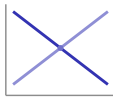


The Price System

A-Level Economics ■ Topic 2

A-Level Economics



The Price System

What we will cover

- 1 Demand & marginal utility
- 2 Supply
- 3 Price elasticity (PED)
- 4 YED, XED & PES
- 5 Market equilibrium
- 6 Consumer & producer surplus



buyers & sellers meet

1

Demand and supply

The Price System

└ Demand and supply

Demand and what shifts it

Law of demand 需求定律: price up $\Rightarrow$ quantity down, so the curve slopes down.

- own price $\rightarrow$ *move along*
- **income** 收入, **substitute** 替代品 & **complement** 互补品 prices, tastes $\rightarrow$ *shift*

The Price System
└ Demand and supply

Demand and supply: the definitions that matter

demand 需求	the quantity buyers are willing and able to buy at each price 价格 in a period of time – not just a wish
market demand 市场需求	add up the quantity all consumers 消费者 want at each price – horizontal summation of the individual demand curves 需求曲线
supply 供给	the quantity producers 生产者 are willing and able to sell at each price in a period
movement	a change in the good's own price moves you <i>along</i> the curve
shift	a change in any determinant 决定因素 moves the whole curve

"Willing *and able*" is the phrase: wanting a Ferrari is not demand. Every definition question here is marked on those three words.

The Price System
└ Demand and supply

The two laws, and the words they use

The law of demand	When the price rises, the quantity demanded 需求量 falls; when the price falls, it rises. A movement <i>along</i> the curve.
The law of supply	When the price rises, the quantity supplied 供给量 rises – higher prices make extra output worth producing.
Individual and market	Market supply 市场供给 is the horizontal sum of every firm's supply, and market demand the sum of every buyer's.
Where this happens	In product markets 产品市场, demand and supply set the price of goods and services; in factor markets, of labour and capital.

A price change moves you *along* a curve; anything else – one of the **determinants** 决定因素 – shifts it. Half the marks in this topic are in that distinction.

Demand and what shifts it, in detail

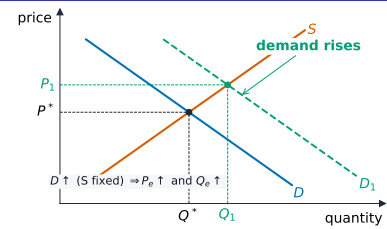


A change in income, tastes or related prices shifts the whole curve (D_1 right, D_2 left); a change in the good's own price is a movement along it.

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└ Demand and supply

With supply fixed

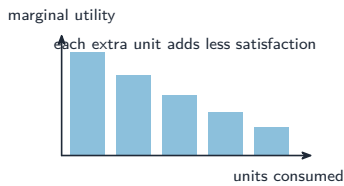


With supply fixed, a rise in demand ($D \rightarrow D_1$) raises both the equilibrium price and the equilibrium quantity.

The Price System

└ Demand and supply

Marginal utility



Diminishing marginal utility 边际效用递减: each extra unit adds **less** satisfaction than the last.

Because later units are worth less, buyers pay less for them – so demand slopes **downward**.

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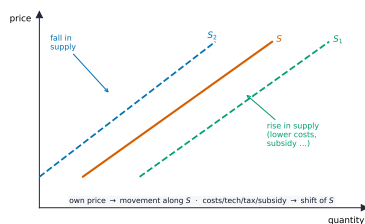
└ Demand and supply

Supply and what shifts it

Law of supply 供给定律: price up $\Rightarrow$ quantity up (more profit), so the curve slopes up.

- lower **costs** 生产成本, better tech, a **subsidy** 补贴 $\rightarrow$ shift right
- higher costs or an indirect tax $\rightarrow$ shift left

Supply and what shifts it, in detail



Lower costs, better technology or a subsidy shift supply right (S_1); higher costs or a tax shift it left (S_2).

The Price System

└ Demand and supply

What shifts the supply curve

costs of production 生产成本	wages, raw materials, energy – higher costs shift supply left
technology	better technology lowers cost per unit and shifts supply right
taxes and subsidies	an indirect tax shifts supply left; a subsidy shifts it right
the number of firms 企业	more firms in the market means more supply at every price
weather	for farm goods, the single largest short-run shifter
expectations	if producers expect a higher price later, they supply less now

Anything except the good's **own price** shifts the curve. If the question changes the price, you move along it instead.

2 Elasticity

Price elasticity of demand

$$PED = \frac{\% \Delta \text{quantity}}{\% \Delta \text{price}}$$

> 1 **elastic** 富有弹性 (responds a lot); < 1 **inelastic** 缺乏弹性 (responds little).

Worked example

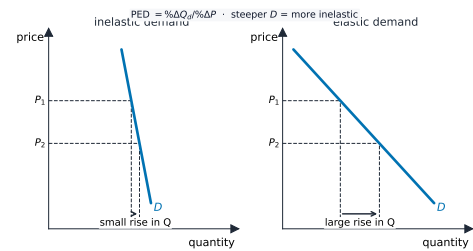
price +10%, quantity -25% $\Rightarrow$ PED = -2.5 (elastic)

Reading a PED value

PED = 0	perfectly inelastic – quantity does not respond at all
$0 < PED < 1$	inelastic – quantity changes <i>less</i> than price, in percentage terms
$ PED = 1$	unit elastic – they change in the same proportion
$ PED > 1$	elastic – quantity changes <i>more</i> than price
$ PED = \infty$	perfectly elastic – any price rise loses every buyer
the formula	$\frac{\% \Delta Q_d}{\% \Delta P}$, and it is negative for a normal good

Compare the **percentage** changes, never the absolute ones. And quote the sign or say you are using the magnitude – both are marked.

Price elasticity of demand, in detail



Worked example price +10%, quantity -25% $\Rightarrow$ PED = -2.5 (elastic)

PED and total revenue



Total revenue 总收益
= price $\times$ quantity.

- **inelastic:** raise price $\rightarrow$ TR **rises**
- **elastic:** raise price $\rightarrow$ TR **falls**

A tax on an inelastic good (petrol) raises a lot of revenue without cutting sales much.

What PED tells a firm about its revenue

total revenue 总收益	TR = price $\times$ quantity
demand inelastic	raise the price and TR rises – quantity falls by proportionally less
demand elastic	raise the price and TR falls – quantity falls by proportionally more
unit elastic	TR is unchanged, and it is at its maximum
what makes demand inelastic	few substitutes, a small share of income, a necessity, a short time period, and habit or addiction

This is why a tobacco tax raises revenue and a tax on one brand of coffee does not. **Substitutes** are the dominant determinant.

Who uses an elasticity, and for what

A firm PED says whether cutting the price will raise or lower total revenue – the single most useful number in a pricing decision.

A government Governments 政府 tax inelastic goods – petrol, tobacco – because the revenue holds up while sales barely fall.

The same fact, two readings For the firm, inelastic demand is pricing power; for the taxed consumer, it is the reason the burden lands on them.

Tax incidence follows elasticity: the more inelastic side of the market pays the larger share of any tax.

Income and cross elasticity

YED 需求收入弹性

normal good: income up → demand up (+)

inferior good: income up → demand down (–)

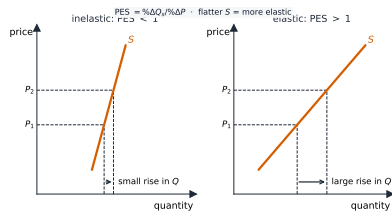
XED 需求交叉弹性

substitutes 替代品: + (rival dealer → buy more)

complements 互补品: – (partner dealer → buy less)

Restaurant meals: YED = +30%/+20% = +1.5 (normal, luxury). Tea → coffee: XED = +0.4 (substitutes).

Income and cross elasticity, in detail



The same price rise: a small supply response when PES is below 1, a large one when PES is above

Price elasticity of supply

$$PES = \frac{\% \Delta \text{supplied}}{\% \Delta \text{price}}$$

more elastic with spare capacity 闲置产能 & stocks 库存

momentary 瞬时
PES = 0

short run 短期
rises a little

long run 长期
most elastic

What makes supply elastic

spare capacity 闲置产能 unused machines and workers, so firms can quickly make more

stocks 库存 goods already in a warehouse that can be sold fast

factor mobility how easily land, labour and capital can move into the industry

time – momentary supply is fixed; nothing can be changed

time – short run at least one factor is fixed, so supply is inelastic

time – long run all factors are variable, so supply is far more elastic

Time is the master determinant: almost every supply becomes elastic given long enough, which is why the exam always asks over what period.

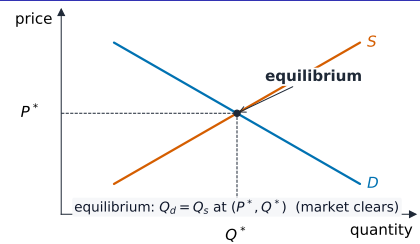
3 Equilibrium and surplus

Market equilibrium

Equilibrium 均衡: where demand meets supply – no pressure to change.

- price too low → **shortage** 短缺 → price pushed up
- price too high → **excess supply** 超额供给 → price pushed down

Market equilibrium, in detail



At the equilibrium price P^*

The same analysis, in four different markets

goods and services	demand and supply set the price of a product
factor markets 要素市场	the demand for and supply of labour set the wage
the money market	demand for and supply of loanable funds set the interest rate
the foreign exchange market 外汇市场	demand for and supply of a currency set the exchange rate 汇率 – the price of one currency in another
the point	one diagram, four contexts – only the axis labels change

When a question moves to a market you have not seen, redraw the same diagram with the new labels. The mechanism does not change.

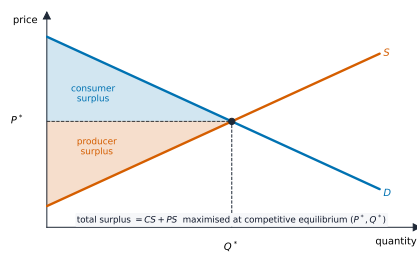
Shifts and surplus

A demand rise lifts both price & quantity; a supply rise cuts price, lifts quantity.

- **consumer surplus** 消费者剩余 – below demand, above price
- **producer surplus** 生产者剩余 – above supply, below price

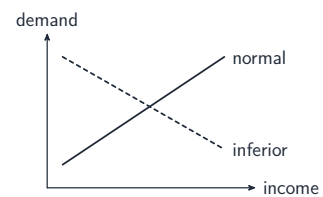
Their sum is total **welfare** 福利, largest at equilibrium.

Shifts and surplus, in detail



A demand rise lifts both price & quantity; a supply rise cuts price, lifts quantity.

Income elasticity of demand



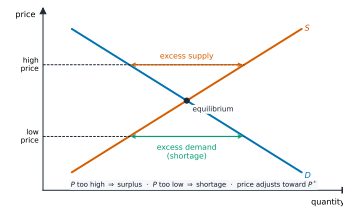
As income rises, demand for a normal good rises but an inferior good falls

Cross elasticity of demand

substitutes $XED > 0$ tea → coffee price ↑ demand ↑ tea +10%, coffee +4%: $XED = +0.4$	complements $XED < 0$ printer → ink price ↑ demand ↓ used together, so both are bought less	unrelated $XED \approx 0$ bread → bicycles price ↑ no change one price says nothing about the other good
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The sign of XED: positive for substitutes, negative for complements, about zero for unrelated goods

Disequilibrium



Above the equilibrium price there is excess supply; below it there is excess demand (a shortage). Either way the price is pushed back to equilibrium.

The price mechanism doing its three jobs

excess supply	price is above equilibrium: unsold stock builds, so sellers cut the price
excess demand	price is below it: queues and shortages appear, so buyers bid the price up
signalling	the price tells producers and consumers where resources are wanted
rationing	a higher price allocates a scarce good to those willing to pay most
incentive	a higher price rewards producers for supplying more

In both cases price returns to equilibrium *by itself*. The three jobs are what any question about a shortage or a glut is really asking you to name.

Exam tips

- Quote the **elasticity formula** and interpret the value: PED inelastic (< 1), elastic (> 1); link PED to total revenue.
- Distinguish a **movement along** (a price change) from a **shift** (a non-price factor) of demand or supply.
- Use the **sign** of XED (substitutes +, complements -) and YED (normal +, inferior -).
- On a diagram, label **consumer and producer surplus** and show how a price change alters each.

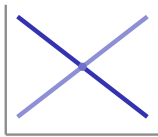
4 Recap

Topic 2 – key takeaways

- 1 Demand & supply**
own price moves along; other causes shift
- 2 PED**
 > 1 elastic, < 1 inelastic; drives revenue
- 3 YED & XED**
normal/inferior; substitutes/complements
- 4 Equilibrium**
D meets S; surplus measures welfare

Check yourself

- 1 A subsidy shifts supply which way?
- 2 If $PED = 0.4$, is demand elastic or inelastic?
- 3 An inferior good has YED of what sign?
- 4 Where is total welfare largest?



Answers 1. right (supply rises) 2. inelastic 3. negative 4. at the free-market equilibrium