Market failure and government intervention

Edexcel IAL Economics WEC11 sections 1.3.5-1.3.6 full package

Market failure and government intervention

- define market failure and name its sources;
- analyse external costs and benefits on a diagram and measure the **welfare loss**;
- explain **public goods**, information gaps, **moral hazard** and bubbles with real cases;

Market failure and government intervention (2)

- compare the main methods of government intervention;
- explain **government failure** and weigh a policy against it.

Sources of market failure

- **externalities 外部性**: costs or benefits that fall on people outside the deal;
- **public goods 公共物品** and the **free-rider problem 搭便车问题**;
- imperfect information;

Sources of market failure (2)

- **moral hazard** 道德风险;
- speculation and market **bubbles** 市场泡沫.

Externalities

- **external cost** of production: a coal power station's smoke;
- **external benefit** of production: a firm trains engineers who later work for other firms;
- external cost of consumption: driving in rush hour slows every other road user;

social cost = private cost+external cost, social benefit = private benefit+external benefit

Externalities (2)

- **external benefit** of consumption: a vaccinated child cannot pass measles to a baby too young to be vaccinated. Measles needs about 95% of people to be immune before outbreaks stop.
- Each unit causes an **external cost** of 6 yuan, so $MSC = MPC + 6$.
- Social optimum: $70 - Q/2 = Q/4 + 1$, so $\frac{3}{4}Q = 69$ and $Q^* = 92$.

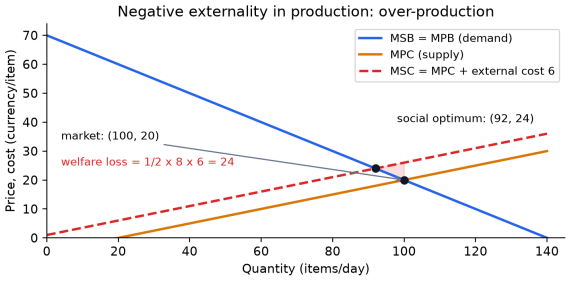
Externalities (3)

- The market makes 100: it **over-produces** by 8 units.
- On each of those 8 units, social cost is above social benefit. The gap is 6 at $Q = 100$ and 0 at $Q = 92$, so the **welfare loss 福利损失** is a triangle: $\frac{1}{2} \times 8 \times 6 = 24$ yuan per day.
- transport: congestion and exhaust;

Externalities (4)

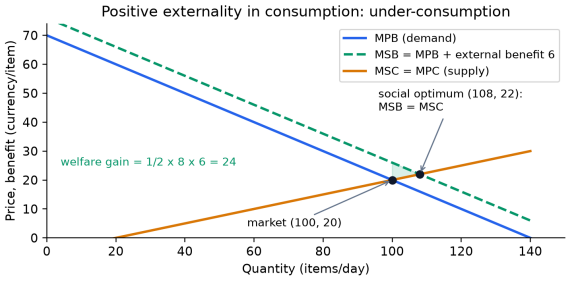
- health: vaccination, passive smoking;
- education: a skilled workforce helps other firms and lowers crime;
- environment: emissions, plastic waste;
- finance: one bank's collapse can spread to others, as Lehman Brothers' failure did in September 2008.

Figure: Externalities



- **External cost**: the market makes 100 where MPB = MPC; society wants 92 where MSB = MSC; the triangle between them is the **welfare loss** of 24
- Match each part of the diagram to the text.

Figure: Externalities ·



- **External benefit**: the market stops at 100, but MSB = MSC at 108; the missing triangle is a **welfare** gain of 24
- Match each part of the diagram to the text.

Public goods, information gaps, moral hazard and bubbles

- healthcare: patients cannot judge which treatment they need;
- education: students cannot see a course's quality before they pay;
- pensions: products are complex and their costs are hidden;

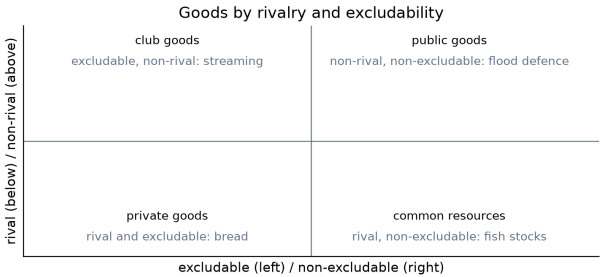
Public goods, information gaps, moral hazard and bubbles (2)

- insurance: people who know they are high risk buy more cover.
- consumers: homes worth less than their mortgages (**negative equity** 负资产), smaller pensions;
- producers: demand collapses;

Public goods, information gaps, moral hazard and bubbles (3)

- workers: unemployment;
- governments: recession, lower tax revenue and bank rescues.

Figure: Public goods, information gaps, moral hazard and bubbles



- Goods sorted by rivalry and excludability: only the non-rival, non-excludable corner suffers from free-riding
- Match each part of the diagram to the text.

Government intervention: purpose and methods

- **Indirect taxes**. A **Pigouvian tax** 庇古税, named after the economist Arthur Pigou (1920), equals the **marginal external cost**. On our model, a tax of 6 per unit moves supply up to MSC, and output falls to the social optimum of 92 at a consumer price of 24 — the same numbers as the tax in Unit 1.
- **Subsidies**. A subsidy of 6 per unit corrects the positive externality: output rises to 108, buyers pay 16 and sellers receive 22. China's free childhood vaccinations under the national immunisation programme work the same way, with the price cut to zero.
- **Maximum prices** 最高价格, set below equilibrium to keep a good affordable.

Government intervention: purpose and methods (2)

- **Minimum prices 最低价格**, set above equilibrium to protect producers.
- **Tradeable pollution permits 可交易污染许可证**.
- **Property rights 产权**: if a river's owner can sue the factory that pollutes it, the factory must take the cost into account.

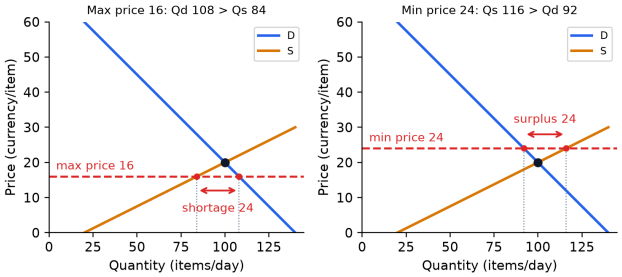
Government intervention: purpose and methods (3)

- **State provision** of **public goods** and merit goods such as schooling.
- **Regulation** 监管: bans, standards and limits.
- **Information**: food labels, school league tables, health warnings.

Government intervention: purpose and methods (4)

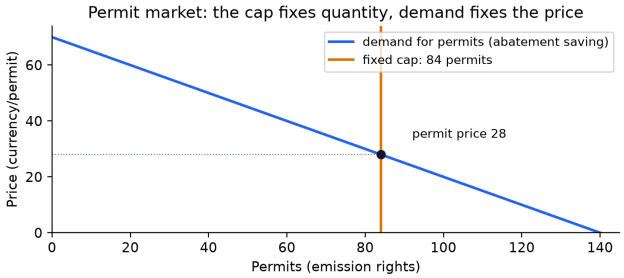
- Maximum price of 16 yuan: $Q_d = 140 - 2(16) = 108$ and $Q_s = 20 + 4(16) = 84$. There is a **shortage** of 24. Queues, waiting lists and black markets follow. Rent controls show the effect: in Stockholm, which caps rents, people wait years in the city's official queue for a flat.
- Minimum price of 24 yuan: $Q_s = 116$ and $Q_d = 92$. There is a **surplus** of 24, which the government may have to buy and store. Since 2004 China has set minimum purchase prices for rice, and since 2006 for wheat; the state grain company Sinograin buys the surplus when market prices fall below them. In the 1980s the European Union's guaranteed farm prices filled government stores with "butter mountains" and "wine lakes".

Figure: Government intervention: purpose and methods



- A maximum price of 16 causes a shortage of 24; a minimum price of 24 causes a surplus of 24
- Match each part of the diagram to the text.

Figure: Government intervention: purpose and methods ·



- The cap fixes 84 permits; firms' demand for permits sets their price at 28
- Match each part of the diagram to the text.

Government failure

- **Information gaps**: the government cannot measure the **external cost** exactly. If it sets the tax too high, it cuts output below the social optimum and creates a new **welfare loss**.
- **Unintended consequences**: in 1989 Mexico City banned each car from driving on one weekday, chosen by its number plate. Many families bought a second, older and dirtier car, and later studies found no improvement in air quality.
- **Administrative costs**: collecting taxes, enforcing rules and storing surpluses all use resources.

Government failure (2)

- **Lack of incentives**: state providers that face no competition may have little reason to cut costs or improve quality.
- **Moral hazard**: guaranteed prices or expected rescues change behaviour.

Data-response practice (Section B style)

- (a) Explain, using the extract, why road congestion is an example of a negative externality. [4]
- (b) Before the charge, 100,000 vehicles a day entered the zone. Using the extract, calculate the number entering after the first year, and the daily revenue at £5. [4]
- (c) With the help of a diagram, explain how a congestion charge could move the market towards the **socially optimal** level of road use. [6]

Data-response practice (Section B style) (2)

- (d) Examine **two** problems a government faces in setting the right level of a congestion charge. [8]
- (e) Evaluate whether road pricing is a better solution to congestion than building more roads. [12]

Sources for this lesson

- US Embassy Beijing air-quality readings, January 2013; State Council, Air Pollution Prevention and Control Action Plan (September 2013).
- G. Akerlof, "The Market for 'Lemons'", *Quarterly Journal of Economics* 84 (1970).
- R. Coase, "The Lighthouse in Economics", *Journal of Law and Economics* 17 (1974).

Sources for this lesson (2)

- L. Davis, "The Effect of Driving Restrictions on Air Quality in Mexico City", *Journal of Political Economy* 116 (2008).
- Transport for London, congestion charge monitoring reports.
- Pearson Edexcel International AS Economics specification (WEC11), Issue 2, sections 1.3.5–1.3.6.

Common errors

- Drawing the **external cost** as a shift of demand. A production externality makes MSC lie above MPC; demand (MPB) does not move.
- Shading the wrong triangle. The **welfare loss** lies between MSC and MSB, from the social optimum to the market output.
- Calling anything the government provides a "public good". Schools and hospitals are **rival** and excludable: they are merit goods or state-provided private goods.

Common errors (2)

- Confusing **moral hazard** (behaviour changes **after** the deal) with **asymmetric information** before it.
- Saying a maximum price is set **above** equilibrium. A maximum price only has an effect when it is below equilibrium; a minimum price only when it is above.
- Ending an intervention answer without evaluation. Name a cause of **government failure** that could apply.

Key terms

- **Market failure**: too much or too little of a good compared with the social optimum.
- **Externality**: a cost or benefit to a third party, outside the market price.
- **Public good**: non-rival and non-excludable, so free-riding stops private provision.

Key terms (2)

- **Asymmetric information**: one side of a deal knows more than the other.
- **Moral hazard**: taking more risk because someone else bears the cost.
- **Government failure**: intervention that causes a net **welfare loss**.

Check yourself

- 1.
- Explain why the smog in Beijing in January 2013 was a market failure. 2.
- On the model, with an **external cost** of 6 per unit, why is the **welfare loss** 24? 3.
- Is a toll motorway a public good?