Market failure and government intervention

Pearson Edexcel · International A-Level · Economics

Pearson Edexcel International AS Economics (WEC11), specification Issue 2, June 2018. This topic covers spec sections 1.3.5–1.3.6 in full: market failure (six rows) and government intervention in markets (two rows). The shared model continues from topic 1, drawn in inverse form: demand (marginal private benefit) $P = 70 - Q/2$, supply (marginal private cost) $P = Q/4 - 5$, market equilibrium $Q = 100$, $P = 20$ – and an external cost or benefit of 6 per unit reproduces the topic-1 tax and subsidy equilibria, so every welfare area below cross-checks against those numbers.

Must-know for this topic:

Family	Relationship
externalities	$MSC = MPC + EC$; $MSB = MPB + EB$; optimum where $MSB = MSC$
welfare areas	loss $= \frac{1}{2} \times (Q_m - Q^*) \times$ marginal gap at Q_m; here $= \frac{1}{2} \times 8 \times 6 = 24$
price controls	max price 16 $\rightarrow$ shortage $Q_d - Q_s = 24$; min price 24 $\rightarrow$ surplus 24
intervention	taxes, subsidies, price controls, permits, property rights, provision, regulation, information

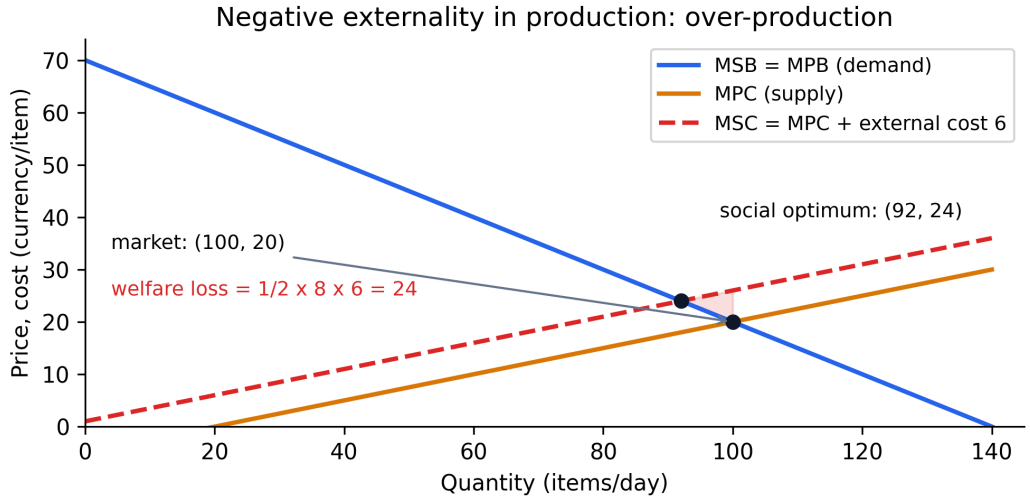
Sources of market failure

Market failure means too much or too little of a good is produced and/or consumed compared with the socially optimal level of output (1.3.5.1a). The sources (1.3.5.1b): **externalities**, the free-rider problem and the non-provision of public goods, imperfect market information, moral hazard, and speculation and market bubbles. Each is a reason the price mechanism's signals fail to value every cost and benefit, so the market equilibrium is not the social optimum.

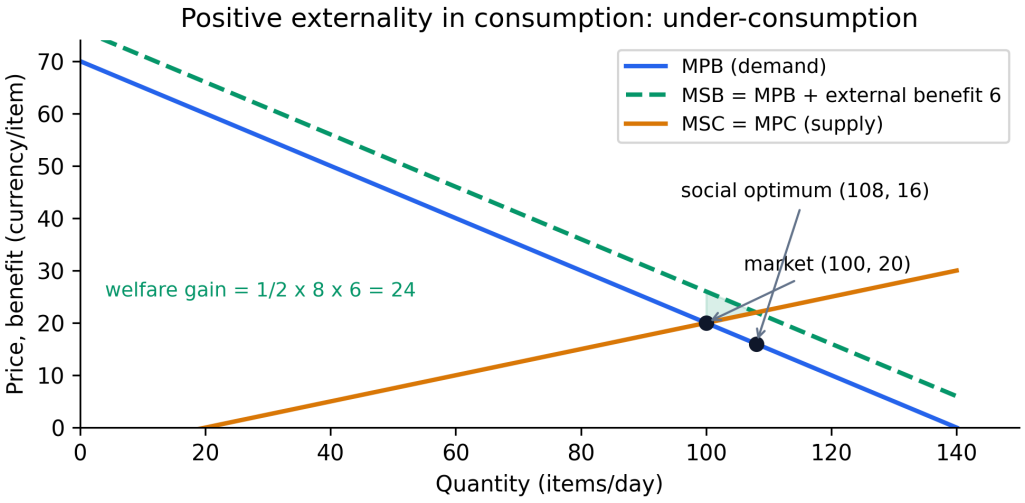
Externalities

Private benefit/cost is what the decision-maker enjoys or pays; the **external benefit** or **external cost** falls on third parties; the social value sums them: **social benefit** $= MPB + EB$ and **social cost** $= MPC + EC$ (1.3.5.2a–b). Externalities come from production (a factory's emissions are an external cost of production; training that benefits other firms is an external benefit of production) or from consumption (vaccination conveys external benefits of consumption; congestion and pollution from driving are external costs of consumption) (1.3.5.2c).

Diagrammatically, marginal analysis puts Q on the horizontal axis. Negative externality of production: demand is $MSB = MPB : P = 70 - Q/2$ and supply is $MPC : P = Q/4 - 5$, so the market trades at $(100, 20)$; with an external cost of 6 per unit $MSC = MPC + 6$ crosses MSB at $Q^* = 92$ – the market OVER-produces by 8, and the **welfare loss** triangle between the curves over $[92, 100]$ is $\frac{1}{2} \times 8 \times 6 = 24$ currency units/day (1.3.5.2d). Positive externality of consumption: $MSB = MPB + 6$ crosses MPC at $Q^* = 108$ – the market UNDER-consumes by 8, and the welfare GAIN available over $[100, 108]$ is the same $\frac{1}{2} \times 8 \times 6 = 24$. Contexts to know cold (1.3.5.2e): transport (congestion, pollution), health (vaccination, passive smoking), education (spillovers from a skilled workforce), environment (emissions), financial (risk externalities of bank failure).



Original model; the market and social optima and the welfare-loss area are computed in the text.

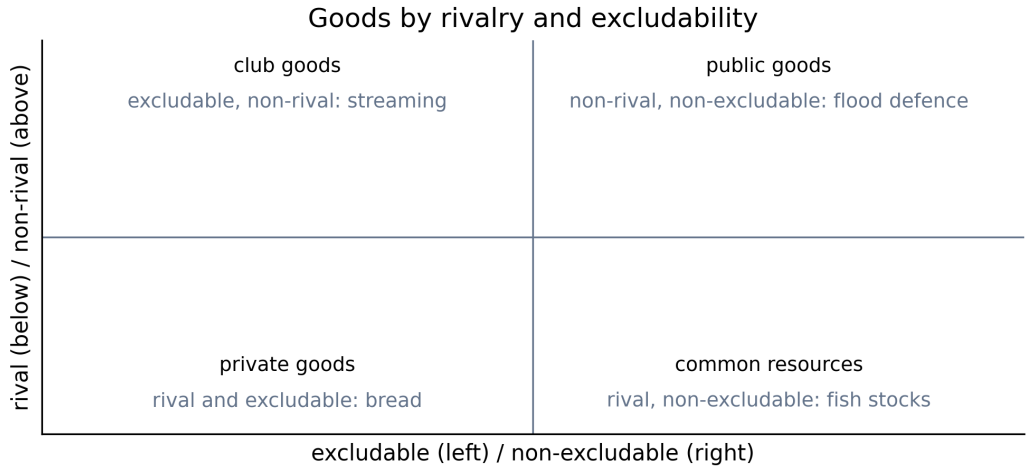


Original model; the welfare-gain area mirrors the loss case with an external benefit of 6.

Public goods, information gaps, moral hazard and bubbles

Private goods are rival (one person's consumption reduces what is left) and excludable (non-payers can be stopped); **public goods** are non-rival and non-excludable – a flood defence protects everyone at once and cannot be withheld (1.3.5.3a). The **free-rider problem** means nobody can be charged, so private firms cannot cover costs and public goods are not provided by the private sector at all – the state must provide them (1.3.5.3b).

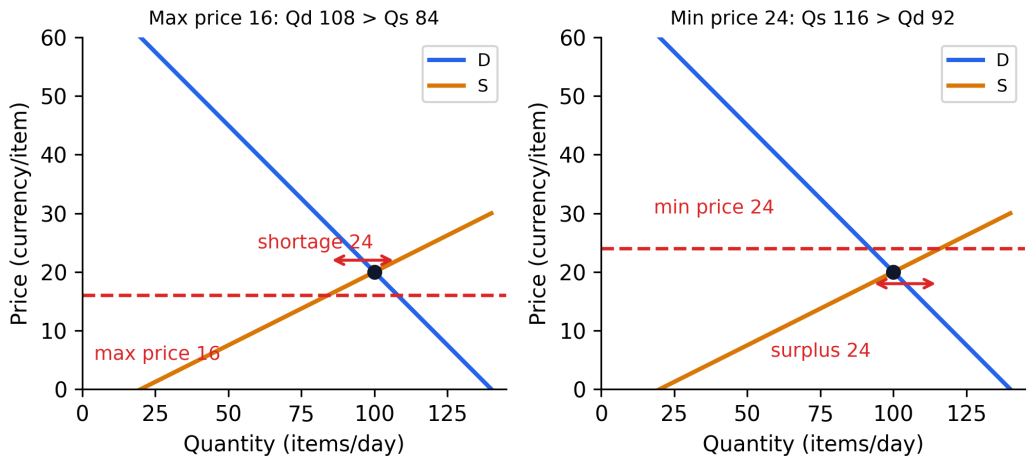
Information is symmetric when both sides know the same things; **asymmetric information** (the used-car seller knows the car, the insurer knows less than the insured) creates information gaps that misallocate resources in healthcare (patients cannot judge treatment), education (students cannot judge course quality), pensions (complexity hides value) and insurance (adverse selection) (1.3.5.4). **Moral hazard** arises AFTER a contract when the protected party takes more risk: insured drivers drive less carefully, bails encourage banks to lend recklessly – consumers pay higher premiums, producers and workers carry the risk, and governments face bailout bills in insurance and banking alike (1.3.5.5). Market **bubbles** arise when speculation feeds on itself: buyers buy only to resell, prices detach from fundamentals and then crash – housing and stocks and shares are the specification contexts, and the burst hits consumers (negative equity, pension losses), producers (collapsed demand), workers (unemployment) and governments (recession, bailouts) (1.3.5.6).



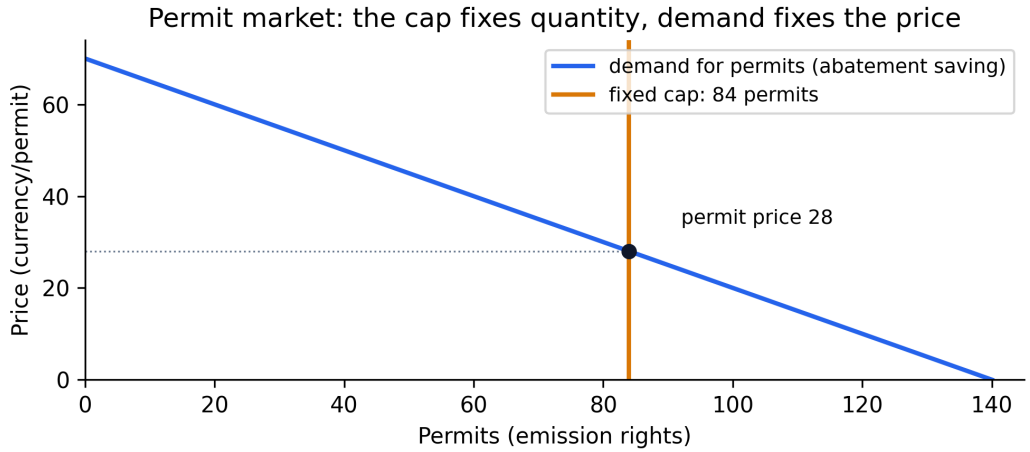
The quadrant places the specification's public/private distinction in context; only the pure public corner fails by free-riding.

Government intervention: purpose and methods

Intervention exists to correct market failure – to move output towards the social optimum (1.3.6.1a). The methods (1.3.6.1b): indirect taxation (ad valorem and specific – a Pigouvian tax equal to the marginal external cost 6 shifts supply to the social optimum $(92, 24)$, exactly the topic-1 tax arithmetic); subsidies (6 per unit corrects the positive externality to $(108, 16)$); **maximum prices** (set at 16, below equilibrium, for affordability: $Q_d = 108 > Q_s = 84$, a shortage of 24 – rationing, queues and black markets follow); **minimum (guaranteed) prices** (set at 24, above equilibrium, to protect producers: $Q_s = 116 > Q_d = 92$, a surplus of 24 – the government may have to buy and store it); **tradeable pollution permits** (the cap fixes total emissions – here 84 permits – and demand sets the permit price, 28 in our model, so firms with low abatement costs sell permits to firms with high ones); extension of **property rights** (giving victims the right to sue internalises the externality); state provision (public goods, health, education); **regulation** (bans, standards, price caps); and the provision of information (closing information gaps). Contexts (1.3.6.1c): health, housing, education, transport, environment, energy, agriculture and commodities.



Original model; the shortage and surplus of 24 items/day at prices 16 and 24 are computed in the text.



Original model; the vertical cap meets the demand curve at a permit price of 28.

Government failure

Government failure is intervention that results in a NET welfare loss – the cure costs more than the disease (1.3.6.2a). The causes (1.3.6.2b): information gaps (the state misjudges the externality's size, so the tax of 6 overshoots and wastes the triangle it meant to save); unintended consequences (minimum prices create surpluses; maximum prices create black markets); excessive administrative costs (collecting, enforcing, storing); lack of incentives (state providers face no competition); and moral hazard (guaranteed prices or bailouts change behaviour). Every intervention answer should close by weighing the correction against these costs.

Checklist

- Market failure defined; the five sources named (1.3.5.1).
- Private/external/social benefits and costs; production vs consumption externalities; MSC/MSB diagrams with market vs social optimum and the welfare-loss/gain areas; the five contexts (1.3.5.2).
- Rivalry and excludability; public vs private goods; free-riding and non-provision (1.3.5.3).
- Symmetric vs asymmetric information; information gaps in healthcare, education, pensions, insurance (1.3.5.4).
- Moral hazard after the contract; effects in insurance and banking (1.3.5.5).
- How bubbles arise; effects in housing and stocks on all four groups (1.3.5.6).
- Purpose of intervention; the eight methods with the max/min price shortages and surpluses computed; the eight contexts (1.3.6.1).
- Government failure as net welfare loss with its five causes (1.3.6.2).

Boundary notes: diagrams carry marks – axes labelled, curves named (MPB/MSB, MPC/MSC), the optimum and the welfare area identified. State the assumption that the externality is constant at 6 per unit (in reality marginal external costs vary with output). All worked numbers are original and consistent with the shared model of topic 1.