; developed chains of analysis on both benefits and costs, applied to workers, firms and the economy; any diagram or calculation is explained.
Level 2	3-5	Some explained points but limited development, some inaccuracy, or analysis of one side only (max Level 2).
Level 1	1-2	A few relevant points, mainly listed or described, with little explanation.

Table B: A03	marks	description (written for these notes)
Level 2	3-4	A justified judgement on "always", supported by developed reasoning, e.g. it depends on the size of the market, how flexible workers are, the time period and whether firms use job rotation and retraining.
Level 1	1-2	A general conclusion or simple evaluative comments with little support. A one-sided answer earns no A03 marks.

Quick-reference table

Item	Key point
scarcity and choice	finite resources, infinite wants → scarcity → choice; individuals (income, time), firms (finance, factors), governments (tax revenue); decide at the margin: marginal benefit vs marginal cost
opportunity cost	benefit of the next best alternative forgone; per unit = units given up ÷ units gained; basic questions: what, how, for whom
social science	scientific method (hypothesis, model, test) applied to human behaviour; no laboratory, so <i>ceteris paribus</i> assumptions
positive / normative	positive: testable statement of fact or prediction; normative: value judgement ("should")
time periods	short run: at least one factor fixed; long run: all factors variable; very long run: technology and institutions change
factors and rewards	land → rent; labour → wages; capital → interest; enterprise → profit (a residual, may be a loss); human capital (skills, health) vs physical capital (machines)
specialisation, division of labour	tasks split between workers → higher productivity, lower unit costs; but boredom, interdependence, structural unemployment; limited by the size of the market
entrepreneur	organises the other factors, bears uninsurable risk, innovates; roles split between shareholders and managers in large firms

"I can" checklist

- | | |
|---|--|
| ☐ explain scarcity and choices at all levels | ☐ classify positive / normative statements |
| ☐ define and calculate opportunity cost | ☐ explain <i>ceteris paribus</i> and time periods |
| ☐ state the three basic questions | ☐ define the factors, rewards, types of capital |
| ☐ explain economics as a social science | ☐ assess division of labour and the entrepreneur |