ECONOMICS 0455 · CHAPTER 2

The allocation of resources

Markets, demand, supply and the price mechanism, equilibrium and disequilibrium, price changes, price elasticity of demand and supply, the market and mixed economic systems, market failure and government intervention.

This is the core of microeconomics: how **markets** decide **what is produced and who gets it**, what happens when they **fail**, and how governments respond.

2.1 Microeconomics and macroeconomics

Economics is split into two branches.

- **Microeconomics** studies the **individual parts** of the economy: how **households, workers and firms** make decisions, and how **single markets** work, for example the market for bread or the market for taxi drivers.
- **Macroeconomics** studies the **whole economy**: **economic growth, inflation, unemployment**, the government's budget and the balance of payments.

> **Micro is about one market or one decision-maker. Macro is about the economy as a whole.**

> TRY IT
>
> Is a rise in the price of rice in one city a micro or a macro issue? What about a fall in the country's overall growth rate?
>
> The price of rice in one market is **micro**. The country's growth rate is **macro**.

2.2 The role of markets in allocating resources

- A **market** is **any place or system where buyers and sellers meet** to trade goods, services or resources (face to face or online).
- **Examples**: a fruit market, a stock exchange, an online shopping site, the **labour market** (workers sell their labour to firms) and the **foreign exchange market**.
- **Buyers** (consumers) create **demand**: they decide what to buy to get the most satisfaction. **Sellers** (producers) create **supply**: they decide what to sell to make a profit.

The interaction of buyers and sellers sets **prices** and decides how scarce resources are allocated.

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2.3 Demand

> **Demand is the quantity of a good or service that consumers are willing and able to buy at a given price in a given period.**

- **Individual demand** is the demand of **one consumer**. **Market demand** is the **sum of all individual demands** for the good at each price.
- The **law of demand**: as **price falls, quantity demanded rises** (and the reverse), other things being equal. This gives a **downward-sloping demand curve**.

Drawing the demand curve

Put **price on the vertical axis** and **quantity on the horizontal axis**. The demand curve **slopes downwards from left to right**, labelled **D**.

Movement along the curve (extension and contraction)

A **change in the good's own price** causes a **movement along** the same demand curve:

- price **falls** → **extension** (quantity demanded rises, move down the curve)
- price **rises** → **contraction** (quantity demanded falls, move up the curve)

Shifts of the curve

A change in any **other factor** shifts the whole curve:

- **Increase in demand**: the curve shifts **right** (more at every price).
- **Decrease in demand**: the curve shifts **left**.

Causes of a **shift** (remember **PIRATES**): **P**opulation (size, age), **I**ncome (for a normal good, higher income increases demand), **R**elated goods (**substitutes**: a rise in the price of tea raises the demand for coffee; **complements**: a rise in the price of cars lowers demand for petrol), **A**dvertising, **T**astes and fashion, **E**xpectations (of future prices), **S**easons.

NOTE

Exam tip: a change in the good's **own price** is a **movement along** the curve; every **other** cause is a **shift**.

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2.4 Supply

Supply is the quantity of a good or service that producers are willing and able to sell at a given price in a given period.

- **Individual supply** is one firm's supply; **market supply** is the **sum of all firms' supplies**.
- **Law of supply**: as **price rises, quantity supplied rises** (higher price means more profit per unit), giving an **upward-sloping supply curve (S)**.

Movements along the curve

Own price **rises** → **extension** of supply; price **falls** → **contraction**.

Shifts

- **Increase in supply**: shift **right**. **Decrease**: shift **left**.

Causes of a shift: **costs of production** (wages, raw materials, energy: lower costs increase supply), **technology** (new technology lowers costs and raises supply), **government policy** (a **subsidy** increases supply; a **tax** decreases it), **weather** (for farm goods), **number of firms**, **prices of related goods** (a firm may switch production), and **expectations**.

2.5 Price determination

The price mechanism

The **price mechanism** allocates resources through **changes in prices**, answering the three questions:

- **What to produce**: goods with **high demand** have **high prices and profits**, so firms produce more of them; goods in low demand are produced less.
- **How to produce**: firms choose the **cheapest method** (the lowest cost) to keep profits high.
- **For whom to produce**: goods go to **those who are willing and able to pay** (who have the income).

Market equilibrium

Equilibrium is where quantity demanded = quantity supplied. The equilibrium price and equilibrium quantity are where the demand and supply curves cross. There is no pressure for

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change.

Price ($)	Quantity demanded	Quantity supplied
10	500	100
20	400	200
30	**300**	**300**
40	200	400
50	100	500

Here the equilibrium price is **$30** and the equilibrium quantity is **300**.

Disequilibrium

Disequilibrium is when quantity demanded does **not** equal quantity supplied.

- **Shortage (excess demand)**: price **below** equilibrium: demand exceeds supply (at $20 in the table: 400 − 200 = **200 shortage**). Price tends to **rise**.
- **Surplus (excess supply)**: price **above** equilibrium: supply exceeds demand (at $40: 400 − 200 = **200 surplus**). Price tends to **fall**.

On a diagram, a price line **below** the crossing shows the shortage as the horizontal gap between D and S; a line **above** shows the surplus.

2.6 Price changes

Causes

Price changes when **demand or supply shifts** and the market finds a **new equilibrium**:

Change	Effect on price	Effect on quantity
Demand increases (D shifts right)	**rises**	**rises**
Demand decreases (D shifts left)	falls	falls
Supply increases (S shifts right)	**falls**	**rises**
Supply decreases (S shifts left)	rises	falls

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Consequences of price changes

Price changes affect **sales**: a higher price tends to **reduce quantity sold** (and a lower price to increase it), and change **revenue** (see elasticity). They also send **signals**: a rising price encourages firms to produce more and consumers to buy less.

Using diagrams

To show a change: draw D and S with the original equilibrium E_1; **shift** the curve that has changed (label the new curve D_2 or S_2); mark the **new equilibrium E_2**; read off the **new price P_2 and quantity Q_2**, and say what happened. Always **label axes and curves**.

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> **A bad harvest reduces the supply of rice. What happens to the price and quantity?** The supply curve shifts **left**. At the old price there is a **shortage**, so the price **rises**. The higher price causes a **contraction** in the quantity demanded, so the new equilibrium has a **higher price and a lower quantity**.

2.7 Price elasticity of demand (PED)

> **PED measures how responsive quantity demanded is to a change in price.**

PED = % change in quantity demanded ÷ % change in price

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> The price of a product rises from \$10 to \$12 (+20%) and quantity demanded falls from 100 to 80 (−20%). **PED = −20 ÷ 20 = −1** (the minus sign is often ignored, so PED = 1).

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Interpreting the value (ignoring the sign)

PED value	Description	Meaning
0	**perfectly inelastic**	quantity does not change at all when price changes
between 0 and 1	**inelastic**	quantity changes by a **smaller** percentage than price
= 1	**unitary**	quantity changes by the **same** percentage as price
greater than 1	**elastic**	quantity changes by a **larger** percentage than price
infinity	**perfectly elastic**	any price rise makes demand fall to zero

On a diagram: **perfectly inelastic** = a **vertical** line; **inelastic** = a **steep** curve; **elastic** = a **flat (shallow)** curve; **perfectly elastic** = a **horizontal** line.

Determinants of PED

- **Availability of substitutes**: many substitutes = **elastic**; few = **inelastic**.
- **Necessity or luxury**: **necessities** (salt, medicine) are **inelastic**; **luxuries** are **elastic**.
- **Proportion of income spent**: a small share of income = inelastic; a large share = elastic.
- **Time**: demand is **more elastic over time** as consumers find alternatives.
- **Addiction/habit** (cigarettes) = inelastic.

PED, spending and revenue

Total revenue = price × quantity.

If demand is...	A price **rise**	A price **fall**
Elastic (PED > 1)	**revenue falls** (quantity falls proportionately more)	**revenue rises**
Inelastic (PED < 1)	**revenue rises**	**revenue falls**
Unitary (PED = 1)	no change	no change

The same applies to **consumer expenditure** (what consumers spend).

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> A bus company raises the fare from $2 to $2.50 and passengers fall from 1,000 to 900. Revenue before = $2,000; after = $2.50 × 900 = **$2,250**. Revenue **rises**, so demand is **inelastic**.

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Significance of PED

- **Firms**: if demand is **inelastic**, they can **raise prices** and increase revenue; if **elastic**, lowering the price may raise revenue.
- **Governments**: taxes on goods with **inelastic** demand (fuel, tobacco) raise **a lot of revenue** and reduce quantity only slightly.
- **Consumers**: need to know that a price rise on a necessity will affect their budget.
- **Workers**: demand for **labour** may be elastic or inelastic, which affects whether higher wages cause job losses.

2.8 Price elasticity of supply (PES)

> **PES measures how responsive quantity supplied is to a change in price.**

PES = % change in quantity supplied ÷ % change in price

Interpreting the value works the same way: **0** = perfectly inelastic (vertical line), **< 1** = inelastic, **= 1** = unitary, **> 1** = elastic, **infinity** = perfectly elastic (horizontal line).

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> The price of wheat rises 10% and quantity supplied rises 5%. **PES = 5 ÷ 10 = 0.5**: supply is **inelastic**.

Determinants of PES:

- **Spare capacity**: with unused capacity, supply is more **elastic**.
- **Stocks of finished goods**: large stocks make supply elastic.
- **Time**: supply is **more elastic over time**; farm goods are inelastic in the short run (growing takes months).
- **Availability and mobility of factors of production**: if labour and materials are easy to obtain, supply is elastic.
- **Ease of production** (manufactured goods are usually more elastic than farm goods or goods that need a long training).

2.9 Market economic system

A **market economic system** is one in which **resources are allocated by the price mechanism** (the forces of demand and supply), with **private ownership** and **little government involvement**.

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Advantages	Disadvantages
consumer sovereignty: firms produce what consumers want	**market failure**: no public goods, external costs ignored
efficient: competition keeps costs and prices low	**inequality**: wide gaps between rich and poor
choice and quality	**monopoly power** may develop
incentive to work, invest and innovate (profit)	**merit goods** (education, healthcare) under-provided and **demerit goods** over-consumed
quick response to changing demand	unemployment in downturns

2.10 Market failure

> **Market failure occurs when the market does not allocate resources efficiently, so there is over- or under-provision of goods and services.**

Key terms

Term	Meaning
Private benefit/cost	the benefit gained or cost paid by the **consumer or producer** directly involved
External benefit/cost	the benefit or cost to **third parties** (people not involved in the transaction)
Social benefit/cost	**private + external**
Public goods	**non-excludable** (cannot stop people using them) and **non-rival** (one person's use does not reduce another's); examples: street lighting, national defence, flood barriers
Merit goods	goods the government thinks are **good for people**, which would be **under-consumed** if left to the market (education, healthcare, vaccination)
Demerit goods	goods that are **harmful** and tend to be **over-consumed** (cigarettes, alcohol, drugs)
Monopoly	a **single firm** (or one that has most of the market)

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Causes of market failure

- **Public goods**: because people can **free-ride** (use without paying), **private firms will not supply** them, so government must provide them.
- **Merit goods**: consumers **do not realise the full benefits** (or cannot afford them), so there is **under-consumption**.
- **Demerit goods**: consumers **ignore the harm** (to themselves and others), so there is **over-consumption**.
- **External costs** (pollution from a factory): the price does not include the cost to society, so **too much** is produced.
- **External benefits** (education, vaccination): the price does not reflect benefits to others, so **too little** is produced.
- **Abuse of monopoly power**: a monopoly can **restrict output and raise prices**, and have little reason to improve quality.

Consequences of market failure

- **Over-consumption** of demerit goods and goods with external costs.
- **Under-consumption** of merit goods and goods with external benefits.
- **Non-provision** of public goods.
- **Higher prices and restricted supply** under a monopoly.

(Demand and supply diagrams for market failure are not required.)

2.11 Mixed economic system

A **mixed economic system** is one in which **both the private sector and the government** allocate resources: the **market** works for most goods, and the **government** provides some goods and services, regulates and redistributes.

Advantages	Disadvantages
corrects market failure (public goods, merit goods, external costs)	**government failure**: errors, inefficiency, bureaucracy
more equal income through taxes and benefits	**higher taxes** and lower incentives
protects consumers and workers	the state may be **slower** and less responsive to consumers
keeps **competition and choice**	**cost** of intervention, risk of **corruption**

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Government intervention

Measure	What it is	Effect	Advantages	Disadvantages
Maximum price (price ceiling)	a **legal limit** on a price, **below** equilibrium (rent control, price of staple foods)	makes the good **more affordable**, but creates a **shortage** (demand > supply)	helps low-income buyers	shortages, **black markets**, firms cut quality
Minimum price (price floor)	a legal minimum **above** equilibrium (minimum wage, farm support prices, minimum alcohol price)	protects producers' or workers' income; creates a **surplus**	higher income for suppliers	surplus, higher cost to buyers, unemployment (if a wage)
Indirect tax (VAT, tax on tobacco)	a tax on **spending** that raises costs, **shifting supply left**	raises **price** and cuts **quantity**; raises **government revenue**, **discourages demerit goods**	raises revenue, reduces consumption of harmful goods	**regressive** (hits the poor), may cause **inflation**, black markets, depends on PED
Subsidy	**payment to producers** that lowers their costs, **shifting supply right**	**lowers price** and **raises quantity**	encourages **merit goods** and green products	**costs the government** (opportunity cost), may support **inefficient firms**
Regulation	laws and rules controlling business behaviour (pollution limits, safety standards)	reduces harm	protects consumers and the environment	costs for firms, enforcement is difficult
Privatisation	**selling state-owned firms** to the private sector	competition and **efficiency** may improve; raises **revenue**	profit motive, efficiency	**loss of public services** for the poor, may create a **private monopoly**, job losses
Nationalisation	the **government takes over** a private firm	protects essential services, avoids private monopoly	prevents abuse of power	inefficiency, **cost**, lack of incentive

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Measure	What it is	Effect	Advantages	Disadvantages
Direct provision	the government **provides** goods (schools, hospitals, roads)	ensures **everyone** gets them	equal access, funded by tax	**high cost**, waiting lists, may be inefficient
Quotas (e.g. on resource extraction)	a **limit** on the quantity (fish catch, quantity of oil that can be extracted)	**conserves** resources	protects the environment	may raise price, hard to enforce, reduces firms' output

Diagrams: **maximum price**: draw D and S; draw a **horizontal line below equilibrium**; the gap between D and S at that price is the **shortage**. **Minimum price**: a horizontal line **above equilibrium**; the gap is the **surplus**. **Indirect tax**: S shifts **up/left** to S + tax; the **price rises** and the **quantity falls**. **Subsidy**: S shifts **down/right**; the **price falls** and the **quantity rises**.

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Discuss whether a subsidy for solar panels is a good idea. For: solar power has external benefits (cleaner air), the subsidy lowers the price and raises quantity, helping a new industry. Against: it costs the government money that could be spent on schools (opportunity cost), may support firms that are not efficient, and taxpayers who do not buy panels fund it. **Judgement**: worthwhile if the external benefits are large and the subsidy is temporary and targeted.

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