

ECON1010: Macroeconomics 1

Topic 1: Introduction to Macroeconomics

Topic 2: National income accounting

Topic: 3 Aggregate Supply and Demand

Topic 4: Aggregate Supply in detail

Topic 5: Monetary Policy

Topic 6-8: Growth theories

Topic 9: Income and spending

Topic 10: Monetary and fiscal policy

Topic 1: Introduction to Macroeconomics

Macroeconomics definition

- The behaviour of the economy as a whole—with booms and recessions, the economy's total output of goods and services, the growth of output, the rates of inflation and unemployment, the balance of payments, and exchange rates. Macroeconomics deals with both long-run economic growth and the short-run fluctuations that constitute the business cycle

Main forecasts

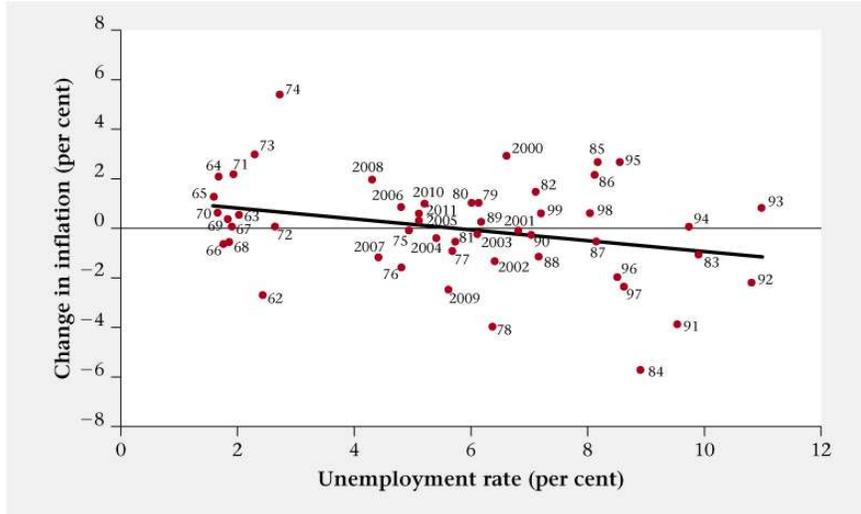
1. GDP
 2. Unemployment
 3. ASX
 4. USA v AUS exchange
- Help determine monetary and fiscal policy

Three macroeconomic models

1. Long run – Decades 10-20 years or more
 - a. Ignores short run factors such as employment, inflation as they average out over time
 - b. Focuses on supply side considerations (land, labour, capital)
 - c.
2. Medium run -
 - a. Transition between short and long run
 - b. E.g. let's start charging more because we have too little stock left
 - c. Both curves are tilted not horizontal or vertical
3. Short run
 - a. The short run is a period of time short enough that markets are unable to clear.
 - b. In the short run, actual output can deviate from potential output.
 - c. Short-run fluctuations in real output are important.
 - d. AD is the major determinant of these variations.
 - e. In the short run, the price level is pegged, making the short-run AS schedule horizontal.

Phillips curve

- Medium run curve, there is a negative relationship between unemployment and inflation



- Source: ABS National Accounts in dX Database, and authors' calculations
- If unemployment is high, less goods are purchased and inflation will fall
- Below we can see where AD shifts from AD to AD1 the point on the unemployment and inflation graph moves to the left (lower unemployment) and up (higher prices=higher inflation)

Business cycle

- Peak > Recession > trough > Recovery (this cycle then repeats in an upward trend)

There are many factors that affect these peaks and troughs

- In terms of the volatility of these factors
- Investment > GDP > Consumption

Pro cyclical and counter cyclical

- Counter cyclical will go up during recession and down during boom (unemployment)
- Pro cyclical will go up during boom down during recession (GDP)

Lagging measures

- Unemployment rate is a lagging variable in relation to GDP, a shock in unemployment will occur in response to decreasing GDP

Break down of short term AS curve

There are four major models that explain why the short-term aggregate supply curve slopes upward. The first is the sticky-wage model. The second is the worker-misperception model. The third is the imperfect-information model. The fourth is the sticky-price model.

Sticky wages

When the price level rises, real wages fall. When real wages fall, labor becomes cheaper. When labor becomes cheaper, firms hire more labor. When firms hire more labor, output increases.

Worker misperception

When the price level rises, firms increase nominal wages. When nominal wages increase, workers--due to misperceptions--believe that real wages also increase. When workers believe that real wages increase, workers provide more labor. When workers provide more labor, output increases.

Imperfect-information model

When the overall price level rises, producers mistake it for a relative increase in the price level. When the relative price level rises, the real wage earned by producers rises. When the real wage earned by producers rises, the amount of labor supplied by producers increases. When the amount of labor supplied by producers increases, output increases.

Sticky price model

First, when firms expect a high price level they set their relatively sticky prices high. Other firms follow suit and set their prices high as well. Thus, a high expected price level leads to a high actual price level. When the expected price level is high, producers produce more output. Second, when the level of output is high, the demand for goods and services is also high. When the demand for goods and services is high, the price charged for goods and services is also high. When the price charged for goods and services is high, firms set their relatively sticky prices high. When some firms set their relatively sticky prices high, other firms follow suit. Thus, the overall price level increases.

Topic 2: National income accounting

Calculating real GDP

- The formula for real GDP is nominal GDP divided by the deflator, or $R = N/D$.
- The deflator is a measurement of inflation since the base year.
- For example, if prices rose 2.5% since the base year, the deflator is 1.025.
- If the nominal GDP were 10 million, the real GDP would be $10,000,000/1.025 = 976,000$.

Calculating the price deflator

- $(\text{Nominal GDP} / \text{Real GDP}) \times 100$
- $10000000/976000 \times 100 = 1.025$

Calculating nominal GDP

- The expenditure measure of GDP called GDP(E) comprises:
 - household consumption spending (C)
 - investment spending (I)
 - government purchases (G)
 - foreign demand (NX).
 - The national income identity is
$$Y = C + I + G + NX$$
- The production function (f) relates:
 - GDP (Y) to inputs called factors of production
 - the major factors are labour (N) and capital (K)
 - $Y = f(N, K)$
- Payments to factors comprise:
 - the wage rate (w) for N and interest rate (i) for K
 - these payments plus profits add to GDP
 - $Y = (w \times N) + (i \times K) + \text{profit}$
- Gross national income (GNI):
 - $\text{GNI} = \text{GDP} + \text{net payments from/to overseas to domestically owned factors of production.}$
 - For example BHP has overseas investors, income from GDP goes overseas, therefore we need to (minus this and add money flowing into Australia)

- Overseas net payments are about 3% of GDP lowering GNI relative to GDP.
- Net domestic product (NDP):
 - $NDP = GDP - \text{depreciation}$.
 - Depreciation is the wear and tear on capital which lowers their value over time (think of a house or a machine).
 - Depreciation is about 15% of GDP. This is large. This means we would need to spend 15% on investment each year just to have the same level of capital as we did last year.
 - Therefore, every year we must invest 15% to cover the depreciation
- Real versus nominal GDP
 - Nominal GDP measures the value of all final goods and services produced but it does not take account of price changes.
 - Real GDP measures the value of all final goods and services produced but adjusts that value to take account of price changes.
 - We are most interested in Real GDP because we get utility/welfare from the quantity of goods and services consumed. Using Real GDP we can measure how the quantity of goods and services produced has changed.

Break down of $C+I+G+(X-M)$

- **Investment means additions to the physical stock of capital.**
 - This includes new construction, machinery, factories and additional inventories.
 - Investment in human capital increases the labour force knowledge and skill.
 - Gross investment represents total investment or the increase in capital stock.
 - $\text{Net investment} = \text{Gross investment} - \text{Depreciation}$
- **Government spending represents purchases of goods and services.**
 - Transfer payments are not purchases.
 - Government expenditure comprises purchases and transfers.
 - Domestic final demand is the sum of public and private consumption and investment.
 - Gross national expenditure (GNE) is final demand plus the increase in stocks (change in inventories).
 - $GNE = C + I + G$
- **Net exports (NX):**

- are the difference between exports and imports
- Australian NX have been mostly negative since 1980.
- Gross domestic product (GDP) takes into account net exports.
- $GDP = C + I + G + NX$

Algebraic relationship in GDP equation

RELATION BETWEEN INVESTMENT AND SAVING = DEFICIT=NET EXPORT/IMPORT

- The addition of the government and net exports creates a four-sector economy where:

$$Y = C + I + G + NX \quad (2.8)$$

The C factor can be broken down into the following equation

- Disposable income (YD) includes transfers (TR) and is net of taxes (TA).

$$YD = Y + TR - TA \quad (2.9) \text{ where}$$

- Disposable income (YD) is consumed (C) or saved (S)

$$YD = C + S \quad (2.10)$$

- **S= savings I= investment, BD= Budget deficit. NX= net import export**

- Using Equations (2.9) and (2.10) to eliminate YD, substituting for C in (2.8) and rearranging, gives:

$$S - I \equiv (G + TR - TA) + NX \quad (2.12)$$

- $(G + TR - TA)$ represents the government's budget deficit (BD).
- Identity (2.12) states that the excess of savings over investment $(S - I)$ is equal to the budget deficit plus the external sector.

- $S - I \equiv BD + NX$

- **FURTHER NOTE**

- $S - I \equiv BD + NX$ indicates important relationships between $S - I$, BD and NX.
- If $S = I$, then the budget deficit must be equal to the external deficit (twin deficits).
- If $S = \$1000m$, $I = \$950m$ and the budget deficit is $\$150m$, then NX must be equal to?

- $NX = -\$100m$. This reflects Australia's budget and trade deficits in the early 1990s.

Problems with GDP as measure

- Most household work and non-market activities such as volunteerism are not included.
- Pollution and environment degradation effects are not included in GDP.
- Illegal activity and the underground economy cannot be accounted for.
- Government services may not be accurately priced by the market.

Inflation

- Inflation is the rate of change in prices.

$$\pi = \frac{P_t - P_{t-1}}{P_{t-1}}$$

(2.13)

- Australia's inflation rate has remained around 2–3% p.a. since the mid 1990s.
- Two measures of inflation are the consumer price index (CPI) and the GDP deflator.
- A less commonly used price—but still important—index is the producer price index (PPI). This measures the cost of raw materials and semi-finished goods used in production.
- The GDP deflator is the ratio of nominal GDP to real GDP for a year.

CPI

- Measure of change in prices of a basket of goods
- If CPI in 1984 is 100 and in 2006 198
- According to formula
- $198-100/100= 0.98$ (multiply by 100 to get percent)
- The formula for calculating the Inflation Rate looks like this:
 - $((B - A)/A)*100$
 - Where "A" is the Starting number and "B" is the ending number.
 - So if exactly one year ago the Consumer Price Index was 178 and today the CPI is 185, then the calculations would look like this:
 - $((185-178)/178)*100$ or $(7/178)*100$
 - $0.0393*100$
 - $=3.93\%$

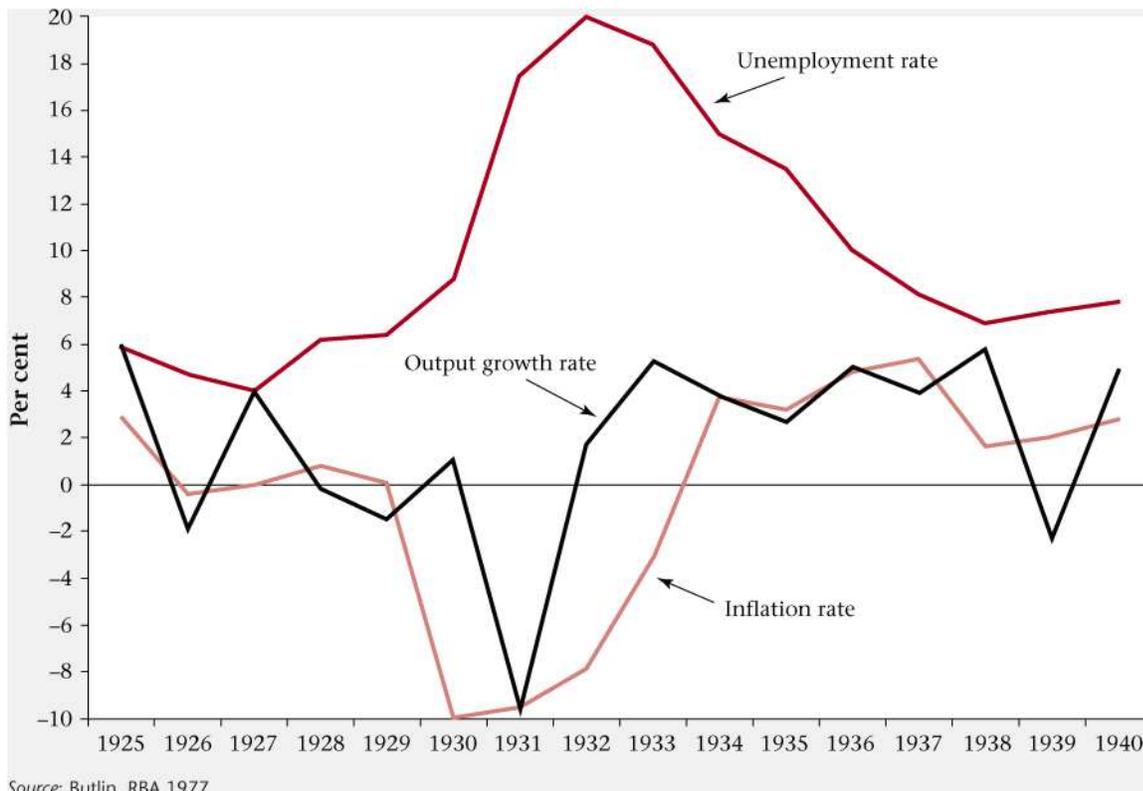
Interest rates and inflation, what is the real return

- Interest rates reported in the media are nominal rates.
- Real interest rate = nominal interest rate – (expected) inflation rate.
- A 10-year Treasury bond paying 4.88% p.a. with 3.31% annual inflation rate has a real return of?
- Real return = 4.88% – 3.31% = 1.57%

Important economic events and current problems

Great depression

- The Great Depression was a period of very low output, deflation and high unemployment that affected many countries beginning in 1929.
- In the United States it is widely associated with a stock market crash.
- In Australia the effects of the Great Depression were less severe than those of the 1890s depression.
- Deflation—the rate at which price level falls—led to increases in real wages, high real interest rates and bank failures.



- This is when Keynes theory came about
- During recession we should increase production (government spending) in order to increase spending

- As opposed to old theory of decreasing production during recession

The monetarist challenge

- Friedman and Schwartz came out and said it was not a fiscal policy problem it was monetary
- They argued that the control on the supply of money was the cause, and the reserve banks should have increased money supply in order to increase spending and consumption

Deflation

- When the price of goods is falling, makes saving very popular
- If inflation is low and real rates can't fall far enough to boost demand and perk up prices, demand will weaken still further. This is the dreaded deflation trap

Hyperinflation

- Where the value of money is dropping dramatically price growth of 1000% per annum
- Occurs when government is spending more than making
- Then printing money occurs and the value of each dollar is devalued

Negative responses

- The ***"beggar-thy-neighbour"*** approach where tariffs were increased to protect domestic production, alongside devaluing the nation's currency to increase foreign demand on domestic goods
- ***Poor monetary policy following the banking failures***
- Following the large volume of small banks going into failure, there was a 20% decrease in money supply. As a result, depositors lost confidence in the banks and began to withdraw.
- This led central banks increased their reserves to cover for customer withdrawals, thus decreasing the money multiplier strength and leading to negative spiral effect on the money supply
- Central banks did little to stimulate the economy and it was not until 1933 stimulus monetary policy was adopted
- It took a decade to recover from the failures
- There was ***"poor monetary policy"*** during the great depression the classical approach to monetary policy was damaging as there was no stimulus placed into the economy by easing off monetary pressure (interest rates) in order to increase investment and consumption.

Why there has been less volatility since great depression (during great moderation period)

- Decrease in demand and supply shocks
- Because of financial institutions
- Greater economic policy
- Globalisation

Japan economy

Asset bubble burst and poor banking system

- Due to deregulation of the financial market, in particular the bond market, banks and corporations began to approve a high volume of bad loans
- In the 1990s this led to a crash in the financial system and failure of many banks
- As a result, the money supply shrank, thus leading to negative growth
- Japan has since failed to adopt expansionary monetary policies in order to achieve positive inflation and growth
- Recent themes

BRICS

- **Brazil, Russia, India, China**
- All increasing GDP fast which increased AUS GDP as demand for our resources

Ageing population

- Reducing workers available for productive activities
- Increase government spending and decrease earnings

Environment and global warming

