

# 2.1 Market failure

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_ Total: 26 marks

KEY WORDS externality • public good • moral hazard

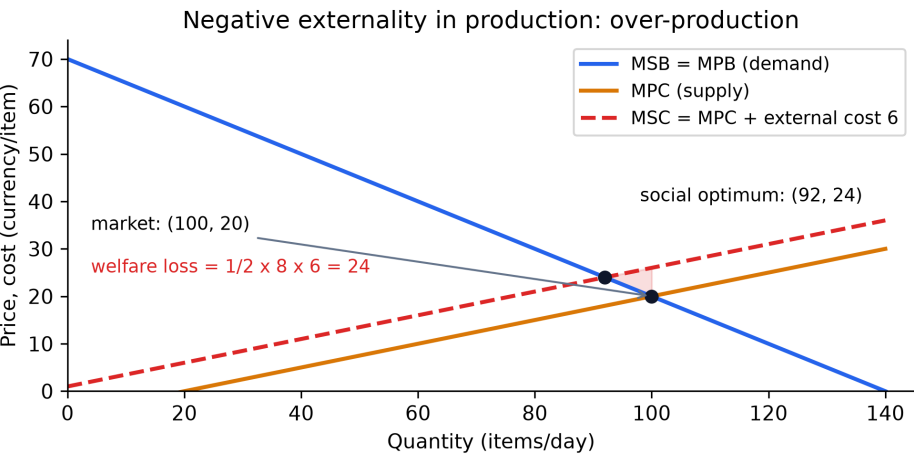
## Market failure

### Objective

Identify the sources of market failure, analyse positive and negative externalities with marginal analysis diagrams and welfare areas, and explain public goods, information gaps, moral hazard and bubbles (spec 1.3.5, rows 1–6).

### 1 Key knowledge and worked examples

**Failure and externalities.** Market failure is output above or below the social optimum. Social cost = private cost + external cost; social benefit = private benefit + external benefit; the social optimum sits where  $MSB = MSC$ . On the shared model (demand  $P = 70 - Q/2$ , supply  $P = Q/4 - 5$ , market (100, 20)), an external cost of 6 per unit makes  $MSC = MPC + 6$  and the optimum  $Q^* = 92$ : the market over-produces by 8 and the welfare-loss triangle is  $\frac{1}{2} \times 8 \times 6 = 24$  per day. An external benefit of 6 makes  $MSB = MPB + 6$  and  $Q^* = 108$ : under-consumption of 8 with the same 24 available as a welfare gain.



Original model; the welfare-loss area is computed in the worked examples.

## 2 Practice

2.1 Define market failure and name any three of its five sources. [3]

2.2 Distinguish a private good from a public good using rivalry and excludability, with one example of each. [2]

2.3 Explain the free-rider problem and its consequence for the private provision of flood defences. [2]

2.4 Give one example of asymmetric information in the used-car market and one in insurance. [2]

2.5 Define moral hazard and state one example from banking. [2]

2.6 In two sentences, describe how a speculative housing bubble forms and how it ends. [2]

### 3 Exam-style questions

**3.1** (*Original.*) With demand  $P = 70 - Q/2$ , supply (marginal private cost)  $P = Q/4 - 5$  and an external cost of 6 currency units per unit produced, draw and fully label a marginal analysis diagram showing the market equilibrium, the social optimum and the welfare loss, and calculate that loss. [5]

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**3.2** (*Original.*) The same market instead carries an external BENEFIT of 6 per unit consumed. Explain, with a diagram, why the market under-consumes and calculate the welfare gain available. [4]

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**3.3** (*Original.*) Name the externality (positive/negative, production/ consumption) in each context: (a) factory emissions; (b) vaccination; (c) congestion from car use; (d) worker training that other firms can use. [4]

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## Solutions

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**2.1** Market failure: the market produces more or less than the socially optimal output. Sources: externalities; the free-rider problem/non-provision of public goods; imperfect information; moral hazard; speculation and bubbles (any three).

**2.2** Private good: rival and excludable (a loaf of bread). Public good: non-rival and non-excludable (street lighting or flood defence).

**2.3** Nobody can be excluded from protection once the defence exists, and one person's protection does not reduce another's; so each household waits for others to pay. Contributions cannot be enforced, private revenue is zero and the good is not provided – the state must provide it.

**2.4** Used cars: the seller knows the car's faults, the buyer does not (lemons problem). Insurance: the applicant knows their health or driving better than the insurer.

**2.5** Moral hazard: after a contract is signed, the protected party takes more risk because someone else bears the cost. Banking: an expectation of bailouts encourages banks to lend more riskily.

**2.6** Buyers purchase only to resell at a higher price, so demand feeds on itself and prices detach from fundamentals; the bubble ends when expectations flip – prices crash and overstretched borrowers default.

**3.1** Axes price/cost against quantity;  $MSB = MPB$  falling from 70;  $MPC$  rising through (100, 20);  $MSC = MPC + 6$  parallel above it, crossing  $MSB$  at (92, 24). Market (100, 20) over-produces: for every unit between 92 and 100 the social cost exceeds the benefit. Welfare loss =  $\frac{1}{2} \times (100 - 92) \times 6 = 24$  currency units/day.

**3.2**  $MSB = MPB + 6$  lies above demand and crosses  $MPC$  at (108, 16). The market trades at (100, 20), so units 100 to 108 carry benefits (including external ones) above their costs – under-consumption. Welfare gain =  $\frac{1}{2} \times (108 - 100) \times 6 = 24$  currency units/day.

**3.3** (a) Negative externality of production. (b) Positive externality of consumption. (c) Negative externality of consumption. (d) Positive externality of production.

Local review guidance: sources named from the specification list; curves labelled MPB/MSB, MPC/MSB with BOTH equilibria marked before any area claim; welfare areas use the  $\frac{1}{2} \times \text{base} \times \text{height}$  form with the marginal gap identified. This is authored classroom guidance.