Price Determination in a Competitive Market

AQA A-Level Economics | Topic 1.3

Supply · Demand · Equilibrium · Shifts · Elasticity · Price Mechanism

Demand

Definition

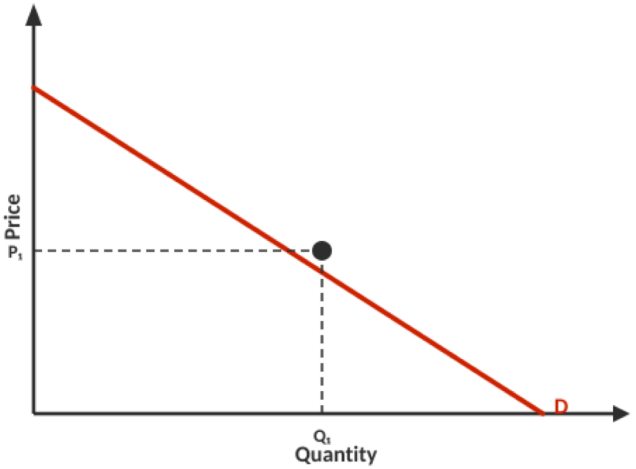
Demand is the quantity of a good or service that consumers are willing and able to purchase at a given price, over a given time period.

The Law of Demand:

As the price of a good rises, the quantity demanded falls, ceteris paribus — and vice versa. This gives the demand curve its downward slope.

Why does demand slope downward?

Income effect — a higher price reduces real purchasing power, so consumers buy less.
Substitution effect — a higher price makes the good relatively more expensive than substitutes, so consumers switch to alternatives.
Diminishing marginal utility — consumers value additional units less, so only buy more at lower prices.



Real-World Example

Petrol (2022): When UK petrol prices surged above £2/litre, demand for electric vehicles rose sharply and motorists reduced unnecessary journeys — a clear real-world demand response.

Shifts in the Demand Curve

A movement along the demand curve is caused only by a change in price. A SHIFT of the entire curve is caused by a change in any other factor:

Income

Normal goods: higher income → D shifts right. Inferior goods: higher income → D shifts left.

Population

A growing population increases overall market demand, shifting D right.

Price of related goods

Substitutes: if price of Pepsi rises, demand for Coca-Cola shifts right. Complements: if price of cars rises, demand for petrol shifts left.

Advertising

Effective advertising increases consumer desire for a product, shifting D right.

Tastes & Preferences

A health trend increases demand for oat milk, shifting D right. Negative publicity shifts D left.

Expectations

If consumers expect prices to rise next month, they buy more now, shifting D right today.

Supply

Definition

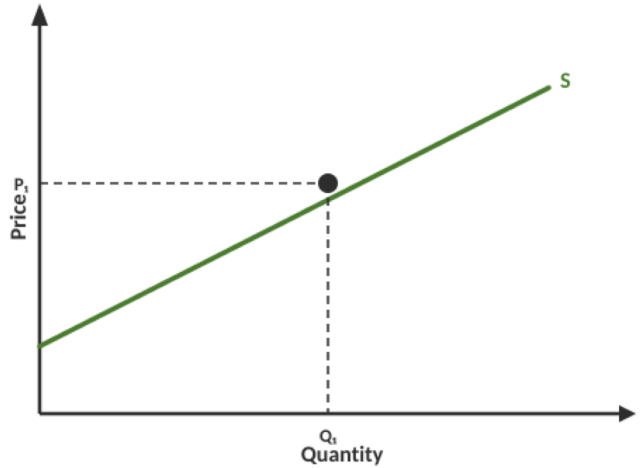
Supply is the quantity of a good or service that producers are willing and able to offer for sale at a given price, over a given time period.

The Law of Supply:

As the price of a good rises, the quantity supplied rises, ceteris paribus. Higher prices make production more profitable, incentivising more supply. This gives the supply curve its upward slope.

Why does supply slope upward?

Profit motive — higher prices increase the margin per unit, making it worthwhile to produce more.
New entrants — higher prices attract new firms into the market, increasing total market supply.
Resource allocation — existing firms divert more resources towards the higher-priced good.



Real-World Example

Oil (2022): When Brent crude rose above $100/barrel, US shale producers rapidly increased output — previously uneconomic wells became profitable, demonstrating the supply response to rising prices.

Shifts in the Supply Curve

A movement along the supply curve is caused only by a change in price. A SHIFT of the entire supply curve is caused by:

Costs of Production

If wages, raw materials or energy costs rise, profit per unit falls — S shifts left. Falling input costs shift S right.

Number of Producers

More firms entering the industry increases market supply, shifting S right. Firm exits shift S left.

Technology

Better technology improves productivity, reducing cost per unit and shifting S right. E.g. automation in manufacturing.

Weather / Natural Factors

Favourable weather boosts agricultural supply (S right). Droughts, floods or disease shift S left.

Government Intervention

A subsidy reduces production costs, shifting S right. A tax (e.g. VAT, carbon tax) raises costs, shifting S left.

Expectations

If firms expect higher future prices, they may withhold supply now (S left today) to sell at higher prices later.

Market Equilibrium

What is Equilibrium?

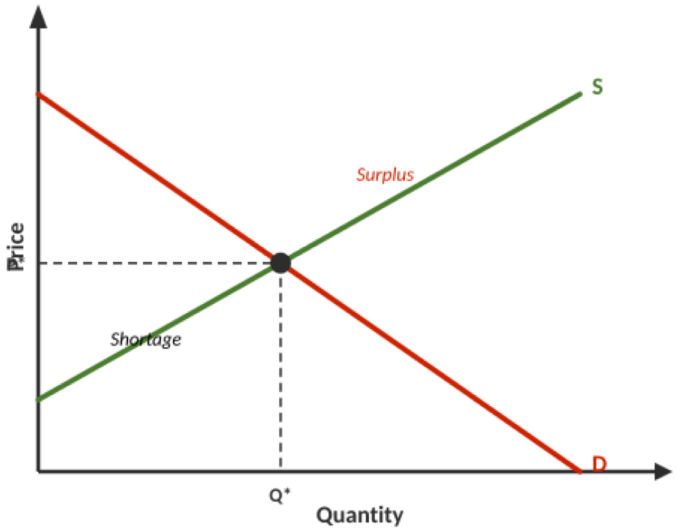
Market equilibrium occurs where the quantity demanded equals the quantity supplied. At this price, there is no tendency for the market to change — it clears.

Surplus & Shortage:

Surplus (excess supply) — price above equilibrium: Qs > Qd. Unsold stock builds up, firms cut prices → price falls back to P*.
Shortage (excess demand) — price below equilibrium: Qd > Qs. Consumers bid up the price → price rises back to P*.

The Price Mechanism:

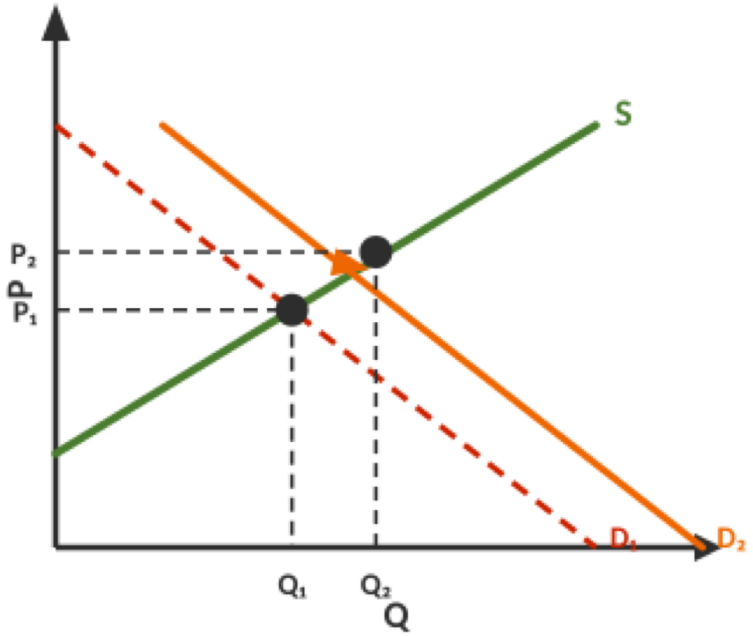
Markets self-correct through the price mechanism — prices act as signals that incentivise producers and consumers to adjust behaviour until equilibrium is restored. This is sometimes called the 'invisible hand' (Adam Smith).



Changes in Demand: Effect on Equilibrium

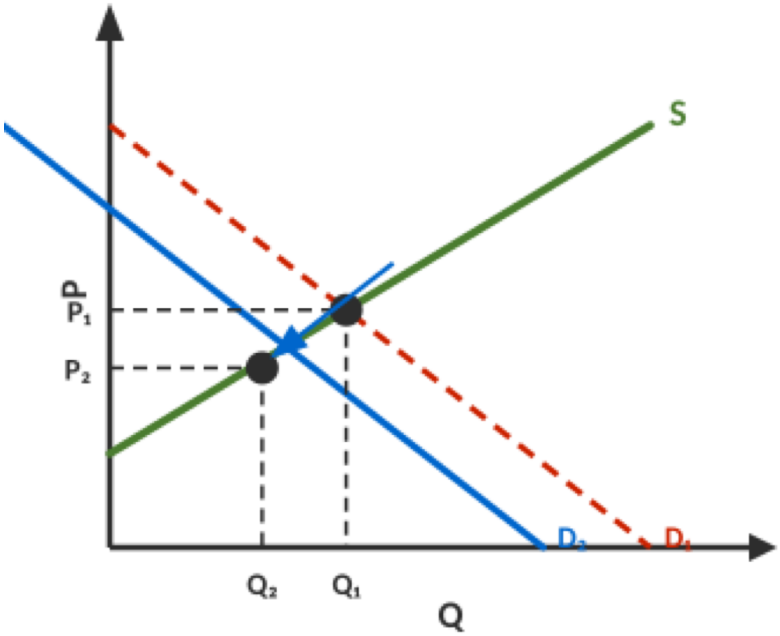
When any non-price factor changes demand, the whole curve shifts — changing the equilibrium price and quantity.

Increase in Demand (D shifts right)



→ *Higher P*, Higher Q**

Decrease in Demand (D shifts left)

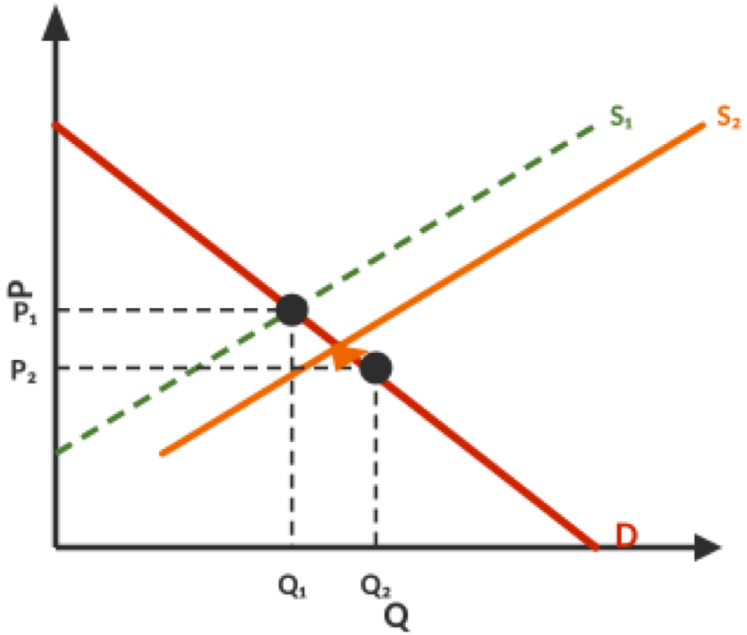


→ *Lower P*, Lower Q**

Changes in Supply: Effect on Equilibrium

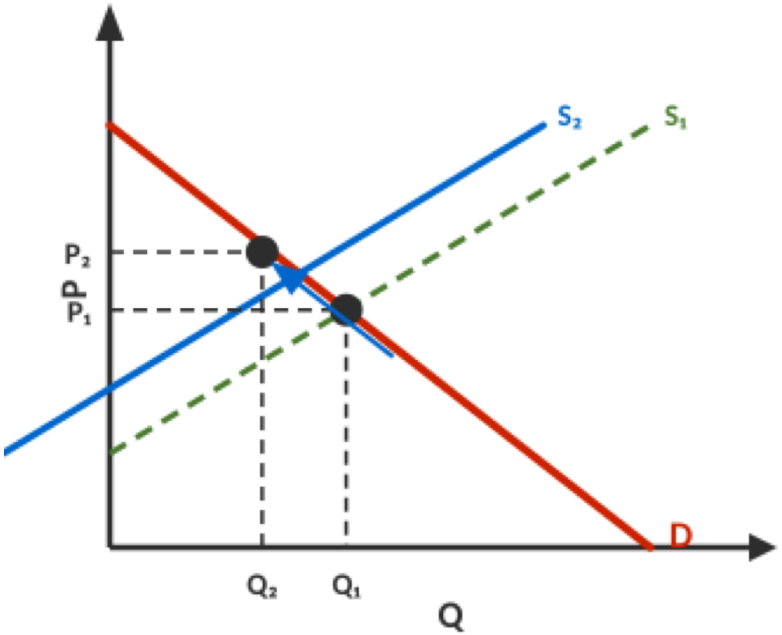
When any non-price factor changes supply, the whole curve shifts — changing the equilibrium price and quantity.

Increase in Supply (S shifts right)



→ *Lower P*, Higher Q**

Decrease in Supply (S shifts left)



→ *Higher P*, Lower Q**

Price Elasticity of Demand (PED)

Definition

PED measures the responsiveness of quantity demanded to a change in price.

PED = % change in Quantity Demanded ÷ % change in Price

PED is always negative (inverse relationship) — usually quoted as an absolute value.

Interpreting PED values:

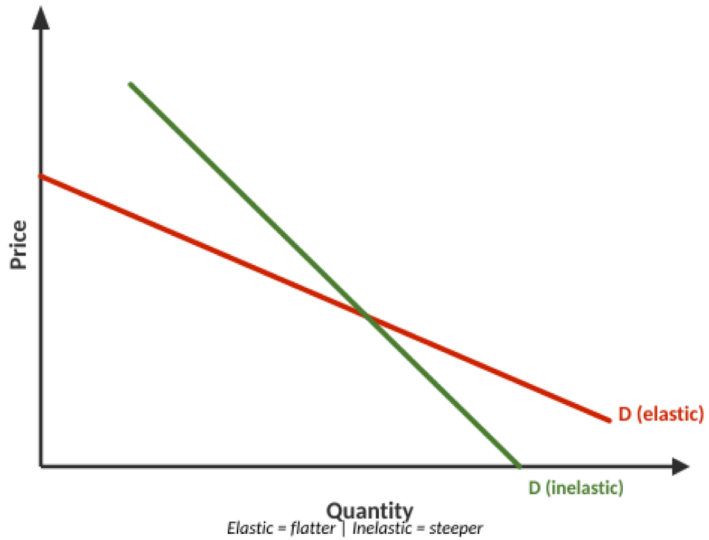
|PED| > 1 → Price elastic: % change in Qd > % change in P (e.g. luxury goods, goods with many substitutes)

|PED| < 1 → Price inelastic: % change in Qd < % change in P (e.g. necessities, addictive goods, petrol)

|PED| = 1 → Unit elastic: % change in Qd = % change in P

|PED| = 0 → Perfectly inelastic: vertical demand curve (e.g. insulin)

|PED| = ∞ → Perfectly elastic: horizontal demand curve



Real-World Example

Tobacco PED ≈ −0.4 (inelastic): a 10% price rise cuts demand by only 4%. Governments use this to justify high cigarette taxes — revenue rises even as consumption falls.

Determinants of PED

PED varies between goods. Understanding what determines it is essential for exam evaluation:

Number & closeness of substitutes (→ more elastic)

More substitutes → more elastic. Consumers can easily switch if price rises. E.g. branded vs generic paracetamol.

Proportion of income spent (→ more elastic)

Goods taking a large share of income (cars, holidays) tend to be more price-elastic. Salt or matches take a tiny share → very inelastic.

Necessity vs Luxury (→ more inelastic)

Necessities (insulin, electricity) are inelastic — consumers must buy regardless of price. Luxuries (designer bags) are elastic.

Addictiveness / habit (→ more inelastic)

Addictive goods (cigarettes, alcohol, gambling) are highly inelastic — consumers continue buying despite price rises.

Time period (→ more elastic)

Demand becomes more elastic over time as consumers find substitutes or change habits. Short-run petrol demand is inelastic; long-run less so.

Breadth of market definition (→ more inelastic)

Narrowly defined markets are more elastic (e.g. 'Ford Focus') than broadly defined ones (e.g. 'Cars') — more substitutes exist.

PED & Total Revenue

Total Revenue = Price × Quantity. PED determines what happens to total revenue when price changes:

PED	Price Change	Effect on TR	Why
Elastic |PED| > 1	↑ Rise	↓ Falls	Qd falls proportionally MORE than P rises
Elastic |PED| > 1	↓ Fall	↑ Rises	Qd rises proportionally MORE than P falls
Inelastic |PED| < 1	↑ Rise	↑ Rises	Qd falls proportionally LESS than P rises
Inelastic |PED| < 1	↓ Fall	↓ Falls	Qd rises proportionally LESS than P falls
Unit Elastic |PED| = 1	Any	No change	% change in Qd exactly offsets % change in P

Real-World Example

UK cigarette tax rises (inelastic demand) increase government revenue. Airlines cut off-peak prices (elastic demand) to fill empty seats and boost total revenue.

Income Elasticity (YED) & Cross Elasticity (XED)

Income Elasticity of Demand (YED)

YED = % change in Qd ÷ % change in Income

YED > 0 → Normal good: demand rises as income rises.
YED > 1 → Income elastic / Luxury: demand rises proportionally more than income (e.g. holidays, restaurant meals).
0 < YED < 1 → Income inelastic / Necessity: demand rises less than proportionally (e.g. bread, milk).
YED < 0 → Inferior good: demand falls as income rises (e.g. own-brand staples, bus travel). Consumers switch to superior substitutes.

Real-world: As UK incomes rose in the 2000s, demand for budget supermarkets (Aldi, Lidl) fell. During recessions they boomed — inferior good behaviour.

Cross Elasticity of Demand (XED)

XED = % change in Qd of Good A ÷ % change in Price of Good B

XED > 0 → Substitutes: goods A and B compete. A rise in price of B increases demand for A. The higher the XED, the closer the substitution. E.g. butter and margarine.

XED < 0 → Complements: goods A and B are used together. A rise in price of B reduces demand for A. E.g. cars and petrol, printers and ink cartridges.

XED = 0 → Unrelated goods: no relationship between the two markets.

Real-world: When oil prices surged in 2022, the XED between petrol and EVs proved strongly positive — EV demand spiked as petrol became expensive.

Price Elasticity of Supply (PES)

Definition

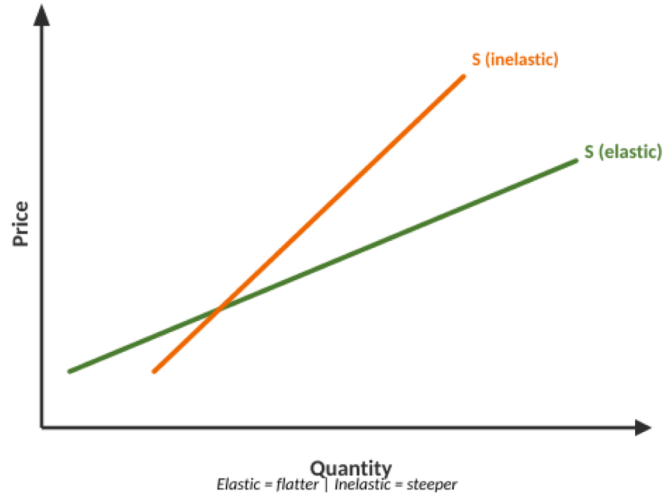
PES measures the responsiveness of quantity supplied to a change in price.

PES = % change in Quantity Supplied ÷ % change in Price

PES is always positive (direct relationship). PES > 1 = elastic; PES < 1 = inelastic.

Determinants of PES:

Spare capacity — firms with idle capacity can quickly increase output (elastic).
Stocks of finished goods — large inventories allow rapid supply response (elastic).
Ease of factor substitution — can factors of production be quickly switched? (elastic if yes).
Time period — supply is more elastic in the long run as firms can expand capacity, hire workers, and build new plants.
Nature of the industry — agricultural and construction supply is inelastic short-run (long growing seasons / planning permission). Manufacturing is more elastic.



Real-World Example

Housing supply in the UK is highly inelastic (PES ≈ 0.3–0.5): planning constraints, long build times, and land scarcity mean supply responds slowly to rising prices — a key driver of the housing affordability crisis.

The Price Mechanism: Rationing, Incentive & Signal

In a free market, the price mechanism performs three functions — answering the three fundamental economic questions:

Signal Function

Prices convey information to buyers and sellers about scarcity and value. Rising prices signal that a good is relatively scarce; falling prices signal a surplus. This information is decentralised — no central planner is needed.

e.g. During the 2021 semiconductor shortage, chip prices surged — signalling to producers worldwide to invest in new fabrication plants.

Incentive Function

Price changes create incentives for producers and consumers to change behaviour. Higher prices incentivise producers to supply more and consumers to economise. Lower prices do the opposite.

e.g. High cocoa prices in 2024 incentivised farmers in West Africa to expand cocoa cultivation and encouraged chocolate makers to reduce portion sizes.

Rationing Function

When demand exceeds supply, rising prices ration the good among those willing and able to pay. This allocates scarce goods to those who value them most (as measured by willingness to pay).

e.g. Concert tickets on the secondary market: when supply is fixed, prices rise until the market clears — rationing tickets to those willing to pay most.

Summary: Key Terms & Relationships

Key Term	Meaning
Law of Demand	As price rises, quantity demanded falls, ceteris paribus — inverse relationship.
Law of Supply	As price rises, quantity supplied rises, ceteris paribus — direct relationship.
Market Equilibrium	Price at which quantity demanded = quantity supplied; market clears.
Excess Demand	Price below equilibrium: Qd > Qs; shortage pushes price upward.
Excess Supply	Price above equilibrium: Qs > Qd; surplus pushes price downward.
PED	% change in Qd ÷ % change in P. >1 elastic, <1 inelastic. Always negative.
YED	% change in Qd ÷ % change in income. Positive = normal good; negative = inferior good.
XED	% change in Qd of A ÷ % change in price of B. Positive = substitutes; negative = complements.
PES	% change in Qs ÷ % change in P. Always positive. Elastic in LR, inelastic in SR.
Signal function	Prices signal scarcity/surplus — rising P signals scarcity; falling P signals surplus.
Incentive function	Price changes incentivise producers to supply more/less and consumers to buy more/less.
Rationing function	Rising prices ration scarce goods to those with highest willingness to pay.