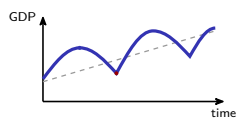


## Economic Indicators & the Business Cycle

AP Macroeconomics ■ Unit 2

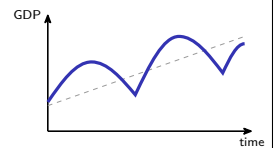
AP Macroeconomics



Economic Indicators & the Business Cycle

### What we will cover

- 1 GDP and the circular flow
- 2 Limitations of GDP
- 3 Unemployment
- 4 Price indices and inflation
- 5 The costs of inflation
- 6 Real vs nominal GDP
- 7 The business cycle



# 1 GDP & circular flow

Economic Indicators & the Business Cycle

↳ GDP & circular flow

### GDP: one number for total output

**Gross domestic product** 国内生产总值 is the **market value** of all **final goods** 最终产品和 services produced inside a country in one year. Three ways to measure it – all must give the same answer:

- **expenditure** – add up all spending
- **income** – add up all incomes
- **value added** – add up value at each stage

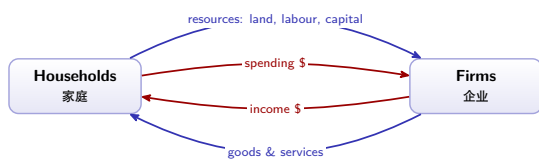


GDP totals the value of a year's output

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↳ GDP & circular flow

### The circular flow model



Every dollar spent is a dollar earned, so **total spending = total income**.

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↳ GDP & circular flow

### Measuring GDP by spending

#### The expenditure approach

$$GDP = C + I + G + (X - M)$$

consumption, investment, government, net exports. Subtract imports  $M$  – made abroad.

**Left out on purpose:**

- **intermediate goods** 中间产品 – avoid double-counting
- **used goods** 二手商品 – counted when new
- **stocks & bonds** – nothing new made

#### Worked example (\$b)

$C = 700$ ,  $I = 200$ ,  $G = 300$ ,  $X = 150$ ,  $M = 100$ .

$$GDP = 700 + 200 + 300 + (150 - 100) = 1,250 \text{ billion}$$

Net exports  $(X - M) = +50$ : sold more abroad than bought.

## 2 Limitations of GDP

### What GDP misses

**Nonmarket** 非市场: home cooking, volunteering – unpaid, so uncounted

**Underground** 地下经济: hidden work escapes the figures

**Externalities** 外部性: pollution lowers well-being, not GDP

GDP measures **output**, not well-being – it ignores leisure and the **distribution of income** 收入分配.

To compare living standards, use **GDP per capita** 人均国内生产总值  
$$= \frac{\text{GDP}}{\text{population}}$$

A huge total can still hide a low average.

## 3 Unemployment

### Measuring unemployment

**Labour force** 劳动力 = employed + unemployed (actively looking).

$$\text{unemployment rate} = \frac{\text{unemployed}}{\text{labour force}} \times 100$$

$$\text{participation rate} = \frac{\text{labour force}}{\text{working-age pop.}} \times 100$$

**Discouraged workers** 灰心工人 quit looking – so they leave the labour force and the rate looks **lower**.



Only those looking count as unemployed

### Three types of unemployment

**Frictional**  
摩擦性

between jobs;  
normal and healthy

**Structural**  
结构性

skills or location no  
longer match jobs

**Cyclical**  
周期性

caused by a down-  
turn in demand

**Natural rate** 自然失业率 = frictional + structural (cyclical = 0). At **full employment** 充分就业 the actual rate equals the natural rate – **not zero**.

## 4 Inflation

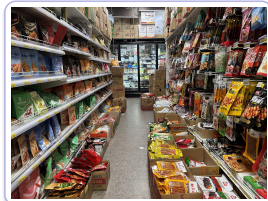
## The price level and the CPI

Three words for how the **general price level** 一般价格水平 moves:

- **inflation** 通货膨胀 – prices **rising**
- **deflation** 通货紧缩 – prices **falling**
- **disinflation** 反通货膨胀 – still rising, but *slower*

The **CPI** 消费者价格指数 prices a **fixed basket** of goods each period.

$$\text{index} = \frac{\text{basket cost now}}{\text{basket cost in base year}} \times 100$$



The CPI tracks a fixed consumer basket

## Reading the CPI – and its bias

### Worked example

A basket costs 400 in the base year, 440 now.

$$\text{index} = \frac{440}{400} \times 100 = 110$$

$$\text{inflation} = \frac{110 - 100}{100} \times 100 = 10\%$$

The CPI can be a **biased** 有偏差 measure of the true cost of living:

- **substitution** 替代 – shoppers switch to cheaper goods, but the fixed basket does not
- **quality change** 质量变化 – a better phone at the same price is really cheaper

# 5 Costs of inflation

## Who inflation hurts

Surprise (**unanticipated** 未预期到的) inflation **redistributes purchasing power**:

**Borrowers gain**  
repay with cheaper money

**Lenders lose**  
repaid dollars buy less

**Anticipated** 预期到的 inflation is planned for – far less harmful.

Real running costs on everyone:

- **menu costs** 菜单成本 – reprinting prices
- **shoe-leather costs** 皮鞋成本 – extra trips to the bank
- **erodes savings and fixed pension** 养老金 incomes

**Hyperinflation** 恶性通货膨胀 (> 50%/month) can make people abandon money for barter.

# 6 Real vs nominal

## Real vs nominal GDP

GDP can rise because output grew *or* because prices rose. Split them:

- **nominal GDP** 名义国内生产总值 – at **current** prices (mixes both)
- **real GDP** 实际国内生产总值 – at **constant** base-year prices (output only)

**Real GDP** is the true measure of how output changes over time.

### The GDP deflator

$$\text{deflator} = \frac{\text{nominal GDP}}{\text{real GDP}} \times 100$$

### Worked example (\$b)

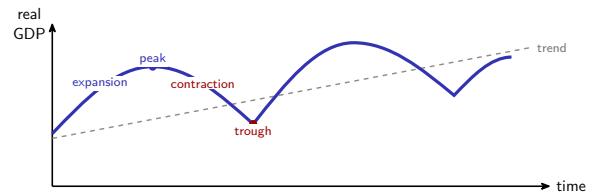
Nominal = 1,320, deflator = 110:

$$\text{real} = \frac{1,320}{110} \times 100 = 1,200$$

Output grew 20%, not the 32% nominal.

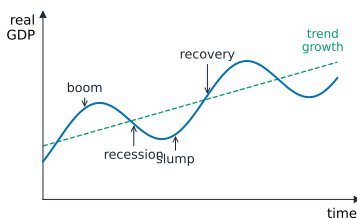
# 7 Business cycle

## The business cycle



Four phases: **expansion** → **peak** → **contraction (recession)** → **trough**. A recession is often two quarters of falling real GDP.

## The business cycle



- Compute GDP by the expenditure method  $C + I + G + X_n$  and count only **final** goods (avoid double counting).
- Unemployment rate =  $\text{unemployed} \div \text{labor force}$ ; discouraged workers leave the labor force (so the rate can understate joblessness).
- Know the three unemployment types (frictional, structural, cyclical) and that the natural

## Output gaps

Compare actual output to **potential output** 潜在产出 (real GDP at full employment):

$$\text{output gap} = \text{actual} - \text{potential}$$

- **recessionary gap** 衰退缺口: actual **below** potential – running cold
- **inflationary gap** 通货膨胀缺口: actual **above** potential – running hot

### Worked example (\$b)

Potential = 1,200, actual = 1,140:

$$\text{gap} = 1,140 - 1,200 = -60$$

A recessionary gap – idle workers and factories, a case for **stabilization policy** 稳定政策.

# 8 Recap

## Unit 2 – key takeaways

### 1 GDP

market value of final output; spending = income = value added

### 2 Unemployment

labour force = employed + looking; natural rate at full employment

### 3 Inflation

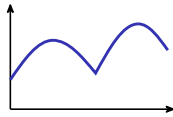
CPI prices a fixed basket; real GDP strips price changes out

### 4 Business cycle

expansion, peak, contraction, trough; watch the output gap

## Check yourself

- 1 In  $C + I + G + (X - M)$ , why subtract  $M$ ?
- 2 Which unemployment type rises in a recession?
- 3 Nominal GDP up on higher prices only – what is real GDP?
- 4 Actual GDP below potential – which gap?



**Answers** 1. imports are made abroad 2. cyclical 3. unchanged 4. recessionary gap