

## TEXTBOOK NOTES

### Chapter 1 – Measuring Macroeconomic Performance: Output and Prices

**Microeconomics** studies individual decision making processes and outcomes.

**Macroeconomics** studies the aggregate impact of individual decisions. Concerned with three key themes:

1. Making judgements about the performance of the economy
2. Understanding the factors that have produced particular macroeconomic outcomes
3. The role of government in influencing macroeconomic performance

#### Economic Performance

The economy is performing well when it meets the following criteria:

1. Rising living standards in the long run
2. Avoiding extremes of short-run macroeconomic performance
  - Essentially avoiding the extremes of the **short-run business cycle** where economies pass through periods of expansion followed by periods of contraction
3. Maintaining the real value of the currency
  - Avoiding extreme inflation or deflation
4. Ensuring sustainable levels of public and national debt
  - Public debt is the amount owed by the government to the non-government sector
5. Balancing current expenditure against the need to provide resources for the future
6. Providing employment for all individuals seeking work

#### GDP - Overview

- The value of final goods and services produced *within* a country in a given time period
  - Intermediate Goods: goods or services used up in the production of final goods and services – not counted as part of the GDP
  - Final Goods: goods or services consumed by the ultimate user – counted in GDP
  - Value Added: used to measure the value of products that are made over two or more periods, involves measuring the value added by each firm to a product
- In the short run GDP can fluctuate quite markedly (one to four years)
  - Strong growth: *economic expansion*
  - Sluggish growth: *economic contractions*
  - This is called the *business cycle*, a study of this is *growth economics*
- To be able to talk about aggregate output economists need to aggregate the quantities of many different goods and services. This is done by adding up the *market value* of all the given goods and services.

#### NOTE:

- Purchase of consumer durables is part of GDP as C.
- Government transfers is not part of GDP.
- Building of houses and apartments is part of Investment
- The difference in inventories is part of Investment.

#### GDP – Measurement

##### **The Expenditure Method**

- Divides the users of final goods into four groups
- GDP measured either by:
  - Adding up the market values of all the final goods and services that are produced domestically
  - Adding up the total amount spent by each of the groups on final goods and services and subtracting spending on imported goods and services
- Four components of expenditure:

- *Consumption Expenditure (C)*– spending by households on goods and services such as food, clothing and entertainment
- *Investment (I)*– spending by firms on final goods and services, primarily capital goods and housing
  - Includes residential investment
  - Includes inventories (unsold goods) which are treated as though the company has purchased them
- *Government Purchases (G)*– purchases by federal, state and local governments of final goods and services.
  - Does not include transfers, which are payments made by the government for which no current goods or services are received, e.g. pensions, welfare benefits, government debt interest
- *Net Exports (NX)*– Exports minus imports
- $Y(\text{GDP}) = C + I + G + NX$  – *The National Income Accounting Identity*

### **The Production Method**

- Multiplies that number of final goods and services produced by their market value irrespective of who purchases them

### **The Incomes of Capital and Labour Method**

- Revenue from the sale of goods and services is distributed, so we can measure GDP by adding (prior to payment of taxes):
  - Labour income (about 75% of GDP) – salaries, wages and incomes of the self-employed
  - Capital income (about 25% of GDP) – payments to owners of:
    - Physical Capital: factories, machines, buildings etc.
    - Intangible Capital: copyrights, patents etc.
- A related concept is Gross National Income (GNI), however, this can differ greatly from GDP if many citizens of a country live in other nations

### **GDP – Real and Nominal**

- GDP may appear to increase more rapidly than it actually is due to inflation and other price changes, so economists use Real GDP to compare different periods
- *Real GDP* – a measure of GDP in which the quantities produced are valued at the prices in a base year rather than at current prices
- *Nominal GDP* – a measure of GDP in which the quantities produced are valued at current-year prices

### **Real GDP and Economic Wellbeing**

- Whether or not a policy that increases GDP will make people better off is something that must be assessed on a case by case basis, as there are several factors that GDP ignores:
  - *Leisure Time* – citizens of well off societies work less than their ancestors, and as such can pursue many worthwhile activities, spend more time with family etc.
  - *Non-Market Economic Activities* – these activities include goods and services that are exchanged (and therefore don't have a price); volunteered goods and services; informal work (babysitting and housekeeping) and the black market
  - *Environmental Quality and Resource Depletion* – economic activities may deplete, contaminate or destroy the environment and this is not reflected in GDP
  - *Quality of Life* – it may increase GDP to build a supermarket in a small town, but it might affect traffic, the amount of open space and/or crime rate

- *Poverty and Economic Inequality* – two countries may have identical GDPs and completely different distributions of that wealth
- *GDP is related to Economic Wellbeing*
- *Availability of Goods and Services*
- *Life Expectancy*
- Other problems with the measurement
  - Price changes
  - Multinational Production
  - Multistage Production
- That said, people in countries with high GDPs (in general):
  - Have access to more goods, and goods of a higher quality
  - Have higher standards of health and education
  - Have a higher quality of life

#### The Consumer Price Index: Measuring the Price Level

- Consumer Price Index (CPI) – for any period, measures the cost in that period of a standard basket of goods and services relative to the cost of the same basket of goods and services in a fixed year (called a base year)
- The CPI can overestimate price increases by:
  - Failing to account for increases in product quality – *quality adjustment bias*
  - Failing to account for people’s substitution to relatively less expensive goods – *substitution bias*
- $CPI = \text{Cost of current basket of goods} / \text{Cost of base year basket of goods}$

#### Inflation

- The annual percentage rate of change in the price level, as measured (for example) by the CPI
- This does not refer to *relative price changes* that are a response to demand and supply changes in a market – it is a sustained increase
- The true costs of inflation
  - *Shoe leather costs*: as people try to maintain the value of their money, they put as much of it as they can in banks. This results in more trips to the banks, more bank staff required, and businesses having to employ people to go to the banks.
  - *Noise in the price system*: Increases in prices make it harder for firms and consumers to respond to changes in prices that are in fact a result of changes in supply and demand, as there are other factors that affect prices.
  - *Distortions of the tax system*: Due to increases in wages as a result of inflation, people may be bumped up a tax bracket (‘bracket creep’) and in paying more tax arbitrarily their purchasing power is decreased.
  - *Redistribution of wealth*: Both between employers and employees on fixed contracts, and between lenders and borrowers on fixed nominal contracts, as the value of money decreases, one side of the arrangement becomes much better off.
  - *Interference with long run planning*: Both for firms, and for individuals (looking to retirement) an erratic inflation rate can make it difficult to accurately plan for the future.
  - *Menu costs*: refers to the costs of reprinting menus to adjust costs for inflation, as an analogy for any firm that publicises its prices

#### How is CPI calculated?

The CPI is an average price of a basket of goods and services consumed by the population. It is used to calculate the change in prices (rate of inflation) over a particular period of time.

$$CPI = \frac{\text{Cost of G \& S current year}}{\text{Cost of G \& S base year}}$$

*The CPI and GDP deflator*: The GDP deflator measures the average price of output GDP deflator = nominal/real GDP. It can be seen that most of the time the GDP deflator and CPI move together.

Quarterly inflation  $\frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} \times 100(\%)$  Four Quarter ended inflation =  $\frac{CPI_{2004,Dec} - CPI_{2003,Dec}}{CPI_{2003,Dec}} \times 100(\%)$

### A Common Misconception about Inflation

A relative price (the price of one good relative to other goods) increase is not inflation. This is simply a response to changes in demand and supply or an increase in the general price level.

### Inflation and Interest Rates

- **Nominal Interest Rate:** is the annual percentage increase in the nominal, or dollar, value of an asset
- **Real Interest Rate:** is the real percentage increase in the real purchasing power of a financial asset.
  - $r = i - \pi$
  - Where  $r$  = real interest rate;  $i$  = nominal interest rate;  $\pi$  = inflation
- Fisher Effect – the nominal interest rate contains an expected inflation rate

#### With positive inflation

- Nominal interest adjusts upwards as inflation increases leaving the real cost of borrowing unchanged

#### With negative inflation (deflation)

- Nominal interest adjusts downwards until they reach the lower limit of 0% - thereafter, the real cost of borrowing increases as the deflation worsens.

### Deflation

A situation in which the prices of most goods and services are falling over time so that inflation is negative

- Also has implication for the redistribution of wealth
- However, the biggest problem comes from the nature of money, in that it does not pay a nominal rate of interest. Assume for this example that the nominal interest rate cannot fall below zero (because why would anyone lend money or invest money with negative interest). So if 'i' is zero, and inflation is negatively increasing, the result is a corresponding increase in the real interest rate. Hence spending in the economy is discouraged, and monetary policy is harder to implement.

### Does the CPI Measure 'True' Inflation?

- Given that the rate of inflation as measured by the CPI is used to index social welfare and other payments it is important that the CPI provides us with an accurate measure of the actual inflation rate
- Many economists believe that the CPI may overestimate the true rate of inflation
- **Quality adjustment bias:** The bias that causes measured inflation to overstate changes in the cost of living caused by the failure to adjust adequately for improvements in the quality of goods and services
- **Substitution bias:** The bias that causes measured inflation to overstate changes in the cost of living caused by the failure to take into account people's substitution towards relatively less expensive goods and services.

## Chapter 2 – Measuring Macroeconomic Performance: Saving and Wealth

### Definitions

*Saving*: Current income minus spending on current needs

*Saving Rate*: Saving divided by Income

*Assets*: Anything of value that one owns

*Liabilities*: The debts one owes to others

*Wealth*: The value of assets minus liabilities

*Stock*: A measure that is defined at a point in time, e.g. wealth.

*Flow*: a measure that is defined per unit of time, e.g. savings *per week*.

### Capital Gains and Losses

- If an individual saves \$50 a week, whether that money goes to increasing assets, or to reducing liabilities does not matter, because that increases the individual's wealth either way. Hence the link between savings and wealth.
- Wealth can also increase if the value of existing assets changes such as a house or shares
- These shifts are called capital gains (increase in value) and capital losses (decreases)
- Change in Wealth = Saving + Capital Gains – Capital Losses

### Why do people save?

- *Life Cycle Saving*: Saving to meet long term objectives such as retirement, university etc.
- *Precautionary Saving*: Saving for protection against unexpected setbacks, such as the loss of a job or a medical emergency.
- *Bequest Saving*: Saving done for the purpose of leaving an inheritance, either to a child or a favourite charity.

### Saving and the Real Interest Rate

- A higher real interest rate encourages saving as it represents the reward for saving
- In contrast, if people are *target savers* (e.g. saving for a nominal amount to purchase a house) a higher real interest rate reduces the amount they feel they need to save if that investment grows faster than they had planned

### Saving, Self-Control and Demonstration Effects

- Demonstration Effects – arise when people use the spending of others as a yardstick by which to measure the adequacy of their own living standards
- Psychologists stress that many people lack the self-control to do what they know is in their own best interest. One way to strengthen self-control is to remove temptation immediately. A person who is not saving enough might arrange to use a payroll savings plan to improve self-control.

### National Savings

- We can apply the same model to the nation as we do to individuals. Savings is equal to income minus spending on current needs
- A nation's production or aggregate income (which must be equal):
  - $Y = C + I + G + NX$
  - Y is aggregate income/production; C is consumption expenditure; G is government purchases of goods and services and NX is net exports
- For this example, assume NX is zero (as it would be in a country that does not trade)
- Investment spending (I) should not be included as it is done to expand the economy in the future and is therefore not spending on current needs
- Even though some consumption expenditure (C) and some government purchases (G) are not for current needs, we will follow what most statisticians do and assume they are all for current needs
- Therefore, if income is Y, and spending on current needs is C + G, then:
  - $S = Y - C - G$

### Private and Public Components of National Saving

- *Transfer Payments*: are payments the government makes to the public for which it receives no current goods or services in return, e.g. welfare payments
- Let 'T' be net taxes (taxes minus transfer payments). If we add then subtract T from the savings equation we get:
  - $S = Y - C - G + T - T$
  - $S = (Y - T - C) + (T - G)$
- *Private saving*: is equal to the after-tax income of the private sector minus consumption expenditures ( $Y - T - C$ ). This can be broken down into household saving and business saving.
- *Public Saving*: is equal to the net tax payments minus government purchases ( $T - G$ ).

### Public Saving and the Government Budget

- *Government Budget Deficit*: the excess of government spending over tax collections
- *Government Budget Surplus*: the excess of government tax collections over government spending. The government budget surplus is equal to public saving
- Public saving is identical to the government budget surplus

### Is Low Household Saving a Problem?

- The problem posed by low-household savings has probably been overstated.
- National saving, not household saving, determines the capacity of an economy to invest in new capital goods and to achieve continued improvement in living standards
- However, from another perspective, it does signal a problem, which is the large and growing inequality in wealth among Australian households

### Investment and Capital Formation

- National savings provide the resources needed for investment.
- *Investment*: the creation of new capital goods and housing
- Firm's willingness to invest depends on the expected cost/benefits of using them
- The real interest rate is also an important factor of consideration because it determines the real cost to the firm of paying back its debt.
  - The real rate of interest measures the opportunity cost of the investment
- The key factor in determining business investment is the value of the marginal product i.e. the profitability

### Saving, Investment and Financial Markets

- National Saving and Investment can be represented in a supply-demand diagram:
  - The Savings curve is upward sloping because the higher the real interest rate, the more attractive it is to save
  - The Investment curve is downward sloping because the higher the real interest rate, the more expensive it is to borrow and then invest
  - Say, for example, the real interest rate is above 'r', lenders would compete to attract investors and force the real interest rate down just like competition works in other markets
  - Examples of shifts in the diagram:
    - New Technology – means there is a greater return on capital investment, shifting the investment curve to the right
    - Increase in Government deficit – a reduction in government saving also means a reduction in national saving, shifting the savings curve to the left



## Chapter 3 – Measuring Macroeconomic Performance: Unemployment & Labour Markets

### The Perfectly Competitive Model of the Labour Market

In this model we assume that:

- Firms are price takers – they cannot affect the price they receive for their product
- Workers are price takers

### Wages and the Demand for Labour

- Firms take the wage for a type of employment as given (price-takers)
- They hire workers as long as the value of their marginal product is greater than the wage – MVP is the revenue each new employee adds to the business
- This works on the basis that there are ‘diminishing returns to labour’
- *Diminishing Returns to Labour*: if the amount of capital and other inputs in use is held constant, then the greater the quantity of labour already employed the less each additional worker adds to production
- We can use the figures of the nominal wage or the real wage
  - *Real Wage* – the wage measured relative to the general price level
- *Marginal Product*: the extra production that is gained by adding one more worker.

### Shifts in the Demand for Labour

- Two main factors could increase a firm’s demand for labour
  - An increase in the relative price of the company’s output
  - An increase in the productivity of workers

### Supply of Labour

- Whether or not an individual works is a cost-benefit analysis of the pay versus leisure
- Shifts in the supply of labour are based upon changes in the working-age population
- This is affected by things such as:
  - Birth rate
  - Immigration and Emigration Rates
  - Age of entry to work force

### Increasing Wage Inequality

Brought about by globalisation and technological change.

### Unemployment

- Low unemployment is often associated with improving wages and working conditions
- Employers compete to attract and retain workers

### Measuring Unemployment

- *Employed* – someone who works in a part time or full time job
- *Unemployed* – someone seeking employment despite not being currently employed
- *Out of the Labour Force* – not working, and not seeking work
  
- *Labour Force* – total number of employed and unemployed people in the economy
- *Unemployment Rate* – number of unemployed divided by labour force
- *Participation Rate* – percentage of the working age population in the labour force

### The Costs of Unemployment

- Unemployment imposes economic, social and psychological costs on a nation:
  - Loss of output because the workforce is not fully used
    - The unemployed no longer have incomes and their skills deteriorate
    - Society bears the cost of reduced tax payments and increased welfare
  - Psychological Impact
    - Workers lose self esteem/develop depression
    - Families of unemployed also suffer psychological impacts
  - Social Costs