

Government policies to achieve efficient resource allocation and correct market failure

A2

Read online at pastopic.com/cambridge/economics-9708/notes/policies-to-correct-market-failure

Last checked 5 October 2026

Read first: **Methods and effects of government intervention in markets**, **Efficiency and market failure**, **Private costs and benefits**, **externalities and social costs and benefits**, **Different market structures**

© 2026 Pastopic. Free for personal study. Please share the link, not the file.

What you need to know

By the end of this topic you should be able to explain how each of these measures tackles a market failure (an externality, a public good, a merit or demerit good, information failure or monopoly power), and judge how **effective** it is:

1. **Indirect taxes**, both **specific** (a fixed amount per unit) and **ad valorem** (a percentage of the price).
2. **Subsidies**: payments per unit to producers or consumers.
3. **Price controls**: maximum and minimum prices.
4. **Production quotas**: a legal limit on how much each firm may produce.
5. **Prohibitions and licences**: banning a good or activity outright, or allowing it only for those who hold a licence.
6. **Regulation and deregulation**: rules and standards firms must meet, and removing rules to let market forces work.
7. **Direct provision**: the government supplies the good or service itself.
8. **Pollution permits**: a fixed number of rights to pollute, which firms can usually trade.
9. **Property rights**: giving someone ownership of a resource so that it has a price and an owner who looks after it.
10. **Nationalisation and privatisation**: moving firms from private to state ownership, and the other way.
11. **Provision of information**: telling people the true costs and benefits of their choices.
12. **Behavioural insights and nudge theory**: changing how choices are presented so that people choose better, without forcing them.
13. **Government failure**: what it is, what causes it, and its consequences.

The AS topic *Methods and effects of government intervention in markets* showed how taxes, subsidies, price controls and direct provision move demand and supply. Here the question is whether they **fix the failure**: do they move the market to the allocatively efficient output, where marginal social benefit equals marginal social

cost ($MSB = MSC$), and at what cost?

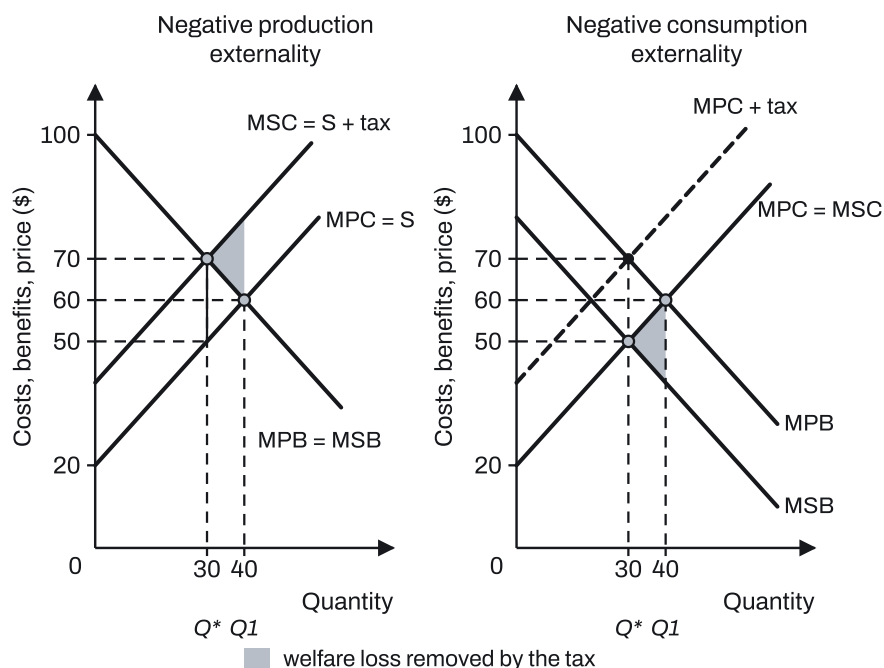
Understand it

Match the policy to the failure

Name the failure first: it decides the tool.

Market failure	What goes wrong	Usual policies
Negative externality (pollution, congestion)	Over-production or over-consumption	Tax, permits, regulation, quotas, bans, nudges
Positive externality, merit good	Under-consumption	Subsidy, direct provision, information, nudges
Demerit good	Over-consumption	Tax, ban, information, nudges
Public good	Not provided at all (free riders)	Direct provision
Common resource with no owner	Over-use until it runs out	Property rights, quotas, licences
Monopoly power	Price too high, output too low	Price cap, regulation, nationalisation, competition

Taxes on negative externalities



A cement works emits dust that harms people nearby, so marginal social cost (MSC) is above the firm's marginal private cost (MPC). In the left panel the external cost is \$20 a tonne at every output. The free market produces 40 thousand tonnes at \$60, but the optimum is 30 thousand tonnes, where $MSB = MSC$.

A specific tax of **\$20 a tonne, equal to the marginal external cost at the optimum**, shifts supply up by \$20. Now the firm's costs include the damage it does: the externality is **internalised**. Output falls to 30, price rises to \$70, and the firm keeps \$50 a tonne. The government collects $20 \times 30 = 600$, that is \$600 000, and the welfare loss of $\frac{1}{2} \times 10 \times 20 = 100$ (\$100 000) disappears.

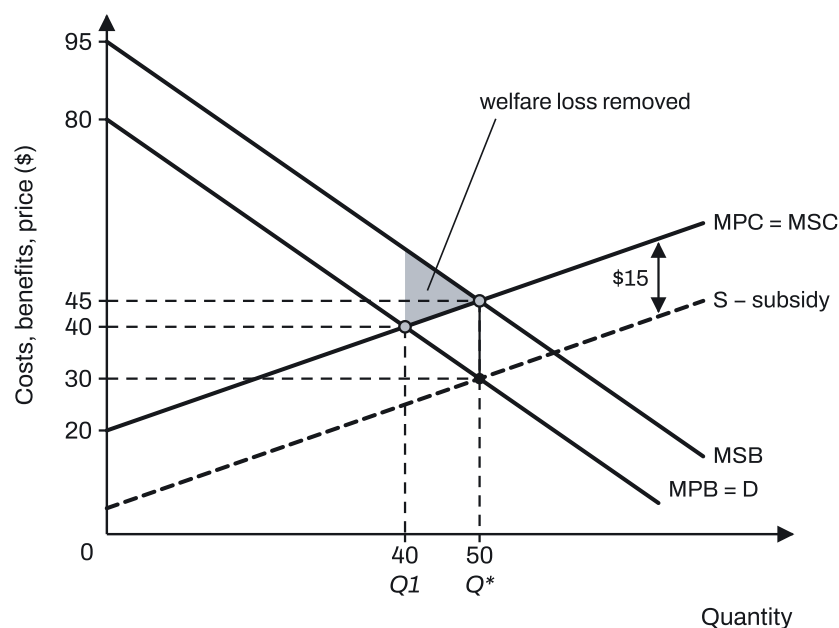
For a **consumption** externality (driving into a city centre, flying, smoking) the benefit curves split instead: MSB lies below MPB. The cure is the same. A tax or charge per unit raises the price users pay until they buy only the optimum quantity (right panel).

An **ad valorem tax** is a percentage of the price, so it adds more tax at higher prices: supply pivots upwards rather than shifting in parallel. Cutting the rate pivots it back down.

How well a tax works depends on:

- **Price elasticity of demand (PED).** With elastic demand ($PED > 1$) a tax cuts consumption a lot. With inelastic demand (addictive goods, fuel with no substitute) it raises plenty of revenue but changes behaviour little.
- **Information.** The right tax equals the marginal external cost, which has no market price and must be estimated. Too low leaves over-production; too high cuts output below the optimum.
- **Side effects.** Taxes on necessities are **regressive** (they take a larger share of a poor household's income). High taxes encourage smuggling, illegal dumping and black markets. Exporters and their workers may lose out to foreign rivals.
- **Revenue** can pay for clean-up or for alternatives such as public transport.

Subsidies for positive externalities and merit goods



When consumers ignore the benefit their consumption gives others, they buy too little: 40 units instead of 50. A subsidy of **\$15 a unit, equal to the marginal external benefit**, shifts supply down. Consumers now pay \$30, producers receive \$45, and quantity rises to the optimum of 50. It costs the government $15 \times 50 = 750$, and it removes a welfare loss of $\frac{1}{2} \times 10 \times 15 = 75$.

A subsidy works best when demand is **elastic**. Its weaknesses mirror the tax's: the external benefit is hard to value, so the right size is a guess; it has an **opportunity cost** (the money could fund other services, or must come from higher taxes); some of it becomes producers' profit; and firms may come to depend on it.

A **per-unit subsidy to a monopoly** lowers its marginal cost, so the profit-maximising output (where $MR = MC$) rises and price falls. A lump-sum grant, or a tax on profits, leaves MC and therefore output unchanged.

Price controls and production quotas

- A **maximum price** below equilibrium makes the good cheaper but causes a **shortage**: queues, rationing and black markets. In the long run supply shrinks further, as with rent controls that drive landlords out of the market. A maximum price set **above** equilibrium has no effect.
- A **minimum price** above equilibrium creates a surplus. It can cut consumption of a demerit good (a minimum price per unit of alcohol) without raising tax revenue.
- For a **monopoly**, a maximum price can raise output: if the cap is set where demand meets MC, the firm can no longer gain by restricting output.
- A **production quota** limits each firm's output (fishing catches, oil output). It hits a quantity target directly, but it gives no reward for doing better than the limit, it raises the price for consumers, and it needs monitoring. Quotas, bans and price controls are **not** market-based: they override the price mechanism.

Prohibitions, licences and regulation

- **Prohibition** bans a good or activity: hard drugs, smoking in public buildings, new petrol cars after a set date. It works where the harm is so great that the optimum is close to zero, but enforcement is costly and black markets supply what is banned.
- **Licences** limit who may do something: taxis, fishing boats, alcohol sellers, broadcasters. They control numbers and raise fees, but limiting entry also gives existing licence holders market power.
- **Regulation** sets legal rules: emission standards, seatbelts, food safety, maximum working hours, price caps on utilities. Rules are simple to understand and act quickly, but a firm that meets the standard has no reason to cut pollution further, the regulator needs information it may not have, and firms may lobby the regulator (regulatory capture).
- **Deregulation** removes rules (for example letting new airlines or bus companies enter) to increase competition and **the role of market forces**. It works only if entry really happens; if the remaining firms merge, competition can fall.

Pollution permits

The government decides the total pollution allowed (the **cap**) and issues that many permits, each allowing one unit, say one tonne. A firm without enough permits must cut pollution or buy permits from others. With **tradable permits**:

- Firms that can cut pollution cheaply do so and **sell** their spare permits, so they gain; firms for which cutting is expensive **buy** permits instead. The cap is met at the lowest total cost.
- Every tonne now has a price, so all firms have a continuing incentive to clean up. This makes permits a **market-based** policy, like a tax.
- Because the government fixes the **quantity**, the cut in pollution is **more predictable** than with a tax, which fixes the price and lets firms choose how much to pollute.

Permits fail if the cap is too generous (the permit price is then near zero and nothing changes), if emissions are not monitored, or if there are too few firms for a working permit market. Handing permits out free rewards past polluters; auctioning them raises revenue.

Property rights

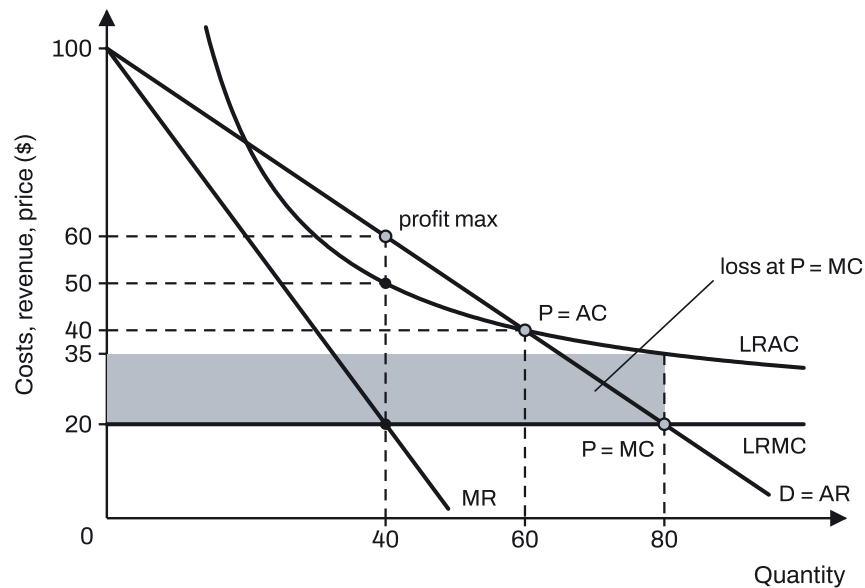
A resource nobody owns, such as an ocean fishery, common grazing land or a forest, has a **zero price to users**. Each user takes as much as possible before others do, so it is over-used and can be destroyed. Giving someone **property rights** changes this: an owner can charge for use, has a reason to conserve the resource because its future value is theirs, and can take a polluter to court, which makes the polluter pay. Rights are hard to define for air or the open sea, and legal action is slow and costly when many people are harmed a little.

Direct provision

The government produces the good itself and usually gives it away or sells it cheaply, paid for by taxes. This is the main answer to **public goods** (street lighting, flood defences), which the market would not provide, and a common answer to **merit goods** (schools, vaccinations). The problems: a zero price creates excess demand and **waiting lists**; the cost to taxpayers has an opportunity cost; and without a profit motive, state providers may be **X-inefficient** (costs higher than they need to be).

Nationalisation and privatisation

Nationalisation moves a firm from private to state ownership; **privatisation** sells state-owned firms (or the right to run a service) to the private sector. After nationalisation, payments of dividends to private shareholders stop, because the state is now the owner.



Water pipes, electricity grids and railways are **natural monopolies**: fixed costs are so large that average cost keeps falling as output grows, so one firm supplies most cheaply. In the diagram:

- A **private profit maximiser** produces where $MR = MC$: 40 units at \$60, with average cost \$50 and a supernormal profit of $(60 - 50) \times 40 = 400$. Price is far above MC, so output is allocatively inefficient.
- A **nationalised industry told to maximise welfare** sets price equal to marginal cost ($P = AR = MC$): 80 units at \$20. That is allocatively efficient, but average cost there is \$35, so it makes a **loss** of $(35 - 20) \times 80 = 1200$ that taxpayers must cover.
- A compromise is **average-cost pricing** ($P = AC$): 60 units at \$40, normal profit, no subsidy needed.

The same rules apply to a private monopoly under a price cap.

	For	Against
Nationalisation	Prices near MC; can take account of externalities and keep socially useful but loss-making services (rural routes); strategic control	No profit motive, so X-inefficiency; losses paid by taxpayers; political interference; slow to innovate
Privatisation	Profit motive cuts costs; competition where entry is possible; raises money for the government; decisions taken on commercial, not political, grounds	A public monopoly may become a private monopoly with high prices; unprofitable services cut; externalities ignored; needs a regulator

Information and nudges

Provision of information tackles information failure directly: health warnings, calorie labels, energy ratings, campaigns on the benefits of vaccination. It shifts demand towards what people would choose if they knew the true costs and benefits. It is cheap, but people may ignore it, and it works slowly.

Nudge theory (behavioural insights) starts from the fact that people do not always choose rationally: they stick with defaults, follow what others do, and put off decisions. A **nudge** changes how a choice is presented so that the better choice becomes the easy one, while **every option stays open and prices are unchanged**:

- **Defaults**: workers are enrolled in a pension unless they opt out; organ donation is opt-out.
- **Placement**: fruit at eye level or by the till, sweets out of reach.
- **Social norms**: a letter saying that most people in your town pay their tax on time; showing a household how its energy use compares with its neighbours'.
- **Reminders and framing**: a text before an appointment; a sign showing how much litter was cleared from a road.

A nudge is a form of **persuasion**. Taxes, subsidies, fines, bans and compulsory rules are **not** nudges, because they change prices or remove choices. Nudges are cheap and do not restrict freedom, but their effect is often small, and choosing someone else's default raises questions of who decides what is "better".

Government failure

Government failure happens when intervention makes the allocation of resources **worse**, or creates a net welfare loss: the cure costs more than the failure.

Causes:

- **Imperfect information**: externalities are hard to value, so taxes and subsidies are set at the wrong size.
- **Unintended consequences**: black markets after a ban; illegal dumping after a tax on rubbish; a new road that attracts so many drivers that journeys get slower.
- **Administration and enforcement costs**: a ban that is not enforced changes little but still costs money.
- **Inelastic demand**: a tax on an addictive good raises money but hardly cuts consumption.
- **Political pressure and self-interest**: policies chosen to win votes or please lobby groups; regulators "captured" by the firms they regulate; short-term thinking before elections.
- **Time lags**: by the time a policy works, conditions have changed.
- **Weak incentives** in state providers, leading to X-inefficiency.

Consequences: resources still misallocated (or misallocated in a new way), a deadweight welfare loss, wasted taxpayers' money, new shortages or surpluses, and sometimes greater inequity, for example from regressive taxes.

Not every cost of a policy is a failure. A tax that cuts consumption of a demerit good, a subsidy that raises take-up of a merit good, or free health care that gives everyone equal access are the policies **working**.

Key facts and formulas

There is no formula list in the 9708 exam, so everything here is "Learn it".

Formula	Status
Allocative efficiency: $MSB = MSC$; with no externalities, $P = MC$	Learn it
Corrective (Pigouvian) tax per unit = marginal external cost at the optimum output	Learn it
Corrective subsidy per unit = marginal external benefit at the optimum output	Learn it
Tax revenue = tax per unit $\times$ quantity sold after the tax	Learn it
Cost of a subsidy = subsidy per unit $\times$ quantity sold after the subsidy	Learn it
Welfare loss removed = $\frac{1}{2} \times Q_1 - Q^* \times$ (gap between social cost and social benefit at Q_1)	Learn it
Percentage change in quantity = PED $\times$ percentage change in price	Learn it
Monopoly profit maximum: $MR = MC$; welfare maximum: $P = AR = MC$; break-even: $P = AC$	Learn it
Firm's cost of polluting with permits = permits needed $\times$ permit price; cut pollution while cutting a tonne costs less than a permit	Learn it

How to do it

We tagged 125 questions for this topic, from 2021 to March 2026 (108 different ones; 17 are repeats across paper variants): 90 Paper 3 multiple choice, 8 Paper 1 multiple choice from 2021–2022 (when nationalisation and privatisation were AS content; under the 2026–2028 syllabus they are A Level), and 27 Paper 4 essays and data-response questions. No question is counted under two types, so the counts add up to 125.

Question type	Questions
Classify a policy (nudge, permit, regulation, privatisation, market-based or not)	20
Choose the policy that corrects a given market failure	19
Spot government failure	15
Evaluate policies to correct an externality, with a diagram (essay)	14
Judge the effects of privatisation, nationalisation, deregulation and regulation	12
Evaluate pollution permits and pollution taxes	10
Predict how a tax or subsidy works (PED, diagram, welfare)	9
Predict the effects of price controls	6

Question type	Questions
Judge whether government can or should correct market failure (essay)	5
Set the allocatively efficient price for a nationalised or regulated monopoly	5
Use article evidence to judge a policy (data response)	4
Evaluate privatisation or private versus public provision (essay)	2
Evaluate government intervention in monopoly markets (essay)	2
Explain property rights and resource allocation	2

1. Classify a policy (20 questions)

1. Ask what the policy **does**: changes a price (tax, subsidy, charge), fixes a quantity (quota, permit cap), forbids or requires (ban, standard, licence), changes ownership, or changes how a choice is presented.
2. Match the name: a tradable allowance to emit = **pollution permit**; a legal rule or standard = **regulation**; selling a state firm = **privatisation**; buying one = **nationalisation**; removing rules = **deregulation**.
3. **Nudge**: the option that persuades or reframes while leaving choices and prices alone. If two options both persuade, choose the one that works through how the choice is set up (placement, defaults, social comparison) rather than through penalties.

Variants: "which policy uses market forces?" (taxes, subsidies, tradable permits, deregulation; not bans, quotas or standards); "which is **not** regulation?" (a tax is not); "which would increase the role of market forces?" (deregulation, privatisation).

2. Choose the policy that corrects a given market failure (19 questions)

1. Identify the failure from the stem or diagram: $MSB < MPB$ or $MSC > MPC$ (negative externality), $MSB > MPB$ (positive), public good, merit or demerit good.
2. Use the table in "Understand it". On a diagram, the correcting tax or subsidy is the **vertical gap between the private and social curve at the optimum output Q^*** , not at the market output.
3. Reject options that make things worse: a maximum price set above equilibrium does nothing; a subsidy to a good that is already over-consumed adds to the problem; banning a less harmful substitute pushes people towards the harmful good.

Variants: congestion (road pricing, licences that limit car numbers, cheaper or better public transport); a policy that cuts consumption **without** harming equality (subsidise substitutes rather than tax a necessity); a public good (direct provision).

3. Spot government failure (15 questions)

1. Define it to yourself: intervention that leads to a **worse** allocation or a net welfare loss.

2. Look for an **unintended** result (black market, illegal dumping, more traffic, land cleared to grow a subsidised crop) or a policy that **cannot work** (tax on a good with inelastic demand plus weak enforcement of a ban).
3. In "**not** government failure" questions, pick the option where the policy did what it was meant to: more merit-good consumption, equal access, lower externalities.

4. Evaluate policies to correct an externality, with a diagram (14 questions)

Paper 4, 20 marks since 2023 (Table A, knowledge and analysis, 14; Table B, evaluation, 6); 25 marks in 2021–2022. Contexts so far: congestion, air travel, climate change, electric vehicles, the fashion industry, smoking, pollution, subsidies to private education.

1. **Define** allocative efficiency ($MSB = MSC$), market failure and the externality.
2. **Classify** it correctly: driving, flying and smoking are **consumption** externalities; a factory's emissions are production.
3. **Draw** the externality diagram with Q_1 , Q^* and the welfare loss, then show the policy on it (diagram 1 or 2). Refer to the diagram in your writing.
4. **Explain each policy** as a chain: policy → price or cost changes → quantity moves from Q_1 towards Q^* → welfare loss shrinks. If the question says "two policies", do exactly two, in depth.
5. **Evaluate each one**: size of the externality unknown; PED; cost and opportunity cost; time lags; enforcement; regressive effects, jobs, exports; government failure.
6. **Conclude** on the question's exact words: which policy, under what conditions.

Variants:

- **Congestion**: a road-pricing charge (diagram 1, right panel); subsidising or directly providing buses and trains, which shifts the demand for car journeys left if they are good substitutes; nudges. Evaluate: charges can be regressive, drivers switch slowly, public transport is costly.
- **"Should policies rely on market forces?"**: compare taxes and tradable permits (incentive to keep cutting, revenue) with regulation and bans (certain, quick, but no incentive beyond the standard).
- **"An equitable solution"**: the March 2026 report said the best answers judged each policy for **fairness** as well as efficiency, for example how an indirect tax affects an equitable outcome as well as an efficient one; the mark scheme also credits points such as job losses in the industry.

5. Judge the effects of privatisation, nationalisation, deregulation and regulation (12 questions)

1. Recall the definitions and the direct, certain effects: nationalisation ends private dividends; privatisation shrinks the public sector and moves profits to private owners.
2. For "**benefit**" questions: privatisation can bring competition and a profit incentive to cut costs, and removes political decisions. Supporters of nationalised transport fear lost unprofitable routes and higher fares after privatisation.

3. For "**necessarily**" or "**definitely**": only the change of owner is certain; prices, jobs and efficiency may go either way.
4. For a **data table**: read whether the numbers are levels or percentage changes. A smaller positive percentage change still means growth.

Variants: deregulation fails to raise efficiency if firms merge; licensed utilities are regulated by making it easy for customers to switch supplier.

6. Evaluate pollution permits and pollution taxes (10 questions)

1. **Permits fix the quantity** of pollution (predictable outcome); **taxes fix the price** of polluting (predictable cost, uncertain outcome).
2. Trading lets firms that cut cheaply sell permits to those that cannot, so the cap is reached at least cost; standards treat firms less fairly and give no reason to go further.
3. **Calculation**: total cost of each option = production cost + (tonnes emitted × permit price); choose the lowest. A higher permit price makes cleaner methods win.
4. Permits fail if the cap is loose, monitoring is weak or the market is thin. Taxes based on emissions also need monitoring.

7. Predict how a tax or subsidy works (9 questions)

1. **PED**: a tax cuts consumption most when demand is elastic; a subsidy for a positive externality raises consumption most when demand is elastic.
2. **Diagrams**: a specific tax shifts supply up in parallel; an ad valorem tax pivots it; a lower rate pivots it back down. Removing a subsidy shifts supply back up (MPC rises).
3. **Welfare**: society gains when total social cost falls by more than total social benefit.
4. **Revenue shortfalls**: demand more elastic than forecast, firms absorbing the tax, or fewer products qualifying.

8. Predict the effects of price controls (6 questions)

1. Find equilibrium first. A maximum price **below** it causes a shortage; **above** it, nothing changes.
2. Long run: supply is more elastic, so the shortage grows (rental housing contracts).
3. Valid reasons: stopping a monopoly exploiting consumers (electricity), or a temporary cap to calm inflation expectations.

9. Judge whether government can or should correct market failure (5 questions)

1. Set out a **range** of failures (externalities, public and merit goods, information failure, monopoly), each linked to its policy, with one diagram.
2. Evaluate with government failure, information problems, cost and enforcement.

3. Answer the absolute word ("always", "eliminated", "only") with a judgement: governments can **reduce** most failures but rarely remove them, and some intervention makes things worse.

10. Set the allocatively efficient price for a nationalised or regulated monopoly (5 questions)

1. On the diagram, find where **AR (demand) crosses MC**. That price and output are allocatively efficient.
2. If AC is above AR at that point (falling costs, a natural monopoly), the firm makes a **loss**; if AC equals AR, normal profit.
3. A per-unit subsidy shifts MC down, so a profit maximiser raises output and cuts price. The March 2022 report found 43% chose "output unchanged" in such a question, forgetting that MC moves with AC.

11. Use article evidence to judge a policy (4 questions)

Paper 4 Section A parts of 4–6 marks. Quote the article's facts for and against, note what the data cannot show, and finish with a judgement.

12. Evaluate privatisation or private versus public provision (2 questions)

20-mark essays on whether privatisation or private provision always improves allocation. For: profit motive, competition, productive efficiency. Against: private monopoly, merit goods under-provided at market prices, equity, externalities ignored. Judge the absolute word industry by industry: competitive industries gain most; natural monopolies and merit goods least.

13. Evaluate government intervention in monopoly markets (2 questions)

1. Draw a **monopoly diagram** ($MR = MC$ output, price from AR, supernormal profit, price above MC). The June 2025 mark scheme capped answers without a monopoly diagram at Level 2.
2. Analyse the inefficiency: higher price, lower output, allocative inefficiency, possible X-inefficiency.
3. Explain **several policies**: price cap at $P = MC$ or $P = AC$ (diagram 3); tax on profits; regulation of prices and quality; breaking up the firm or blocking mergers; opening the market to entry; nationalisation.
4. Evaluate: a profit tax may reduce investment; a cap set too low causes shortages or losses; breaking up a natural monopoly loses economies of scale; the regulator lacks cost information; monopoly profits may fund research (dynamic efficiency).
5. Conclude on **how far** government should intervene.

14. Explain property rights and resource allocation (2 questions)

Without property rights a resource has **zero cost to its users**, so it is over-used and depleted. With them, owners conserve resources whose value is expected to rise and can be held responsible for damage they cause.

Worked examples

Example 1

Two factories each emit 10 tonnes of a gas a year. The government caps total emissions at 12 tonnes and gives each factory 6 permits, one per tonne. Cutting emissions costs Factory P \$30 a tonne and Factory Q \$80 a tonne. Permits can be traded, and they change hands at \$50 each.

By how much does trading permits reduce the total cost to the two factories of meeting the cap?

A \$120 B \$200 C \$240 D \$440 [1]

Without trading, each cuts 4 tonnes: $4 \times 30 + 4 \times 80 = 440$. With trading, P (the cheap cutter) cuts 8 tonnes for \$240 and sells its 4 spare permits to Q, which then cuts nothing. Total spent on cutting: \$240. Saving: $440 - 240 = 200$, so **B** (1). Emissions are still 12 tonnes. The payments between the firms do not change the total, but they share the gain: P spends $240 - 200 = 40$ instead of \$120, and Q spends \$200 instead of \$320. A is Q's gain alone, C is the cost with trading and D the cost without it.

Example 2

A government puts a tax of \$0.40 on each disposable coffee cup. The price of a takeaway coffee rises from \$2.00 to \$2.30, and the price elasticity of demand is -0.6 . Before the tax, 200 million cups a year were used.

What is the tax revenue in the first year?

A \$60 million B \$72.8 million C \$80 million D \$54.6 million [1]

Price rises by $\frac{0.30}{2.00} \times 100 = 15\%$, so quantity falls by $0.6 \times 15 = 9\%$, to $200 \times 0.91 = 182$ million cups. Revenue = $0.40 \times 182 = 72.8$, so **B** (1). C uses the old quantity; A and D use only the part of the tax passed on to consumers (\$0.30).

Because demand is inelastic, cup use falls only 9%: if the aim is a large cut, the tax alone will disappoint.

Example 3

Tourist boats damage a coral reef by anchoring on it and crowding the dive sites, which harms local fishing and future tourism.

Discuss whether a tax on each boat trip or a limit on the number of boat licences would better protect the reef. [20]

Model answer (paragraph plan):

- Definitions.** Allocative efficiency is where $MSB = MSC$. Each trip imposes an external cost on third parties (fishers, future visitors), so MSB is below MPB: a negative consumption externality, and a market failure. (AO1)

2. **Diagram and chain.** Draw diagram 1, right panel, with boat trips on the horizontal axis. Operators and tourists consider only private costs and benefits, so trips are at Q_1 , where $MPB = MPC$, above the optimum Q^* , where $MSB = MSC$. Each trip between Q^* and Q_1 costs society more than it is worth, so there is a welfare loss triangle. (AO2)
3. **The tax.** A tax per trip equal to the marginal external cost at Q^* raises the price of a trip, so tourists move up their demand curve and trips fall to Q^* ; the welfare loss disappears. The revenue can pay for mooring buoys that stop anchors hitting the coral. (AO2: *developed chain on the diagram.*)
4. **The licences.** Licences fix the number of boats, so the government controls the **quantity** directly, the way a permit cap does. If the limit is set at Q^* , the result is certain, whatever tourists' PED. (AO2)
5. **Evaluating the tax.** The damage per trip is hard to value, so the tax may be set too low. Tourists on expensive holidays have inelastic demand for a reef trip, so a modest tax may barely cut trips: damage continues while revenue grows. It could also push some operators to run trips without paying. (AO3: *explains why PED limits the tax.*)
6. **Evaluating licences.** A fixed number of licences makes the reduction predictable, which matters when a reef could be damaged beyond recovery. But it gives each licensed boat no reason to reduce its own damage, it creates market power for licence holders, who can raise prices, and the right number is again a guess. If licences are auctioned or tradable, they also raise revenue and go to the operators who value them most. (AO3)
7. **Conclusion.** Where damage could be irreversible, licences are the safer choice because they guarantee the cut in trips; the tax is better where the aim is to reduce damage gradually and raise funds for repairs. The best plan may combine them: a capped number of tradable licences plus a fee that pays for moorings. Either way, the outcome depends on valuing the damage correctly and enforcing the rules at sea. (AO3: *justified judgement that answers "better"*)

Table A Level 3 (14) for accurate definitions, a correct diagram used in the text and developed chains for both policies; Table B Level 2 (6) because each policy is evaluated with reasons on both sides and the conclusion is conditional and justified. **20/20**.

Example 4

A country's water supply is run by one private company that makes large profits.

Assess whether nationalising the water industry would improve the allocation of resources. **[20]**

Model answer (paragraph plan):

1. **Definitions.** Allocative efficiency: $P = MC$, or $MSB = MSC$. Nationalisation: moving the firm into state ownership. Water supply is a natural monopoly, because the fixed cost of pipes makes average cost fall over the whole range of demand. (AO1)
2. **The private monopoly.** Draw diagram 3. The firm produces where $MR = MC$ (40 units), charges \$60 on AR, and makes supernormal profit. Price is far above MC, so some units worth more to consumers than they cost are not supplied: allocative inefficiency. Clean water is also a merit good with external benefits (public health), so under-consumption harms others. (AO2)

3. **What nationalisation could do.** A state firm can set $P = MC$ (80 units at \$20 in the diagram), the allocatively efficient output, and can take the health benefits into account by pricing basic water use below cost. (AO2: *developed chain using the diagram.*)
4. **But $P = MC$ means a loss.** Because LRAC is above LRMC, the firm loses \$15 on each of 80 units. Taxpayers must cover this, and that money has an opportunity cost elsewhere. Average-cost pricing (60 units at \$40) avoids the loss but gives up some of the efficiency gain. (AO3)
5. **X-inefficiency and politics.** Without shareholders demanding profit, costs may rise; investment may be cut when government budgets are tight; prices may be held down before elections even when pipes need replacing. Any of these could leave allocation worse than before: government failure. (AO3)
6. **The alternative.** A regulator could cap the private firm's price near average cost, keeping the profit incentive to cut costs, though it relies on the firm's own cost data. (AO3: *weighs another policy.*)
7. **Conclusion.** Nationalisation would improve allocative efficiency if the state prices close to MC and keeps costs under control; it would not if X-inefficiency and political pricing push costs up. Since the main problem is the firm's pricing power, not who owns it, effective price regulation may get most of the gain at lower risk, so nationalisation improves allocation only where regulation has failed. (AO3: *justified judgement*)

Table A Level 3 (14); Table B Level 2 (6). **20/20.**

Common mistakes

- **Drawing the wrong externality.** The March 2023 report said many candidates drew a production diagram for air travel, a consumption externality, which made the top analysis level much harder to reach. Driving, flying and smoking move the benefit curves.
- **Answering only half the question.** In March 2021, answers to a negative-externality essay drifted into positive externalities. In November 2021, many answers on dominant firms covered either the reasons for control or the methods, not both.
- **Listing policies instead of explaining them.** The June 2024 report said answers that discussed exactly the two policies asked for did better than those that wrote about every policy they knew.
- **Stating evaluation without explaining it.** In June 2024, "it depends on PED" earned the lower evaluation level; explaining **how** PED changes the outcome earned the higher one.
- **No diagram, or one not linked to the text.** In June 2023 an essay on removing subsidies to private education needed a subsidy diagram; without one, candidates could not reach Level 3. Few linked education to merit goods and positive externalities.
- **Confusing information campaigns with nudges.** In June 2022 only 39% picked the nudge (fruit placed where shoppers queue); 45% chose an advertising campaign.
- **Missing the unintended effect.** In June 2024 just under a third saw that a tax on rubbish can cause illegal dumping, a government failure.
- **Ignoring equity.** In March 2026 many answers to "an equitable solution" discussed efficiency only, so they could not reach a relevant conclusion.

- **Assuming a subsidy leaves a monopoly's output unchanged.** A per-unit subsidy lowers MC, so output rises (March 2022).

How to get the marks

- **Multiple choice:** name the failure first, then the policy that moves output to $MSB = MSC$. For "nudge", eliminate anything that changes a price or forces a choice. For "government failure", look for an unintended or counter-productive result.
- **Definitions** earn AO1 marks: allocative efficiency, market failure, the externality, government failure (intervention that worsens allocation), nudge (changing how choices are presented without restricting them), privatisation and nationalisation.
- **Diagrams:** accurate, fully labelled (axes, MPC, MSC, MPB, MSB, Q_1 , Q^* , welfare loss), with the policy shown, and referred to by letter in your writing. When the question asks for a diagram, Table A stops at Level 2 without a relevant one.
- **20-mark essays:** Table A (14) rewards developed chains of reasoning; Table B (6) rewards evaluation that **explains why** (for example how PED changes a tax's effect) and a conclusion. "Assess", "evaluate", "discuss" and "to what extent" all need both sides and a justified judgement.
- **Answer the exact question:** "two policies" means two in depth; "equitable" means fairness; "always", "only" and "should" need a conclusion that tackles that word.
- **Apply to the context:** name the third parties and the real policy, not just "a tax on a good".

Quick check

1. A city council wants more households to recycle. Which policy is a nudge? **A** a fine for putting recyclable waste in the general bin **B** a tax on each bag of general waste **C** a note on each council-tax bill showing how the household's recycling compares with that of its neighbours **D** a ban on collecting general waste more than once a month
2. In a market, $MPB = 50 - q$ and $MPC = 10 + q$ (in \$), and production causes a constant marginal external cost of \$6. Find the free-market output, the optimum output, the corrective tax, the tax revenue at the optimum, and the welfare loss the tax removes.
3. A regulated monopoly faces $AR = 90 - 2q$ and has constant $MC = AC = \$30$. Find its profit-maximising output and price, the output and price a regulator would set for allocative efficiency, and the welfare gain from that price cap.
4. A government bans the sale of fireworks to reduce injuries. Explain two ways this could lead to government failure. **[4]**
5. Explain why privatising a natural monopoly may not improve allocative efficiency unless the new owner is regulated. **[3]**

Answers

1. **C.** It changes behaviour through a social comparison and leaves every choice and price unchanged. A and D are rules with penalties; B changes a price. (1)
2. Free market: $50 - q = 10 + q$, so $q = 20$. $MSC = 16 + q$, so the optimum is $50 - q = 16 + q$, $q = 17$. The corrective tax is the marginal external cost, \$6. Revenue = $6 \times 17 = 102$, that is \$102. Welfare loss removed = $\frac{1}{2} \times 3 \times 6 = 9$.
3. $MR = 90 - 4q = 30$ gives $q = 15$ and $P = 90 - 30 = 60$, a price of \$60. Allocative efficiency: $P = MC$, so $90 - 2q = 30$, $q = 30$ and a price of \$30 (normal profit, since $AC = MC$). Welfare gain = $\frac{1}{2} \times 15 \times 30 = 225$.
4. Fireworks may be sold illegally (1), and illegal ones are less safe, so injuries could even rise (1). Enforcing the ban needs police time and border checks (1), money that could have prevented more harm elsewhere, so the cost may exceed the benefit (1).
5. A natural monopoly has no competitors, so a private owner will maximise profit where $MR = MC$ (1). Price is then above MC and output below the allocatively efficient level (1). Without a regulator capping price, privatisation swaps a public monopoly for a private one, and may even cut loss-making but socially valuable services (1).

Past questions to try

- **9708/32/O/N/25 Q9**: what makes a policy a nudge.
- **9708/34/M/J/25 Q7**: reading the corrective tax off an externality diagram.
- **9708/32/M/J/21 Q10**: the welfare-maximising price for a public-sector monopoly.
- **9708/43/O/N/24 Q2**: a 20-mark essay on indirect taxes and negative production externalities.