

Market Failure and the Role of Government

AP Microeconomics

Socially Efficient and Inefficient Market Outcomes

A market outcome is **socially efficient** 社会有效率 when it maximizes total surplus – when the **marginal social benefit** equals the **marginal social cost** of the last unit. Perfect competition reaches this on its own. But sometimes markets fail to, producing too much or too little. This is **market failure** 市场失灵, and it is the main economic justification for government action.

productive efficiency
making goods at the
lowest possible cost

allocative efficiency
making the goods
people most want

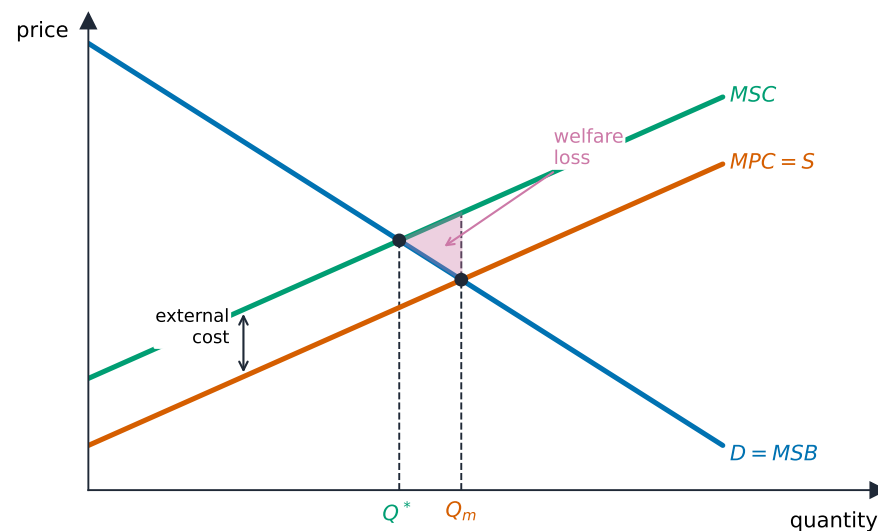
Productive efficiency is lowest cost; allocative efficiency is making what people want

Externalities



Cigarettes: externalities mean private markets may not reach socially efficient outcomes

An **externality** 外部性 is a cost or benefit that falls on a **third party** not involved in the transaction – so the private decision-makers ignore it.



A negative externality: the market over-produces, causing a welfare loss

- A **negative externality** 负外部性 (pollution) means **marginal social cost** > **marginal private cost**. The market **over-produces**; the deadweight loss is a triangle. Fixes: a **Pigovian tax** 庇古税 or regulation to make producers “internalize” the cost (shifting private cost up to social cost).
- A **positive externality** 正外部性 (vaccination, education) means **marginal social benefit** > **marginal private benefit**. The market **under-produces**. Fixes: a **subsidy** to consumers or producers.
- **Coase theorem** 科斯定理: if property rights are clear and bargaining is costless, private parties can solve an externality themselves – but that is rare with many people involved.



Congestion is a negative externality: each driver imposes a cost on every other driver that no price collects

Worked example. A factory's private marginal cost of a chemical is \$8 per unit, but each unit also dumps \$3 of pollution on neighbors, so the marginal **social** cost is \$11. Ignoring the \$3, the market over-produces. A **Pigovian tax of exactly \$3 per unit** raises the firm's private cost to \$11 – now equal to the social cost – so the firm cuts output to the efficient quantity and the externality is "internalized."

Exam skill: identify whether an externality is positive or negative, show on a graph that private and social curves diverge, mark the deadweight loss, and name the correcting tax or subsidy.



Industrial pollution: a negative externality where social cost exceeds private cost

Public and Private Goods

Goods differ along two traits: **rivalry** 竞争性 (does one person's use reduce another's?) and **excludability** 排他性 (can non-payers be kept out?).

	Excludable	Non-excludable
Rival	Private good food, clothes	Common resource ocean fish, air
Non-rival	Club good cinema, toll road	Public good street light, defence

Goods classified by whether they are rival and excludable

- A **private good** 私人物品 is rival and excludable (a sandwich) – markets handle these well.
- A **public good** 公共物品 is **non-rival and non-excludable** (national defense, a lighthouse). Because non-payers cannot be excluded, people **free-ride** 搭便车 – enjoy it without paying – so markets **under-provide** it, and government usually supplies it.
- **Common resources** 公共资源 are rival but non-excludable (ocean fish); over-use ruins them – the **tragedy of the commons** 公地悲剧.

The Effects of Government Intervention in Different Market Structures

Government tools change outcomes differently by structure:

- **Regulating a monopoly's price** toward $P = MC$ can *increase* efficiency (unlike a price control in a competitive market, which creates shortage/surplus).
- **Antitrust laws** 反垄断法 break up or block anti-competitive mergers and collusion.

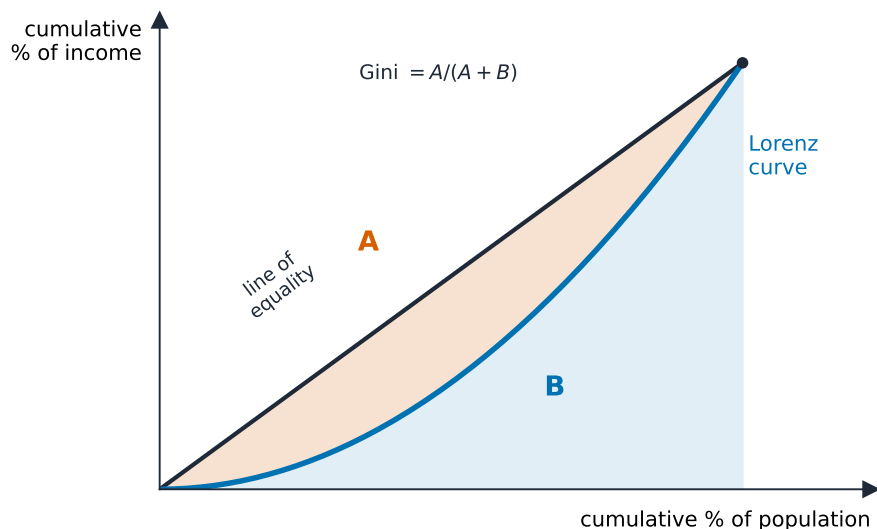
- **Taxes and subsidies** shift output toward the socially efficient quantity when externalities are present.

The key insight: the **same** policy can help or hurt efficiency depending on whether the market was already efficient (competitive) or already failing (monopoly, externality).

Per-unit vs lump-sum. A **per-unit tax** 从量税 adds to marginal cost, so it shifts supply up, raises price, cuts quantity, and creates deadweight loss. A **lump-sum tax** 定额税 (a fixed charge like a licence fee) does **not** change marginal cost or marginal benefit, so in the **short run** the profit-maximising price and quantity are **unchanged** – only the firm's profit falls; in the long run it changes entry and exit. For a **natural monopoly**, regulating price down to $P = MC$ (allocatively efficient) forces a loss, so a **lump-sum subsidy** 定额补贴 is needed to keep it producing that efficient quantity.

Inequality

Markets reward productivity, but the resulting **income distribution** 收入分配 can be very unequal. Economists measure it with the **Lorenz curve** 洛伦兹曲线 (share of income against share of population; the further it bows from the 45° line, the more unequal) and the **Gini coefficient** 基尼系数 ($0 =$ perfect equality, $1 =$ perfect inequality).



The Lorenz curve and Gini coefficient measure income inequality

Worked example. Suppose the poorest 20% of households earn just 5% of income,

while the richest 20% earn 50%. Under perfect equality each 20% would earn exactly 20%, so the Lorenz curve would be the 45° line. Because the bottom fifth is well below 20% and the top fifth well above, the curve bows far beneath the diagonal – a large gap that means a **high Gini coefficient** and substantial inequality.

Sources of inequality include differences in **human capital** 人力资本 (skills, education), inheritance, and discrimination. Governments redistribute through **progressive taxes** 累进税 (higher rates on higher incomes) and **transfer payments** 转移支付 (welfare, subsidies). There is a debated **efficiency–equity trade-off** 效率与公平权衡: redistribution can reduce work incentives, so societies balance fairness against the size of the total pie.



Wealth and poverty side by side: markets alone may leave large income inequality unaddressed

Exam tips

- A **negative externality** makes the market over-produce; correct with a **Pigovian tax** equal to the external cost. A positive externality under-produces; correct with a subsidy.
- A **public good** is non-rival and non-excludable, so free-riding leads markets to under-provide it.
- Classify goods by rivalry and excludability; common resources (rival, non-excludable) suffer the tragedy of the commons.
- The same policy can help or hurt efficiency depending on whether the market was already efficient or failing.
- Measure inequality with the **Lorenz curve** and **Gini coefficient** ($0 =$ equality, $1 =$ perfect inequality).

= inequality).