Market Failure and the Role of Government

AP Microeconomics

Socially Efficient and Inefficient Market Outcomes

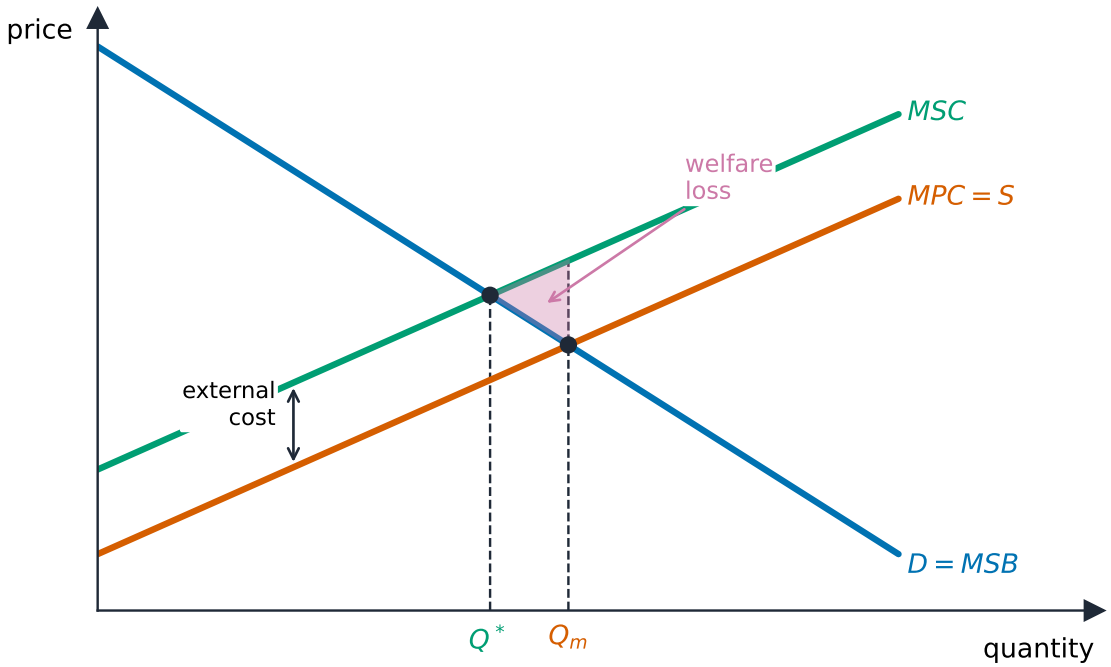
A market outcome is **socially efficient** 社会有效率 when it maximizes total surplus – when the **marginal social benefit** equals the **marginal social cost** of the last unit. Perfect competition reaches this on its own. But sometimes markets fail to, producing too much or too little. This is **market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

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

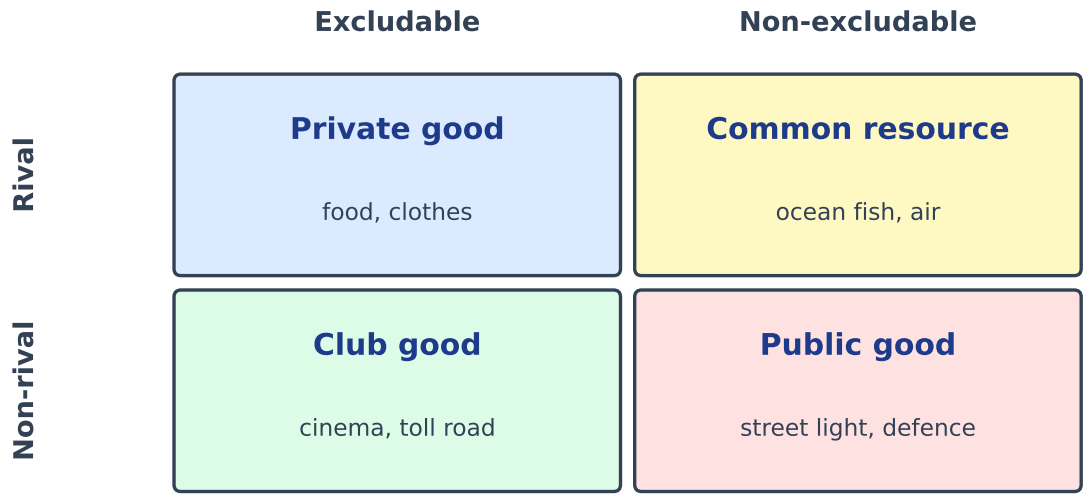
- A **negative externality** 负外部性 (pollution) means **marginal social cost > marginal private cost**. The market **over-produces**; the deadweight loss is a triangle. Fixes: a **Pigovian tax** 庇古税 or regulation to make producers "internalize" the cost (shifting private cost up to social cost).
- A **positive 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.

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.

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?).



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

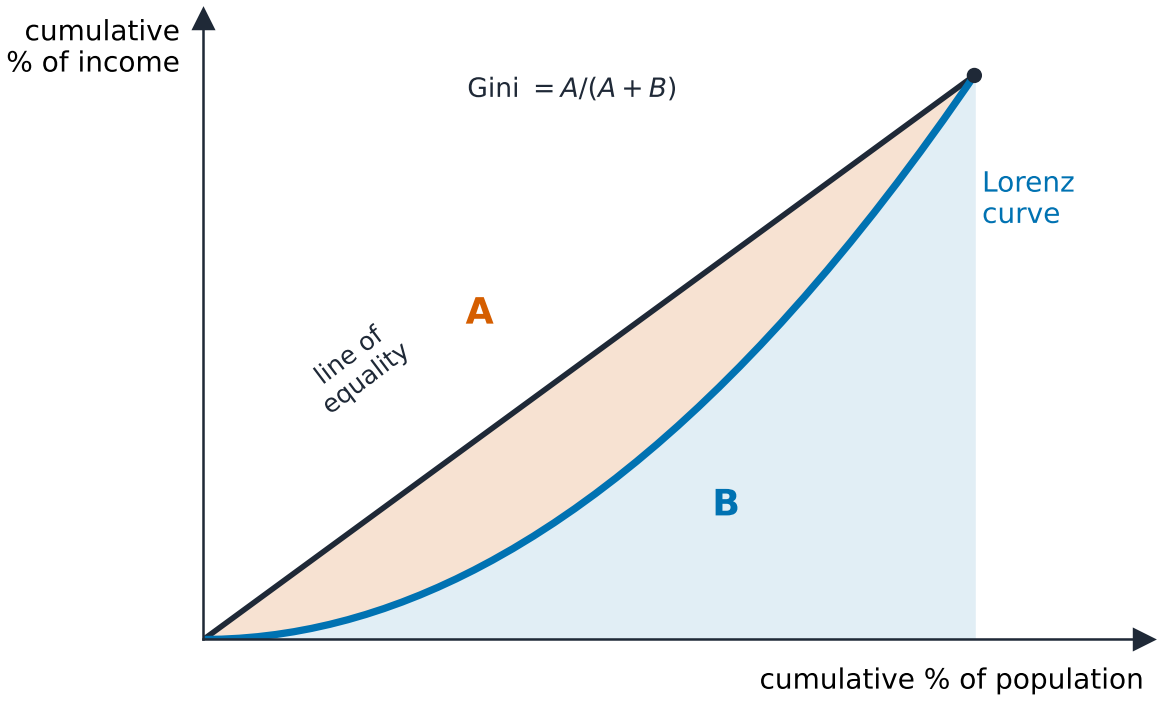
Government tools change outcomes differently by structure:

- **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).

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.

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 = inequality).