

Cambridge AS & A Level · Economics 9708 · Notes

Economic methodology AS

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Last checked 1 October 2026

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What you need to know

By the end of this topic you should be able to:

1. **Explain why economics is a social science:** it studies how people, firms and governments behave when they make choices about scarce resources, and it tries to be scientific about it, although it cannot run experiments the way a laboratory science can.
2. **Tell positive and normative statements apart:** a positive statement is about facts and can be checked against evidence; a normative statement contains a value judgement (an opinion about what is good, fair or ought to happen).
3. **Explain the meaning of *ceteris paribus*:** "other things being equal", the assumption that only the one variable being studied changes while everything else stays the same.
4. **Explain why the time period matters,** and define the **short run**, the **long run** and the **very long run** by which factors of production can be changed.

Understand it

Economics as a social science

A **science** builds knowledge by a method: observe something, suggest an explanation (a **hypothesis** or **theory**), then test it against evidence and keep it only while the evidence supports it. Economics uses the same method. It builds **theories** (for example, that people buy less of a good when its price rises), turns them into **models** (simplified pictures of the economy such as a demand and supply diagram or a production possibility curve), uses **mathematics and statistics** to measure relationships, and tests its predictions against real data.

It is a **social** science because what it studies is **human behaviour**: how consumers, workers, firms and governments make choices when resources are scarce. That makes it harder than a natural science such as chemistry in three ways:

- **Laboratory experiments are rarely possible.** A chemist can repeat an experiment with one thing changed and everything else controlled. An economist cannot put a whole country in a laboratory, raise its interest rate, and run it again without the rise. Real economies change many things at once, so it is hard to be sure what caused what.

- **People are not all the same and can change their minds.** Tastes, expectations and habits differ and shift, so a theory that fits one country or year may fit another less well.
- **Value judgements creep in.** Economists study questions (how much tax, who should get help) where people disagree about what is desirable, not just about what is true.

Economists handle these problems with the tools in the rest of this topic: they separate **positive** questions (what is) from **normative** ones (what ought to be), and they use the assumption **ceteris paribus** to study one change at a time.

Positive and normative statements

A **positive statement** is a statement about **what is, was or will be**. It can be **tested** against evidence, so in principle it can be shown to be true or false. It does not have to be true to be positive.

- "The inflation rate in Country Z was 4% last year." (a fact that can be checked)
- "A rise in the price of cigarettes will reduce the number of cigarettes bought." (a cause-and-effect claim that data could support or reject)
- "If interest rates rise, consumer borrowing will fall." (a prediction; it is still positive even if it turns out to be wrong)

A **normative statement** contains a **value judgement**: an opinion about **what ought to be**, what is good or bad, fair or unfair, better or worse. No amount of data can prove it true or false, because two people can agree on every fact and still disagree about it.

- "The government should spend more on public libraries."
- "Taxing sugar is the fairest way to raise revenue."
- "Reducing unemployment is more important than reducing inflation."

How to spot the difference. Ask: *could evidence settle this?* If yes, it is positive; if it depends on someone's values, it is normative. Some words usually signal a value judgement:

Words that usually signal normative	Words that usually signal positive
should, ought, must (as advice), need to be a priority	is, was, are, will, has risen, fell by
fair, unfair, just, better, best, worse, desirable, harmful	measured, recorded, per cent, rate, data
too high, too low, acceptable, unacceptable, serious	cause, lead to, result in, increase, reduce
welfare, standard of living "improves" (as a judgement)	fact, evidence, test, describe

The words are only clues; read the whole statement.

- **A serious-sounding subject can still be positive.** "Youth unemployment rose last year" is positive: unemployment can be measured. "Youth unemployment is a national disgrace" is normative.
- **Predictions are positive.** "The new tax will raise 2 billion dollars" can be checked when the year ends, so it is positive even though nobody can know it yet.

- **Judging a size or effect without a measure is normative.** "The policy's effect was disappointing" or "the rise was only minor" judges how good or how big something is; it cannot be tested as stated.
- **Reported opinions.** "The minister announced that fuel duty will rise in April" reports a fact (what was announced). But when the thing reported is itself a judgement, such as "a court described the charges as excessive", the statement is carrying a value judgement, and Cambridge treats it as normative.
- **Feelings and motives** that cannot be observed ("shoppers panicked", "the firm was greedy") are judgements rather than testable facts.
- **Two-part sentences** are often split: "Rents rose by 15% this year; the government should cap them" is a positive statement followed by a normative one.

Normative statements are not "wrong" or unscientific in a bad sense: governments must make value judgements to choose policies. Economists try to give **positive** analysis (what each policy would do) so that the normative choice is better informed.

Ceteris paribus

Ceteris paribus is Latin for "**other things being equal**" (or "all other things remaining the same"). When economists study how one variable affects another, they assume that **only the variable being studied changes** and everything else that could affect the outcome stays constant.

For example, the law of demand says that when the price of a good rises, the quantity demanded falls, *ceteris paribus*. In symbols:

$$P \uparrow \Rightarrow Q_d \downarrow \quad (\text{ceteris paribus: income, tastes and other prices unchanged}).$$

The "other things" held constant include consumers' incomes, tastes, and the prices of substitutes and complements. If incomes also rose at the same time, quantity demanded might rise despite the higher price, but that would not disprove the law, because *ceteris paribus* no longer held.

Why economists need it: they cannot run controlled experiments, so they use *ceteris paribus* in their reasoning to do what a laboratory does physically, isolating one cause at a time. Its limitation is that in the real world other things are rarely equal, so predictions made with it can be upset by other changes happening at the same time.

The time period: short run, long run, very long run

Economists define time periods by **what a firm can change**, not by weeks or years. The factors of production (land, labour, capital and enterprise) take different lengths of time to change.

Period	What can change	What is fixed	Example: a bakery
Short run	Variable factors only: hours of labour, flour, energy	At least one factor (usually capital: the building and ovens)	Adding an evening shift in the same building with the same ovens
Long run	All factors of production can be varied, including capital and premises	The state of technology	Buying more ovens or opening a second bakery

Period	What can change	What is fixed	Example: a bakery
Very long run	Technology itself, and other things outside the firm's control (laws and regulations, social attitudes, population)	Nothing	New baking methods being invented and adopted across the industry

- In the short run a firm raises output by adding more **variable** factors to its **fixed** ones.
- In the long run **every** factor is variable, so the firm can change its **scale** of production; there is no fixed factor.
- The very long run differs from the long run because **technology** (and the wider environment) can change.

The length in calendar time **differs by industry**: a food stall can move to a bigger site in weeks, while a power company may need ten years to build a new plant. What defines the period is whether any factor is fixed, not the number of months.

The time period matters because the **effects of a change differ over time**. A firm's costs, a market's response to a price rise and the impact of a government policy are usually smaller or different in the short run than in the long run, when there is time for every factor to adjust. So economists always need to say which period they are talking about.

Key facts and formulas

This topic has no formulas and no formula list in the exam. "Learn it" means you must remember it.

Fact	Status
Economics is a social science: it studies human behaviour using theories, models and evidence	Learn it
Economics finds laboratory (controlled) experiments very difficult, so it uses <i>ceteris paribus</i>	Learn it
Positive statement: about facts; can be tested against evidence; can be true or false	Learn it
Normative statement: contains a value judgement (opinion); cannot be tested	Learn it
<i>Ceteris paribus</i> : other things being equal; only the variable studied changes	Learn it
Short run: at least one factor of production is fixed	Learn it
Long run: all factors of production are variable (technology is given)	Learn it
Very long run: technology (and factors outside the firm's control) can change	Learn it

How to do it

In the questions we have tagged for this topic (25 questions, 2021–2025), every one is a Paper 1 multiple-choice question testing a concept, worth 1 mark each. They fall into four groups:

Question type	Questions
Multiple choice (concept): positive or normative?	19
Multiple choice (concept): short run, long run, very long run	4
Multiple choice (concept): economics as a social science	1
Multiple choice (concept): <i>ceteris paribus</i>	1

1. Multiple choice (concept): positive or normative? (19 questions)

1. **Read what is asked:** the normative one, the positive one, a definition, or a classification of two statements.
2. **Test each option:** *could evidence prove this true or false?* Yes means positive; a value judgement means normative.
3. **Look for judgement words** (should, ought, fair, unfair, best, desirable, harmful, more important), but check the whole sentence: a measured word such as "inequality" or "welfare payments" is not a judgement on its own.
4. **Remember that predictions and cause-and-effect claims are positive**, even if you think they are wrong.

Variations you will meet:

- **Pick the one normative statement from four** (or the one positive one). Usually three options are facts or predictions and one contains a judgement word. The facts may be precise (a date, a percentage) to make them look obviously positive; the normative option often says something is fair, unfair, better, best or more harmful.
- **Classify two statements in a table.** Split a quotation or a pair of policy claims into its parts and label each. A factual description followed by advice ("...therefore X should...") is positive then normative. Two cause-and-effect claims are both positive, even when they are about controversial policies.
- **Definitions.** A positive statement is based on facts and **can be tested**; a normative statement (or action) is based on **opinion** or a value judgement. Words linked to positive statements: fact, actual, testable, objective, was, is. Words linked to normative ones: should, ought, opinion, subjective, bias, ethics, moral, better.
- **A story with statements about causes or reasons.** Look for the option that describes a feeling, a motive or someone's judgement rather than something that can be measured. Reported judgements ("an official called the payments too low") count as normative; reported actions or announcements ("the ministry announced a review") are positive.
- **Statements with vague judgements of size or success.** "Will have only a limited effect" or "has been a failure" judges the outcome; a statement that gives a measurable change is positive.

2. Multiple choice (concept): short run, long run, very long run (4 questions)

1. **Recall the definitions:** short run = at least one factor fixed; long run = all factors variable; very long run = technology (and the environment outside the firm) can change.
2. **For a scenario**, ask what the firm is changing: more of a variable factor (short run), its capital or premises (long run), or the technology itself (very long run).
3. **Cross out** options that say "all factors are fixed" in the short run, or "at least one factor is fixed" in the long run.

Variations you will meet:

- **Which statement about the factors of production is correct?** Match each period to its definition exactly; the wrong options swap "fixed" and "varied" or "all" and "at least one".
- **Definition of the long run.** All factors of production are variable; read every word of the options.
- **What separates the very long run from the long run?** The ability to change **technology**; variable factors exist in both the short and the long run.
- **Two firms, two changes.** Decide separately for each: adding capital equipment or a new building is a change of a fixed factor, so it needs the long run; creating and introducing a technology that did not exist needs the very long run.

3. Multiple choice (concept): economics as a social science (1 question)

1. **Recall what makes it a science:** theories, models, mathematics, testing with evidence. None of these is a weakness of economics.
2. **Recall what makes it hard:** human behaviour is variable, value judgements are involved, and **controlled laboratory experiments are very difficult**.
3. **Choose the option that states a real limitation;** cross out options claiming economics has no theories, no models or no mathematics.

4. Multiple choice (concept): *ceteris paribus* (1 question)

1. **Translate it:** other things being equal.
2. **Choose the option where one variable changes and all others are held constant.** Check each option against that meaning word by word.

Worked examples

Example 1

Which statement is normative?

- **A** The number of cars sold in Country Y fell by 8% last year.

- **B** A tax on plastic bags will reduce the number of plastic bags used.
- **C** Public transport ought to be free for school students.
- **D** Food prices rose faster than wages in the last two years.

[1]

A and D describe what happened; both can be checked against recorded data. B predicts a cause and effect; data on bag use after a tax could support or reject it, so it is positive. C says what *ought* to happen, which depends on values, so the answer is **C**. (1)

Example 2

A farmers' union published this statement.

'It is unacceptable that small farmers earn so little; fertiliser prices rose by 40% this year.'

What is the nature of each part?

	small farmers earning so little is unacceptable	fertiliser prices rose by 40%
A	normative	normative
B	normative	positive
C	positive	normative
D	positive	positive

[1]

"Unacceptable" is a value judgement: people could agree on farmers' incomes and still disagree about whether they are acceptable, so the first part is normative. A 40% rise in fertiliser prices can be checked in price data, so the second part is positive. The answer is **B**. (1)

Example 3

A bakery wants to increase its output. It considers two changes.

- change 1: employ extra workers for an evening shift, using its existing building and ovens
- change 2: build a second bakery with a larger set of ovens

Which time periods do these changes illustrate?

	change 1	change 2
A	short run	short run
B	short run	long run
C	long run	long run

	change 1	change 2
D	long run	very long run

[1]

Change 1 adds a variable factor (labour) to fixed factors (the building and ovens), so at least one factor is fixed: the short run. Change 2 changes the building and the capital equipment, so every factor is variable, but the technology of baking is the same: the long run. The answer is **B**. (1)

A and C mix up variable and fixed factors. D would need a change in the technology itself, which neither change involves.

Example 4

Data show that last year the price of bus tickets in a city rose and the number of bus journeys also rose.

Why does this **not** disprove the theory that a higher price reduces the quantity demanded?

- **A** Economic theories are normative, so they cannot be disproved.
- **B** Other things, such as incomes or the cost of petrol, may have changed at the same time.
- **C** The theory applies only in the very long run.
- **D** Consumers always behave irrationally, so economic theories cannot be tested.

[1]

The theory holds *ceteris paribus*. Real-world data are not a controlled experiment: if petrol became much dearer or incomes rose, more people would travel by bus despite the higher fare, so the rise in journeys may be caused by those other changes. The answer is **B**. (1)

A is wrong because the theory is a positive statement that can be tested. C confuses the time periods, which are about factors of production. D overstates the difficulty: behaviour is varied, but theories can still be tested with evidence.

Common mistakes

- **Thinking a positive statement must be true.** Positive means *testable*, not *correct*. "Raising the minimum wage will increase unemployment" is positive whether or not the evidence supports it; many candidates label predictions they disagree with as normative.
- **Treating any statement about a controversial topic as normative.** Taxes, poverty and welfare are political topics, but "the number of households below the poverty line fell" is still a testable fact. Look for the judgement, not the subject.
- **Missing a hidden value judgement.** Words such as fair, unfair, unrealistic, harmful or desirable, or a judgement of how big or serious an effect is, make a statement normative even when the rest of it contains facts and figures. The June 2024 examiners' report notes that any choice between a government's

objectives rests on its priorities, so it is a value judgement.

- **Using value judgements where a description is asked for.** In data response questions, examiners do not credit words such as "worsened" or "better" when a trend is asked for; use neutral terms (rose, fell, moved from a surplus to a deficit).
- **Swapping the time-period definitions.** The short run has **at least one** fixed factor, not all factors fixed. The long run has **all** factors variable, not "at least one fixed". Technology changing is the **very long run**.
- **Defining time periods by months or years.** They are defined by which factors can change; the length differs from one industry to another.
- **Getting the meaning of *ceteris paribus* only half right.** It means only the variable studied changes; all the others are held constant.
- **Picking a false weakness of economics.** Economics does have theories, models and a lot of mathematics. Its real difficulty is that controlled experiments are very hard to run.

How to get the marks

- **Paper 1 is one mark per question and no penalty for a wrong answer**, so answer every question. This topic usually appears in the first few questions.
- **Read the stem carefully.** Is it asking for the normative statement, the positive one, or a classification of each part? Many wrong answers come from choosing the opposite of what was asked.
- **Test every option, not just the first that fits.** In a "which is normative" question, three options should be clearly testable; if two look normative, re-read them for a hidden fact or a hidden judgement.
- **Use exact definitions.** "At least one factor fixed" (short run), "all factors variable" (long run) and "technology can change" (very long run) are the phrases the answers are built on.
- **In written answers, use the ideas as tools.** Say *ceteris paribus* when you analyse one change on a diagram, say which time period you are describing (short run or long run effects often differ), and keep your analysis positive until the evaluation, where a judgement is expected.
- **Evaluation is where normative judgement belongs.** Command words such as *assess*, *consider* and *to what extent* ask you to reach a judgement; justify it with the positive analysis you have already given, and say what it depends on.

Quick check

1. Label each statement positive (P) or normative (N).
 - (a) The price of rice rose by 6% in March.
 - (b) Cutting income tax will increase the number of people who want to work.
 - (c) Luxury cars should be taxed more heavily than small cars.
 - (d) It is wrong that some children leave school unable to read.
 - (e) Youth unemployment is higher than adult unemployment in most countries.

2. A car manufacturer (i) asks its workers to do overtime, (ii) builds a new assembly plant, (iii) switches to making cars with a battery design that has only just been invented. Name the time period each change needs.
3. Rewrite the normative statement "The government should raise the tax on sugary drinks" as a positive statement about the same policy.
4. Which statement is correct?
 - **A** In the long run, at least one factor of production is fixed.
 - **B** In the short run, no factor of production can be varied.
 - **C** In the very long run, the state of technology can change.
 - **D** The short run is always less than one year.
5. Give **two** reasons why economics is harder to test than a laboratory science, and say how *ceteris paribus* helps.

Answers

1. (a) **P**: a measured fact. (b) **P**: a cause-and-effect claim that evidence could test. (c) **N**: "should" gives an opinion. (d) **N**: "wrong" is a value judgement. (e) **P**: can be checked in labour market data.
2. (i) **Short run**: more of a variable factor (labour hours) with the same plant. (ii) **Long run**: the capital and premises change, so all factors are variable. (iii) **Very long run**: the technology itself changes.
3. For example: "A higher tax on sugary drinks will reduce the quantity of sugary drinks bought." (Any statement that could be tested with evidence.)
4. **C**. A describes the short run, not the long run; B is wrong because variable factors can change in the short run; D is wrong because the periods are defined by which factors can change, not by calendar time. (1)
5. Any two of: controlled experiments are very difficult because a whole economy cannot be put in a laboratory; many things change at once, so causes are hard to separate; people's behaviour varies and changes; value judgements are involved. *Ceteris paribus* lets economists reason about one change at a time by assuming everything else stays the same, doing in theory what a laboratory does in practice.

Past questions to try

- [9708/12/O/N/24 Q4](#): picking the one positive statement about taxes and inequality.
- [9708/11/M/J/24 Q14](#): which reason for government intervention is a value judgement.
- [9708/12/F/M/23 Q2](#): the exact definition of the long run.
- [9708/13/M/J/22 Q12](#): what *ceteris paribus* means for the demand for a good.