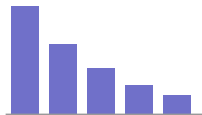


The Macroeconomy

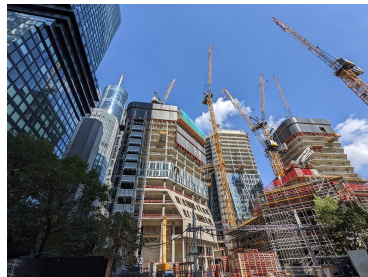
A-Level Economics ■ Topic 9

A-Level Economics



What we will cover

- 1 The multiplier
- 2 Growth & the output gap
- 3 Unemployment
- 4 The Phillips curve
- 5 Money & banking
- 6 The money market



investment drives growth

1

The multiplier

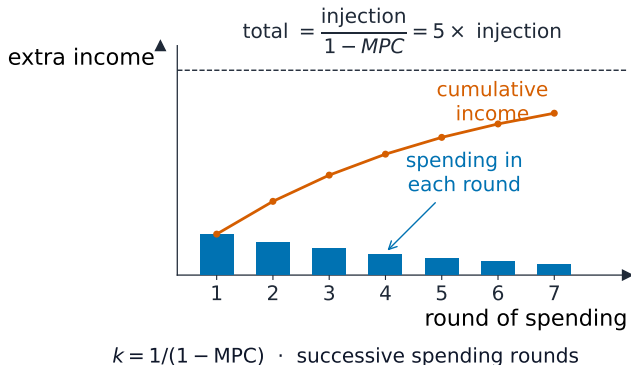
The multiplier

An injection of spending raises income, which raises further spending:

$$k = \frac{1}{\text{MPW}} = \frac{1}{1 - \text{MPC}}$$

A larger **MPC** 边际消费倾向 (or smaller withdrawals) means a larger multiplier.

The multiplier, in detail



An injection is spent round after round (each smaller by the MPC), so total income rises by a multiple of the first injection.

Why an injection is worth more than itself

the multiplier 乘数

an injection raises income by **more** than the first amount

the mechanism

a firm builds a factory; the builders earn income and **spend part of it**; those receipts become someone else's income, and so on

MPC 边际消费倾向

the marginal propensity to consume – the fraction of extra income that is **spent** on domestic goods

the leakages

MPS 边际储蓄倾向 saving, **MPT** 边际税收倾向 tax, **MPM** 边际进口倾向 imports

the size

$$k = \frac{1}{1 - \text{MPC}} = \frac{1}{\text{MPS} + \text{MPT} + \text{MPM}}$$
 – a bigger MPC, or smaller leakages, gives a bigger multiplier

An open economy with high taxes has a **small** multiplier, because most of each round leaks abroad or to the exchequer before it can be re-spent.

The accelerator and what drives spending

consumption & saving
disposable income

可支配收入, wealth,
interest, confidence

investment 投资

interest, expected profit,
technology, confidence

The **accelerator 加速数**: investment depends on the **rate of change** of output – it jumps when demand rises fast.

The accelerator, and how unemployment is counted

the accelerator 加速数	investment 投资 depends on the rate of change of output, not its level
the consequence	when demand rises <i>quickly</i> , firms need a lot of new capital at once – so investment is far more volatile than output
and when growth merely slows	investment can fall even while output is still rising
claimant count 申领救济人数	people claiming unemployment benefits – cheap to collect, and it misses everyone ineligible
labour force survey 劳动力调查	a wider survey of people seeking work – the internationally comparable measure, and usually the higher one

The two measures disagree by design. Quoting which one a figure comes from is the difference between a described number and an analysed one.

2

Growth and unemployment

Calculate an output gap before interpreting it

The **output gap** 产出缺口 compares actual real output with potential output: the level sustainable with normal use of resources.

Illustrative year	Actual GDP	Potential GDP
A	190	200
B	198	210
C	214	210

All GDP figures are billions at constant prices, measured on the same basis.

Compare levels and changes

Find each gap as a percentage of potential GDP. Between A and B, did actual output grow? Did the negative gap narrow?

Actual output can grow while a negative gap widens

$$\text{Gap (\%)} = \frac{Y - Y^*}{Y^*} \times 100$$

$$\text{Gap}_A = \frac{Y_A - Y_A^*}{Y_A^*} \times 100 = \frac{190 - 200}{200} \times 100 = -5\%$$

$$\text{Gap}_B = \frac{Y_B - Y_B^*}{Y_B^*} \times 100 = \frac{198 - 210}{210} \times 100 \approx -5.71\%$$

$$\text{Actual growth}_{A \rightarrow B} = \frac{Y_B - Y_A}{Y_A} \times 100 = \frac{198 - 190}{190} \times 100 \approx 4.21\%$$

Potential output grew by 5%, faster than actual output. Actual growth does not necessarily close an output gap.

A positive gap is pressure on capacity, not a price forecast

$$\text{Gap}_C = \frac{Y_C - Y_C^*}{Y_C^*} \times 100 = \frac{214 - 210}{210} \times 100 \approx 1.90\%$$

Output exceeds its estimated sustainable level: overtime and intensive equipment use may temporarily lift actual output above potential.

Demand pressure can raise wages and prices as spare capacity runs out. A negative gap suggests unused capacity and cyclical unemployment; it does not imply zero inflation, and unemployment need not be entirely cyclical.

Potential output is estimated. Revised productivity or labour-force estimates can change the measured gap. A gap's sign alone does not give the inflation rate or establish environmental sustainability.

Distinguish current output, sustainable capacity, the growth rate and the economy's use of resources over time.

Two kinds of growth, and the floor under unemployment

Actual growth

Actual growth 实际增长: a rise in real output, from using spare capacity or expanding capacity. It need not close an output gap.

Potential growth

Potential growth 潜在增长: a rise in what the economy *could* produce, from more or better resources. It shifts LRAS right.

Economic growth

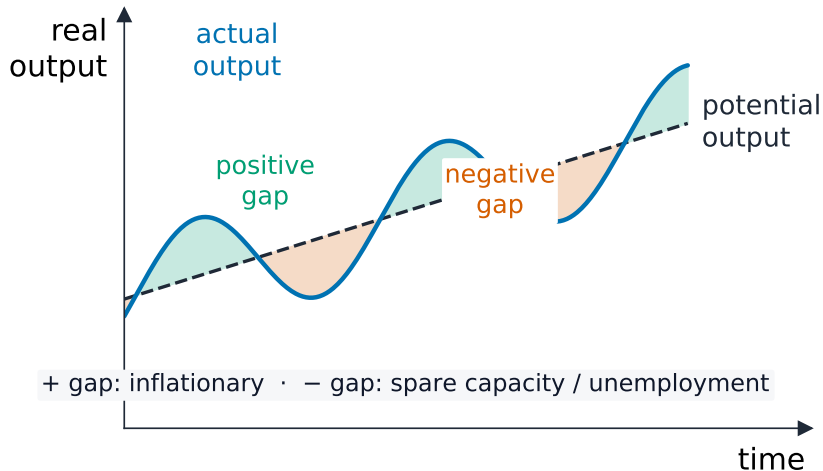
Economic growth 经济增长 in the headlines means the actual kind, measured as the change in real GDP.

The natural rate

The **natural rate of unemployment** 自然失业率: mainly **frictional** 摩擦性失业 and **structural** 结构性失业 at full employment. **Seasonal unemployment** 季节性失业 varies by season.

In the expectations model, demand expansion may reduce **cyclical unemployment** 周期性失业; a lasting reduction in the natural rate requires changes to labour-market conditions.

Growth, the output gap and sustainability, in detail



The **output gap** 产出缺口 is actual minus potential output.

Unemployment

frictional 摩擦性失业 – between jobs (short)

structural 结构性失业 – skills no longer match

cyclical 周期性失业 – low demand in a recession

seasonal 季节性失业 – only at certain times

The **natural rate** 自然失业率 (frictional + structural) cannot be removed just by raising demand.

Separate a Phillips-curve movement from a shift

The **Phillips curve** 菲利普斯曲线 relates inflation to unemployment. Use this illustrative expectations model, holding supply conditions constant:

$$\pi = \pi^e - 0.5(u - 5)$$

Here π and π^e are actual and expected annual inflation rates (%); u is unemployment (%). The assumed **natural rate** 自然失业率 is 5%. The coefficient is illustrative, not an estimated law for every economy.

Try the two changes separately

Expected inflation starts at 2%. What inflation corresponds to unemployment of 5%, then 3%? If expectations rise to 3%, what inflation corresponds to unemployment returning to 5%?

Fixed expectations give a short-run trade-off

At expected inflation of 2%, the model gives:

$$\pi_A = \pi^e - 0.5(u_A - 5) = 2 - 0.5(5 - 5) = 2\%$$

$$\pi_B = \pi^e - 0.5(u_B - 5) = 2 - 0.5(3 - 5) = 3\%$$

A demand expansion may move the economy from A to B along the same short-run curve: unemployment falls by 2 percentage points and inflation rises by 1 percentage point.

Lower unemployment and higher inflation here are conditional on unchanged expectations and supply conditions. This is a relation between an unemployment rate and an inflation rate, not between employment and the price level.

Inflation of 2% still means prices are rising. A fall in inflation is not necessarily a fall in prices.

Higher expected inflation shifts the short-run curve

If expected inflation rises to 3%, at unemployment of 5%:

$$\pi_C = \pi^e - 0.5(u_C - 5) = 3 - 0.5(5 - 5) = 3\%$$

The same unemployment rate now accompanies higher inflation: the short-run curve shifts up (right). It is not a movement along the old curve.

Trying to hold unemployment at 3% with the new expectations gives:

$$\pi_D = \pi^e - 0.5(u_D - 5) = 3 - 0.5(3 - 5) = 4\%$$

In the expectations-augmented model, repeated demand stimulus cannot maintain unemployment below an unchanged natural rate without rising inflation as expectations adjust.

Use the long-run curve with its assumptions

When actual inflation equals expected inflation, the model gives:

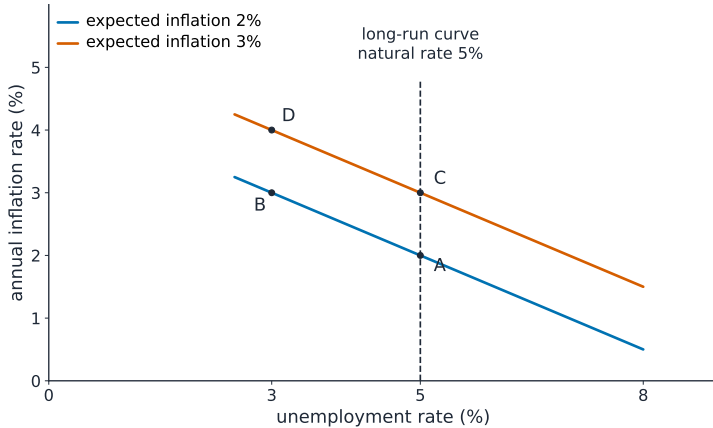
$$\pi = \pi^e - 0.5(u - 5), \quad \pi = \pi^e \quad \Rightarrow \quad u = 5\%$$

Different fully expected inflation rates are compatible with the same natural rate: the long-run curve is vertical at 5% in this example. Full employment does not mean zero unemployment.

A rise in oil costs can raise inflation while reducing output and employment, shifting the short-run relationship rather than illustrating a stable demand trade-off. Better matching, training or mobility may change the natural rate and shift the long-run curve.

State what is held constant. An adverse supply shock, changing expectations or a changing natural rate can alter the observed relationship.

The Phillips curve, in detail

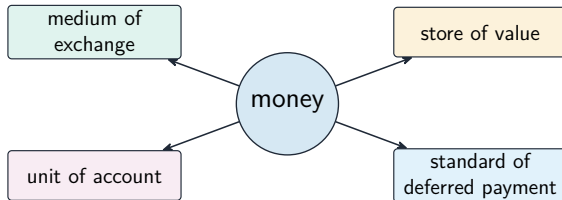


A to B: unchanged expectations. A to C: higher expected inflation at the same unemployment. The natural rate is held at 5%.

3

Money and banking

The functions of money



Money 货币 does four jobs:

- **medium of exchange** 交换媒介 – avoids barter
- **store of value** 价值储藏 – save it
- **unit of account** 记账单位 – measure prices
- **deferred payment** 延期支付标准 – borrow & repay

Banks



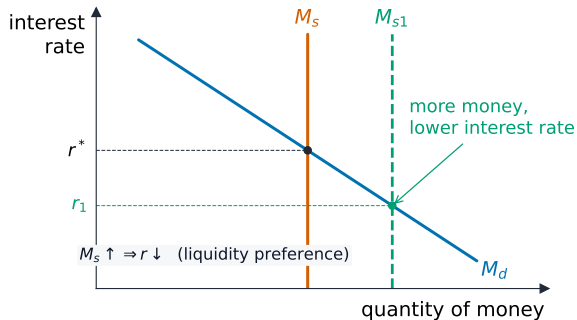
- the **central bank** 中央银行 runs policy & is **lender of last resort** 最后贷款人
- **commercial banks** 商业银行 take deposits & lend – **creating money**

Moral hazard 道德风险: banks may take big risks expecting a bailout.

The money market

People hold money for its **liquidity** 流动性 (**liquidity preference** 流动性偏好).

The **interest rate** 利率 is set where money demand meets the **money supply** 货币供给; a larger supply lowers it.

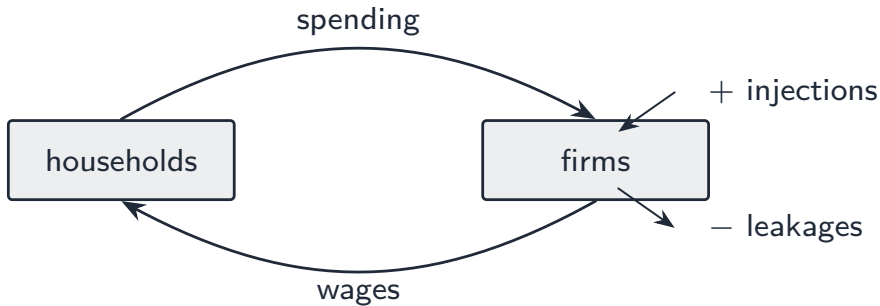


What money is for, and why people hold it

the four functions	medium of exchange, store of value , unit of account, standard of deferred payment
good money is	durable, easy to carry, easy to divide, hard to fake, and limited in supply
liquidity 流动性	money can be spent at once , which other assets cannot – that is why people hold it despite the lost interest
demand for money 货币需求	also called liquidity preference: transactions, precautionary and speculative motives
the interest rate	the price of holding money – higher rates make holding cash more costly, so the quantity demanded falls
moral hazard 道德风险	banks take bigger risks when they expect to be rescued – the reason bank regulation exists

Money is defined by **what it does**, not what it is made of. That is why a token with no intrinsic value works perfectly well as money.

The circular flow and the multiplier



Income circulates between households and firms, with injections and leakages

The circular flow, and what leaks from it

The flow

The **circular flow of income** 收入循环流 runs firms → households (wages) → firms (spending), round and round.

Injections

Investment, government spending and exports add to it.

Withdrawals

Saving, tax and imports leak out. The **marginal propensity to save** 边际储蓄倾向 and the **marginal propensity to import** 边际进口倾向 say how much of each extra pound leaks.

So the multiplier

The bigger those leakages, the smaller the multiplier – since less of each round is passed on.

Equilibrium is not where the flow stops; it is where injections equal withdrawals.

Employment and unemployment

frictional – between jobs

cyclical – low demand in a slump

structural – skills no longer fit

seasonal – only at certain times

Four types of unemployment: frictional, structural, cyclical and seasonal

Sustainability



The wind these turbines use is never used up, and they burn no fuel. Switching output from coal and oil to renewables like this lets an economy keep growing without spending the resources – or filling the air with the pollution – that would rob future generations

Sustainable growth meets present needs without reducing future generations' ability to meet theirs: renewable output does not run down the stock of natural capital.

Exam tips

- Calculate the **multiplier** $= 1 \div (1 - MPC) = 1 \div MPS$ and apply it to an injection.
- Distinguish **actual from potential** growth and link sustainability to long-run capacity.
- Explain the **functions of money** and the role of banks and the central bank.
- Explain the **Phillips curve** trade-off (unemployment vs inflation) and why it may not hold in the long run.

4

Recap

Worked example – the multiplier

MPC = 0.8. Find the multiplier, then the effect of a £10bn rise in investment.

- $k = \frac{1}{1 - \text{MPC}} = \frac{1}{1 - 0.8} = \frac{1}{0.2} = 5$
- $\Delta Y = k \times \Delta \text{injection} = 5 \times 10 = \text{£50bn}$
- The extra spending becomes someone's income, 80% of which is spent again, and so on.
- With **spare capacity** that is real output; **near full employment** it is mostly inflation.

$$k = \frac{1}{1 - \text{MPC}} = \frac{1}{\text{MPW}}.$$

A **bigger** MPC $\Rightarrow$ bigger multiplier. Leakages (saving, tax, imports) **shrink** it.

Topic 9 – key takeaways

1

Multiplier

$1/(1 - MPC)$; an injection multiplies

2

Output gap

positive: inflation pressure;
negative: slack

3

Phillips curve

short-run trade-off; long-run vertical

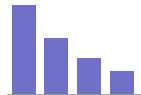
4

Money

four functions; banks create money

Check yourself

- 1 If $MPC = 0.8$, what is the multiplier?
- 2 A positive output gap tends to cause what?
- 3 The long-run Phillips curve is what shape?
- 4 Name one function of money.



Answers 1. 5 2. inflationary pressure 3. vertical (at the natural rate) 4. medium of exchange / store of value / unit of account