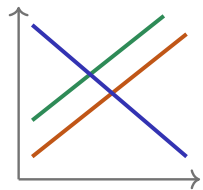
Market Failure & Government

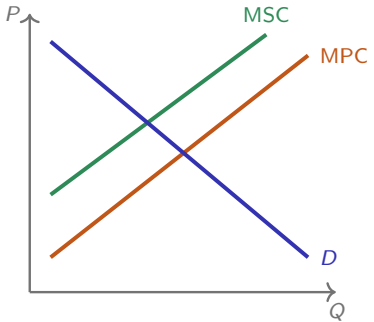
AP Microeconomics ▪ Unit 6

AP Microeconomics



What we will cover

1. Efficiency & market failure
2. Externalities
3. Public & private goods
4. Regulating market power
5. Inequality



1 Efficiency

Efficient & inefficient outcomes

Society does best where the last unit's benefit to everyone meets its cost to everyone:

MSB 边际社会收益 = **MSC** 边际社会成本

At $MSB = MSC$ total surplus is greatest – **socially efficient** 社会有效. Any other quantity is a **market failure** 市场失灵 with a **deadweight loss** 无谓损失.

Socially Efficient and Inefficient Market Outcomes

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

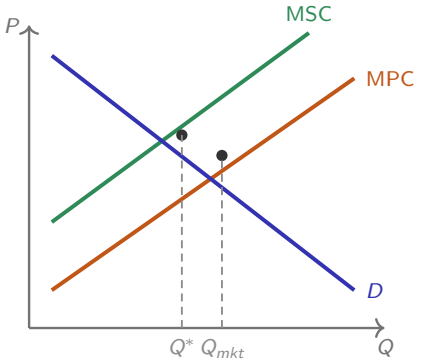
What makes a market outcome socially efficient

socially efficient 社会有效率	the outcome that maximises total surplus
the condition	marginal social benefit equals marginal social cost
consumer surplus	what buyers were willing to pay minus what they paid
producer surplus	what sellers received minus what they were willing to accept
total surplus	the two added – the area between the demand and supply curves up to the quantity traded
deadweight loss	the surplus destroyed when quantity is not the efficient one

A free competitive market reaches MSB = MSC *only* when private and social values coincide. Every case in this unit is a way that fails.

2 Externalities

Externalities



An **externality** 外部性 spills onto a **third party** 第三方.

- **negative** 负外部性 (pollution): $MSC > MPC$, market **overproduces** 过度生产
- **positive** 正外部性 (vaccines): $MSB > MPB$, market **underproduces** 生产不足

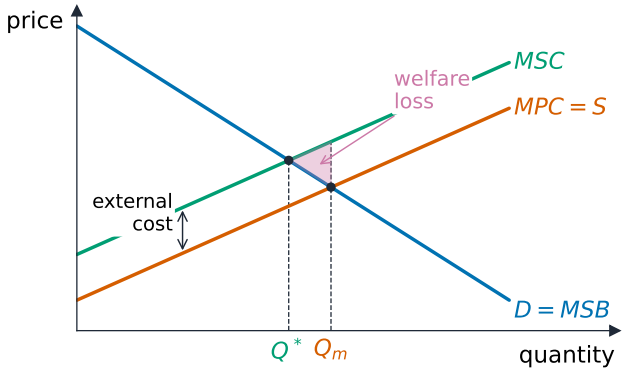
The gap creates a deadweight loss from Q^*.

Cigarettes: externalities mean private marke – one

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

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

Cigarettes: externalities mean private marke – two



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

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

Correcting externalities

- **Pigouvian tax** 庇古税 = external cost → cut output
- **Subsidy** 补贴 = external benefit → raise output
- **Tradable permits** 可交易许可证 – cap & trade pollution

Worked example

Steel private cost \$200; smoke harm \$30. A \$30 Pigouvian tax internalises the cost and cuts to Q^*.

Taxes and permits internalise external costs

Three ways to correct an externality

a Pigouvian tax	set equal to the external cost, so the private cost rises to the social one
a subsidy	for a positive externality, so the private benefit rises to the social one
Coase theorem 科斯定理	if property rights are clear and bargaining is costless, private parties can solve it themselves without government
why Coase often fails	many affected parties, unclear rights, and real bargaining costs
tradable permits	a cap plus a market, which finds the cheapest abatement

Each remedy internalises the externality – makes the decision-maker face the full social cost. Say which cost is being moved onto whom.

3 Public goods

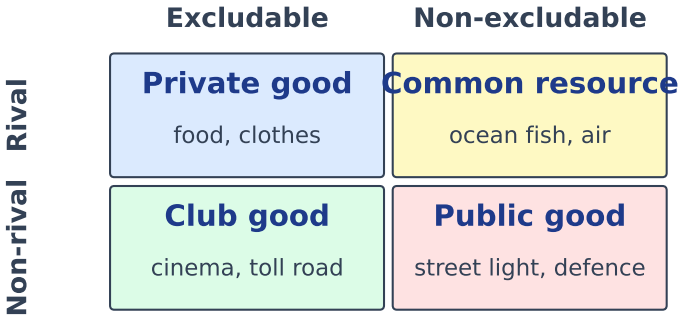
Public & private goods

	Excludable	Non-excl.
Rival	**Private** 私人物品	**Common** 公共资源
Non-rival	**Club** 俱乐部物品	**Public** 公共物品

Two properties: **rivalry** 竞争性 and **excludability** 排他性.

- **free-rider problem** 搭便车问题: public goods underproduced
- **tragedy of the commons** 公地悲剧: common resources overused

Public and Private Goods



Goods classified by whether they are rival and excludable

Two traits sort every good into four kinds

rivalry 竞争性	does one person's use reduce another's?
excludability 排他性	can non-payers be kept out?
private good	rival *and* excludable – a sandwich
public good 公共物品	non-rival and non-excludable – national defence, a lighthouse
the free-rider problem	because non-payers cannot be excluded, no one pays, so the market supplies too little or none
the other two	common resources (rival, non-excludable – fisheries) and club goods (non-rival, excludable – cable TV)

Ask the two questions in order and the category follows. The market failure attached to each kind then follows from the category.

4 Regulating market power

Regulating market power

Marginal-cost pricing 边际成本定价

$P = MC$: efficient quantity, but a natural monopoly then makes a loss

Average-cost pricing 平均成本定价

$P = ATC$: firm breaks even, slight inefficiency

Antitrust policy 反垄断政策 blocks anti-competitive mergers. But **government failure** 政府失灵 – when the cure costs more than the failure – means intervention is not free.

Government tools, and how the tax type matters

antitrust laws 反垄断法	break up or block anti-competitive mergers and collusion
price regulation	a ceiling set at marginal cost restores efficiency but may leave the firm making a loss
a per-unit tax 从量税	adds to marginal cost – shifts supply up, raises price, cuts quantity, and creates deadweight loss
a lump-sum tax 总额税	a fixed charge – it does not change marginal cost, so price and quantity are unchanged and profit falls
a lump-sum subsidy 总额补贴	the mirror: it raises profit and changes nothing about the chosen quantity
the reason	a firm chooses quantity where $MR = MC$, so only something that moves MC can move the quantity

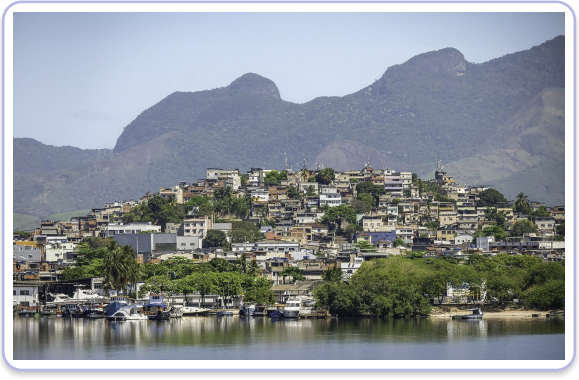
Ask whether the tool touches marginal cost. That single question decides whether output changes at all.

5 Inequality

Inequality – the Lorenz curve

The **Lorenz curve** 洛伦兹曲线 plots cumulative income vs population. The more it sags, the more unequal.

> **Gini coefficient** 基尼系数 $= \frac{A}{A+B}$, from 0 (equal) to 1 (one person has all).



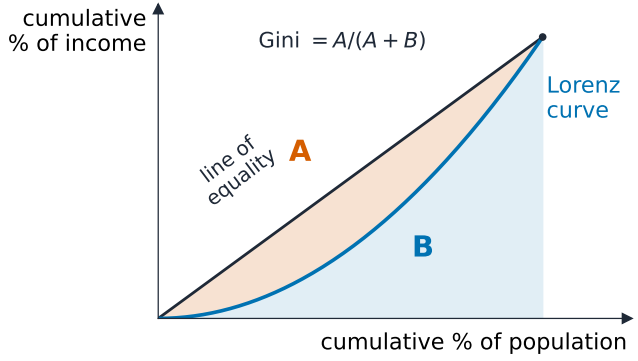
Income shares diverge across households

Where inequality comes from, and what is traded away

human capital 人力资本	differences in skills and education – the largest single source
inheritance	wealth and opportunity passed on rather than earned
discrimination	pay differences not explained by productivity
progressive taxes 累进税	take a higher share from higher incomes, and fund transfers
transfer payments	benefits and social insurance, which change the **income distribution 收入分配** after tax
the efficiency–equity trade-off 效率与公平取舍	redistribution can weaken the incentive to work or invest – the standard objection

The Lorenz curve and Gini coefficient measure the distribution *before* and *after* tax. Comparing the two is what shows the policy's effect.

Inequality



The Lorenz curve and Gini coefficient measure income inequality

Taxes & redistribution

Progressive 累进
higher % from high incomes – reduces inequality

Proportional 比例
same % from everyone

Regressive 累退
higher % from low incomes – widens it

Inequality has many sources: differences in **human capital** 人力资本, discrimination, and inherited wealth. **Wealth inequality** 财富不平等 usually exceeds income inequality.

Key points

Efficient at $MSB = MSC$; any gap is a **market failure**

Externalities: negative overproduce, positive underproduce

Public goods → free riders; **commons** → overuse

Lorenz & Gini measure inequality

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).

6 Recap

Unit 6 – key takeaways

1 Externality

negative over-produces – Pigovian tax

2 Public good

non-rival, non-excludable; free-riding

3 Commons

rival and non-excludable – tragedy

4 Inequality

Lorenz curve and Gini (0 to 1)

Check yourself

1. A factory pollutes. Which cost is missing from its decision?
2. What are the two features of a public good?
3. What does a Lorenz curve further from the diagonal mean?
4. Name one way to correct a negative externality.

Answers **1.** the external cost – so MSC $>$ MPC **2.** non-rival and non-excludable **3.** more inequality **4.** a Pigouvian tax, regulation, or tradable permits