BRETTONOMICS · STUDY GUIDE · UNIT 4 TOPIC 1

Macroeconomic Objectives & Theory

Nominal versus real, the multiplier, the economic cycle, unemployment and inflation

How to use this guide

Information in this guide is colour-coded and labelled. Each coloured box carries a word label as well as a colour, so you can use it whether or not you distinguish the colours easily.

KEY DEFINITION	The precise meaning of a syllabus term. Learn the wording.
AUSTRALIAN CONTEXT	Real Australian evidence, data or events you can quote as examples.
WORKED EXAMPLE	A calculation or model worked through step by step.
COMMON MISTAKE	An error that commonly costs marks — check yourself against it.
EXAM TIP	How to turn the knowledge into marks in an exam response.
BRETTONOMICS INTERACTIVE	A matching interactive tool on brettonomics.com.

SECTION 1 Key concepts and terminology

1.1 Percentage Point vs. Percentage Change

- Percentage Point: The absolute difference between two percentages (e.g., 5% → 7% = 2pp increase)
- Percentage Change: The proportional change in a value (e.g., GDP $100bn → $110bn = 10% increase)
- NEVER say 'unemployment increased 2%' when you mean 2 percentage points
- Use pp for rates (unemployment, interest, inflation); use % for quantities (GDP, house prices)

1.2 Basis Points

- 1 basis point (bp) = 0.01 percentage points = 1/100th of one percentage point
- Used for precision in interest rates: 'RBA raised rates by 25bp' = 0.25pp
- Example: Cash Rate 3.85% + 50bp = 4.35%
- Standard in financial markets, banking, and investment terminology

1.3 Consumer Price Index (CPI)

- Measures the percentage change in prices of a basket of goods/services consumed by households
- Base year = 100 (e.g., if CPI is 120, prices are 20% higher than base year)
- Used to calculate headline inflation (all items) and underlying inflation (excluding volatile items)
- Australia's CPI quarterly release is a key macroeconomic indicator

1.4 Deflation

- Sustained fall in the price level (negative inflation)
- Dangerous because it discourages spending: if prices fall, consumers delay purchases
- Real debt burden rises: $100k debt becomes harder to repay when prices/wages fall

- Real interest rates spike: 2% nominal rate – (−5% deflation) = 7% real rate

1.5 Labour Force Underutilisation

- Includes both unemployment and underemployment (part-time workers wanting full-time work)
- Broader measure than unemployment rate alone
- Captures hidden unemployment: discouraged workers who've stopped looking
- Important for assessing true labour market slack

1.6 Average Propensity to Consume (APC) & Save (APS)

- APC = Total Consumption ÷ Total Income (e.g., consume $80 out of $100 = APC 0.8)
- APS = Total Savings ÷ Total Income (e.g., save $20 out of $100 = APS 0.2)
- APC + APS = 1 (income is either spent or saved)
- Marginal Propensity to Consume (MPC) = change in consumption ÷ change in income

1.7 NAIRU (Non-Accelerating Inflation Rate of Unemployment)

- The unemployment rate at which inflation remains stable without accelerating
- Australia's NAIRU ≈ 4–4.5%
- If U < NAIRU: tight labour market → wage pressure → inflation rises
- If U > NAIRU: slack labour market → wage moderation → inflation falls

KEY DEFINITION

Reading the NAIRU

Below the NAIRU. The labour market is tight, so wage and price pressure builds.

Above the NAIRU. There is spare capacity, so inflation tends to ease.

At the NAIRU. Inflation is stable — this is the sustainable rate of unemployment.

AUSTRALIAN CONTEXT

Australia's NAIRU. Usually estimated in the range of about 4 to 4.5%, which is why unemployment near 4% is read as a tight labour market rather than a comfortable one.

1.8 Participation Rate

- Percentage of working-age population (15+) in the labour force
- Labour force = employed + unemployed (actively seeking work)
- Not in labour force: students, retirees, stay-at-home parents, discouraged workers
- Australia's participation rate ≈ 65–66%

1.9 Stagflation

- Simultaneously high inflation and high unemployment
- Violates normal Phillips Curve trade-off
- Caused by adverse supply shocks (oil price spikes, supply disruptions)
- Difficult for policy: fighting inflation worsens unemployment, and vice versa

1.10 Structural Deficit

- The government budget deficit that would exist if the economy were at full employment
- Distinguishes from cyclical deficit (caused by the recession itself)
- Reveals whether fiscal policy is sustainably loose or tight
- If structural deficit is large, it may be unsustainable long-term

SECTION 2 Nominal versus real

2.1 Real vs. Nominal GDP

- Nominal GDP: GDP measured at current prices (includes inflation)
- Real GDP: GDP adjusted for inflation (shows true productive capacity)
- Formula: Real GDP = Nominal GDP ÷ Price Index × 100
- Example: Nominal GDP $1.3 trillion, CPI 110 → Real GDP = 1.3 ÷ 110 × 100 = $1.18 trillion
- Real GDP is the true measure of economic growth; nominal can be deceiving

2.2 Real vs. Nominal Wages

- Nominal wage: the actual dollar amount earned (e.g., $60,000/year)
- Real wage: purchasing power of earnings adjusted for inflation
- Real wage = Nominal wage ÷ Price index × 100
- If nominal wages rise 5% but inflation is 6%, real wages have FALLEN by ~1%
- Living standards depend on real wages, not nominal

2.3 Real vs. Nominal Interest Rates

- Nominal interest rate: the rate quoted by banks (e.g., 4.5% on a mortgage)
- Real interest rate: nominal rate adjusted for inflation
- Formula: Real rate ≈ Nominal rate − Inflation rate
- Example: 5% mortgage, 3% inflation → real rate ≈ 2%
- Borrowers care about real rates; high inflation erodes the real cost of borrowing

Calculation Practice

- If inflation is −2% (deflation), nominal rate 1%, real rate = 1 − (−2) = 3%
- High inflation reduces real interest rates, encouraging borrowing
- Deflation increases real rates, discouraging borrowing (dangerous for economies)

SECTION 3 The production possibility curve

3.1 What the PPC Shows

- Maximum combinations of two goods an economy can produce with full resource utilisation
- Assumes fixed resources (land, labour, capital, enterprise) and technology
- Curved (concave) due to increasing opportunity cost—resources aren't equally suited to all goods
- Points on the curve = efficient production; inside curve = inefficient; outside = impossible

3.2 Factors That Shift the PPC

Outward Shift (Expansion)

- More/better resources: immigration, new capital investment, labour force growth
- Technological improvement: new methods increase productivity
- Discovery of natural resources: new mineral deposits, oil reserves
- Better organisation/efficiency: less waste, improved management

Inward Shift (Contraction)

- Loss of resources: natural disasters, war, drought
- Depreciation: capital stock wears out without replacement
- Migration: labour leaves the country
- Technological regression: loss of knowledge/skills

SECTION 4 The multiplier effect

4.1 What Is the Multiplier?

- Shows how much total AD and GDP rises from an initial injection of government spending
- Example: $1bn govt. spending → total AD rises $5bn = multiplier of 5
- The multiplier works because initial spending becomes income for workers, who spend part of it
- Creates a chain reaction of spending, each round smaller than the last

4.2 Simple Keynesian Multiplier Formula

- Multiplier = 1 ÷ (1 − MPC) = 1 ÷ MPS
- MPC = Marginal Propensity to Consume (fraction of extra income spent)
- MPS = Marginal Propensity to Save = 1 − MPC
- Example: If MPC = 0.8, then Multiplier = 1 ÷ 0.2 = 5
- If MPC = 0.75, then Multiplier = 1 ÷ 0.25 = 4

4.3 Multiplier Calculation Example

Govt. injects $100m. If MPC = 0.8:

- Round 1: Govt. spends $100m → workers earn $100m
- Round 2: Workers spend 80% = $80m → others earn $80m
- Round 3: Others spend 80% of $80m = $64m → others earn $64m
- Continues: $100m + $80m + $64m + $51.2m + ... = $500m total (multiplier = 5)

4.4 What Affects the Multiplier Size?

- MPC: Higher MPC → larger multiplier (more of extra income is spent)
- Automatic stabilisers: Taxes and welfare reduce multiplier (20-30% tax rate reduces multiplier)
- Imports: Spending on foreign goods leaks out of economy → smaller multiplier
- In Australia, multiplier ≈ 1.5–2.5 due to high import share and taxes

SECTION 5 The economic cycle and macroeconomic objectives

5.1 Four Phases of the Economic Cycle

1. Expansion (Recovery)

- Real GDP growing, unemployment falling, inflation low/stable
- Consumer and business confidence rising
- Job creation, wage growth beginning
- Tax revenue up, welfare spending down → cyclical surplus emerging

2. Peak (Boom)

- GDP growth at or above trend, unemployment at/below NAIRU
- Inflation risk rising (wage-price spiral, asset bubbles)
- Tight labour market, skills shortages, wage pressures
- Consumer and asset prices may be elevated/unsustainable

3. Contraction (Recession)

- Real GDP falling (2+ consecutive quarters = technical recession)
- Unemployment rising, business failures increasing
- Inflation may fall, deflation risk emerges
- Tax revenue down, welfare spending up → cyclical deficit

4. Trough (Bottom)

- GDP at lowest point, unemployment peak

- Business and consumer confidence severely depressed
- Interest rates typically cut to stimulate recovery
- Economy begins gradual recovery

5.2 Macroeconomic Objectives

- Sustainable Economic Growth: Long-term real GDP expansion without overheating
- Full Employment: Unemployment at or near NAIRU (typically 3.5–4.5%)
- Price Stability: Inflation target (Australia: 2–3% over cycle)
- External Stability: Manageable current account, sustainable debt levels
- Sustainable Development: Growth that doesn't deplete resources or damage environment
- Improved Living Standards: Rising real incomes, real wages, wealth per capita

BRETTONOMICS INTERACTIVE

Big Three Macro Indicators and the Business Cycle Explorer — track growth, unemployment and inflation together and identify the phase of the cycle.

IN ONE SENTENCE The objectives conflict: policy that fixes one usually costs something on another.

SECTION 6 Aggregate demand and aggregate supply

6.1 Circular Flow of Income Model

- Shows how money flows between households, firms, and government
- Households provide labour → earn income → spend on goods
- Firms hire labour → pay wages → produce goods
- Government taxes income, collects taxes → spends on services & transfers
- Exports bring money in; imports leak money out

6.2 Components of Aggregate Demand

- AD = C + I + G + (X − M)
- C = Consumption (household spending on goods/services)
- I = Investment (business spending on capital)
- G = Government spending (consumption & investment)
- X = Exports (foreign demand for domestic goods)
- M = Imports (domestic spending on foreign goods)

KEY DEFINITION

The aggregate demand identity

AD = C + I + G + (X − M). Consumption, investment, government spending and net exports.

Why it matters. Every demand-side policy works by moving one of these four components, so name the component before you describe the effect.

6.3 Factors Shifting Aggregate Demand

Factors Increasing AD (Shift Right)

- Higher household income/wealth → consumption rises
- Lower interest rates → investment and consumption rise
- Fiscal expansion (govt. spending up, taxes down)
- Rising global demand → exports rise

- Lower AUD (exchange rate) → exports cheaper, imports dearer
- Rising consumer/business confidence

Factors Decreasing AD (Shift Left)

- Lower household income/wealth → consumption falls
- Higher interest rates → investment and consumption fall
- Fiscal contraction (govt. spending down, taxes up)
- Falling global demand → exports fall
- Rising AUD → exports dearer, imports cheaper
- Falling consumer/business confidence (pessimism, uncertainty)

6.4 Short-Run vs. Long-Run Aggregate Supply

- Short-Run AS (SRAS): Upward sloping (sticky wages/prices in short run)
- Long-Run AS (LRAS): Vertical (at natural/full employment level)
- SRAS shifts up/down with changes in resource costs (wages, materials) and productivity
- LRAS shifts right/left with changes in productive capacity (technology, labour, capital)

6.5 Cyclical vs. Structural Factors in AD/AS

Cyclical (Temporary, Reversible)

- Changes in consumer confidence → affects consumption/AD
- Business cycle downturns → unemployment rises temporarily
- Temporary supply shocks (drought, temporary oil price spike)

Structural (Permanent, Long-term)

- Shift from manufacturing to services → permanent job losses in some sectors
- Technology replacing labour → long-term structural unemployment
- Long-term resource depletion or climate change → LRAS shift
- Demographic change (ageing population) → potential growth rate shift

SECTION 7 Types of unemployment

7.1 Unemployment Types

- Cyclical: Due to economic downturn; falls when economy recovers
- Structural: Mismatch between skills needed and skills available; long-term
- Frictional: Normal turnover between jobs; people searching for new positions
- Seasonal: Predictable job losses in certain seasons (agriculture, tourism, retail)
- Natural: Frictional + structural unemployment at full employment (= NAIRU)
- Long-term: Unemployed > 12 months; harder to re-enter workforce
- Hidden: Discouraged workers who've stopped job searching; not counted as unemployed

7.2 Effects of Unemployment

For Individuals

- Lost income → lower living standards, poverty risk
- Mental health impacts: stress, depression, reduced self-esteem
- Skill atrophy: skills deteriorate with prolonged joblessness
- Career scarring: future earnings potential damaged

For Economy

- Lost output: economy operating inside PPC
- Reduced tax revenue, higher welfare spending
- Lower aggregate demand → multiplier effects depress growth further

- Social costs: crime, health spending, reduced wellbeing

SECTION 8 Types and causes of inflation

8.1 Inflation Types

- Headline Inflation: All items including volatile (food, energy); most visible to public
- Underlying Inflation: Excludes volatile items; shows underlying price pressures
- Demand-Pull: 'Too much money chasing too few goods'; happens when U < NAIRU
- Cost-Push: Rising input costs (wages, oil, raw materials) → firms raise prices
- Imported Inflation: Rising global prices or falling AUD makes imports dearer
- Inflation Expectations: If people expect inflation, they raise prices/wage demands → self-fulfilling

AUSTRALIAN CONTEXT

The 2022 episode. Australian inflation peaked near 8% in 2022, driven substantially by energy and supply-chain costs — a largely cost-push and imported episode, which is why headline inflation ran above underlying inflation.

8.2 Effects of Inflation

Costs (Harmful Effects)

- Menu costs: firms must change prices frequently
- Uncertainty: investment decisions harder; long-term contracts risky
- Savers harmed: savings value eroded; real interest rates fall
- Fixed income earners harmed: pensions/fixed wages lose purchasing power
- International competitiveness: exported goods become more expensive
- Bracket creep: taxpayers pushed into higher tax brackets

Benefits (Why Some Inflation is Good)

- Encourages spending/investment (rather than hoarding money)
- Reduces real debt burden (debt erodes in real value)
- Provides room for real wage cuts without nominal cuts (politically feasible)
- Avoids deflation trap (which is far worse)

SECTION 9 Fiscal policy and aggregate demand

9.1 Interest Rates as a Policy Tool

- Central bank (RBA in Australia) sets official cash rate
- Lower rates: Encourage borrowing/spending → stimulate AD → growth
- Higher rates: Discourage borrowing/spending → reduce AD → lower inflation
- Effect takes 12–18 months to fully impact economy (long lags)
- Limited when rates already near zero (liquidity trap)

9.2 Fiscal Policy: Federal Budget Decisions

- Tax changes: Lower taxes → higher disposable income → consumption rises
- Government spending: Increase spending → direct AD increase
- Transfer payments: Welfare increases → recipients spend more
- Budget deficit: Government spending > tax revenue → expansionary
- Budget surplus: Government spending < tax revenue → contractionary

9.3 Automatic Stabilisers

- Tax and welfare that automatically adjust with economic cycle

- In expansion: Tax revenue rises (higher incomes), welfare falls → budget move to surplus
- In recession: Tax revenue falls, welfare rises → budget move to deficit
- Happen WITHOUT government decision → automatic circuit-breaker
- Reduce multiplier size but stabilise the economy (self-limiting expansions/contractions)

KEY DEFINITION

Automatic versus discretionary

Automatic. Taxes and transfers respond to the cycle with no decision required — immediate, but limited in size.

Discretionary. A deliberate change to spending or taxation — larger and targeted, but subject to recognition and implementation lags.

9.4 Discretionary Spending

- Government actively decides to increase or decrease spending/taxes
- Example: New infrastructure projects, tax cuts announced in budget
- Pros: Can target specific needs, flexible
- Cons: Lags (takes time to legislate and implement), may be poorly timed

9.5 Fiscal Multiplier

- How much AD increases from $1 govt. spending injection
- With automatic stabilisers: Multiplier ≈ 1.5–2.5 (smaller but more stable)
- During expansion: Smaller multiplier (economy near capacity, limited spare resources)
- During recession: Larger multiplier (spare capacity available for extra output)

EXAM TIP

Say which direction and why. A multiplier answer needs three things: the initial injection, the leakages that shrink each round, and the resulting change in national income. Quoting a number without the mechanism does not earn the analysis mark.

BRETTONOMICS INTERACTIVE

Build Your Own Budget and the Keynesian Multiplier Calculator — set an injection and watch the multiplied effect on national income.

ASSESSMENT Multiple choice questions

20 questions covering Unit 4 Topic 1. Answers and explanations follow the question set.

Question 1

Unemployment falls from 5.2% to 4.8%. Which statement describes this change correctly?

A. Unemployment fell by 0.4%
B. Unemployment fell by 4 percentage points
C. Unemployment fell by 0.4 percentage points
D. Unemployment fell by 0.4 basis points

Question 2

Real GDP is most accurately described as:

A. GDP adjusted for inflation, showing real productive capacity
B. GDP measured at current market prices
C. GDP that includes only government spending
D. GDP that excludes all imports and exports

Question 3

If the marginal propensity to consume is 0.75, the simple Keynesian multiplier is:

A. 0.75
B. 1.33
C. 3.0
D. 4.0

Question 4

A household receives an extra $1,000 of disposable income and saves $200 of it. The marginal propensity to consume is:

A. 0.2
B. 0.8
C. 1.25
D. 8.0

Question 5

Nominal wages rise 4% while inflation is 5%. Real wages:

A. Fall by approximately 1%
B. Rise by approximately 1%
C. Rise by 9%
D. Remain unchanged

Question 6

Which factor would shift the production possibility curve outward?

A. An increase in resource depletion
B. A decline in the labour force through emigration
C. A reduction in capital investment
D. Technological advancement that raises productivity

Question 7

Which is an example of structural unemployment?

A. Workers laid off in a recession who will be rehired when growth returns
B. Manufacturing workers whose jobs are permanently lost to automation
C. Agricultural workers facing a predictable off-season
D. New graduates searching for a first job

Question 8

During the peak phase of the economic cycle, the most likely government concern is:

A. Rising unemployment and falling output
B. Deflation and excess productive capacity
C. Wage-price spirals and asset price bubbles
D. A depreciating dollar reducing export competitiveness

Question 9

The cash rate is 2% while inflation is −2%. The real interest rate is:

A. 0%
B. 4%
C. 2%
D. −4%

Question 10

A rise in interest rates most directly affects which components of aggregate demand?

A. Consumption only
B. Investment only
C. Both consumption and investment
D. Government spending

Question 11

Australia's unemployment rate is 4.1% while the NAIRU is estimated at 4.3%. This suggests:

A. The labour market is tight, so inflationary pressure is likely to build
B. There is excess slack, so inflation will fall
C. Unemployment is exactly at its natural rate
D. Only structural unemployment is present

Question 12

Which statement correctly describes automatic stabilisers and the fiscal multiplier?

A. Automatic stabilisers increase the size of the multiplier
B. Automatic stabilisers have no effect on the multiplier
C. The effect depends entirely on the level of government spending
D. Automatic stabilisers reduce the size of the multiplier

Question 13

Cost-push inflation occurs when:

A. Aggregate demand rises faster than aggregate supply
B. Input costs such as wages, energy and materials rise, forcing firms to raise prices
C. The money supply expands too rapidly

D. Exports decline, reducing foreign demand

Question 14

Which scenario is a movement along the short-run aggregate supply curve rather than a shift?

A. A technological breakthrough raises productivity

B. Wage negotiations result in higher nominal wages

C. Government spending increases, raising aggregate demand

D. The price level rises and firms increase output in response

Question 15

The CPI was 110 last year and is 115 this year. The inflation rate is approximately:

A. 5%

B. 15%

C. 4.5%

D. 115%

Question 16

In the circular flow of income, which represents a leakage?

A. Household savings and taxation

B. Government transfer payments to households

C. Household spending on consumption

D. Business investment spending

Question 17

Stagflation is best defined as:

A. A period of very high inflation alone

B. Deflation occurring during a supply shock

C. High inflation occurring at the same time as high unemployment

D. The trough phase of the economic cycle

Question 18

Which would shift the long-run aggregate supply curve rightward?

A. Discovery of new natural resources and improved technology

B. An increase in the price level

C. A temporary drought reducing agricultural output

D. An increase in interest rates

Question 19

A government cuts income tax rates during an economic expansion. The most likely result is:

A. Aggregate demand decreases, moving along the SRAS curve

B. The long-run aggregate supply curve shifts leftward

C. Unemployment automatically increases

D. Aggregate demand increases, risking overheating

Question 20

Labour force underutilisation includes unemployment together with:

A. Seasonal and frictional unemployment

B. Underemployment — part-time workers who want more hours

C. Only discouraged workers who have stopped searching

D. Long-term unemployment beyond 12 months

ASSESSMENT

Marking guide

Answer key

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
C	A	D	B	A	D	B	C	B	C
Q11	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**	**Q17**	**Q18**	**Q19**	**Q20**
A	D	B	D	C	A	C	A	D	B

Explanations

Q1 **C** The change is 5.2 − 4.8 = 0.4 percentage points, equal to 40 basis points. Writing "fell by 0.4%" is wrong: a 0.4% fall from 5.2% would give 5.18%, not 4.8%.

Q2 **A** Real GDP removes the effect of price changes. GDP at current prices is nominal GDP.

Q3 **D** Multiplier = 1 ÷ (1 − MPC) = 1 ÷ 0.25 = 4.0. Equivalently 1 ÷ MPS.

Q4 **B** MPC = change in consumption ÷ change in income = \$800 ÷ \$1,000 = 0.8. The remaining 0.2 is the marginal propensity to save.

Q5 **A** Real wage change ≈ nominal change − inflation = 4% − 5% = −1%. Purchasing power falls.

Q6 **D** Technology raises output from the same resources, shifting the PPC outward. The other options reduce productive capacity.

Q7 **B** Structural unemployment is a lasting mismatch between skills and available jobs. The distractors describe cyclical, seasonal and frictional unemployment.

Q8 **C** At the peak the labour market is tight and asset prices elevated, so inflation and bubble risk dominate. The other options describe a contraction or trough.

Q9 **B** Real rate = nominal − inflation = 2% − (−2%) = 4%. Deflation raises real rates, discouraging borrowing.

Q10 **C** Higher rates raise the cost of credit for households and the cost of capital for firms. Government spending is set independently.

Q11 **A** Unemployment below the NAIRU means the labour market is tighter than can be sustained without accelerating inflation, so wage and price pressure tends to build. Excess slack requires unemployment above the NAIRU.

Q12 **D** Taxes and transfers leak income out of each spending round, damping the multiplier but stabilising the cycle.

Q13 **B** Cost-push originates on the supply side. Option A describes demand-pull inflation.

Q14 **D** A change in the price level produces a movement along SRAS. Productivity and wage changes shift SRAS; government spending shifts AD.

Q15 **C** (115 − 110) ÷ 110 × 100 = 4.55%. The common error is to report the 5-point rise as 5%.

Q16 **A** Leakages withdraw income from the flow. Transfers and consumption circulate income; investment is an injection.

Q17 **C** Stagflation combines stagnation with inflation, breaking the usual Phillips curve trade-off. It typically follows an adverse supply shock.

Q18 **A** LRAS shifts only when productive capacity changes. Price level changes cause movements; a temporary drought shifts SRAS.

Q19 **D** Tax cuts raise disposable income and consumption, shifting AD right. Applied near capacity this adds inflationary pressure.

Q20 **B** Underutilisation = unemployment + underemployment. Seasonal and frictional unemployment are already counted within unemployment.