

**ECON10003 INTRODUCTORY MACROECONOMICS**  
**SEMESTER 1, 2021**

**REVIEW SESSION 1**

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## **Some Tips:**

- Keep up to date with the material on a lecture basis
- Three aims: Exam, Further studies, Knowing the world around you
- Use the resources available: Tutors' consultations, Discussion board
- Never fall behind, next 9 weeks will go very quickly

## **Meaning and Measuring Gross Domestic Product (GDP)**

- What is GDP?
- Why it is important?
- How do we measure it?
- Nominal and Real GDP
- GDP is not accurate measure of performance

1. Distinguish between 'final' goods and services and 'intermediate' goods and services.

**Answer:** A final good or service is one that will not be transformed further in the market sector in Australia. An intermediate good or service is sold to another firm in Australia to be further transformed.

**Question:** Which of the following is an example of a **final** good or service?

**a) a maths textbook you purchase with *the intent of selling* after your course is over**

b) coffee beans that are purchased by a restaurant owner from a wholesale food distributor

c) the chips that a large manufacturer of notebook computers purchases

d) the timber a builder purchases for the construction of a house

2. Distinguish between nominal GDP, real GDP index and Chain Volume index.

$$\text{Nominal GDP}_t = \sum_{i=1}^M p_{i,t} q_{i,t}$$

$$\text{Real GDP Index}_t = \frac{\sum_{i=1}^M p_{i,base} q_{i,t}}{\sum_{i=1}^M p_{i,base} q_{i,base}}$$

Chain Volume Real GDP Index<sub>t=n</sub> =

$$\frac{\sum_{i=1}^M p_{i,0} q_{i,1}}{\sum_{i=1}^M p_{i,0} q_{i,0}} \times \frac{\sum_{i=1}^M p_{i,1} q_{i,2}}{\sum_{i=1}^M p_{i,1} q_{i,1}} \times \dots \times \frac{\sum_{i=1}^M p_{i,n-1} q_{i,n}}{\sum_{i=1}^M p_{i,n-1} q_{i,n-1}}$$

Consider the following data for a hypothetical economy that manufactures engines (an intermediate good), motor cycles and cars

Year	Commodity	Price	Quantity
2009	Engines	2	150
2009	Cars	15	100
2009	motor cycles	10	50
2010	Engines	6	154
2010	Cars	50	99
2010	motor cycles	9	55
2011	Engines	10	160
2011	Cars	90	90
2011	motor cycles	8	70

	Nominal GDP	Real GDP (base - 2009)	Real GDP Index	Chain Volume Index
2009	2000	2000	1	1
2010	5445	2035	1.0175	1.0175
2011	8660	2050	1.025	0.9586

- Using 2009 as a fixed base suggests that real GDP is 2.5 percent higher in 2011 than in 2009.
- Using the chain volume measure, however, shows that real GDP has fallen in 2011 relative to 2009.

- Motor cycles accounted for 25 of nominal GDP in 2009 but 9 in 2010 and only 6 in 2011.
- Using 2009 as a fixed base year uses information from a period in which motor cycles were relatively more important in GDP than is the case in later years.
- Calculating real GDP in 2011 using 2009 prices gives what happens to motor cycles a disproportionately larger weight than is justified; using the 2009 base period gives a figure for real GDP in 2011 that is higher relative to 2009 because the quantity of motor cycles is growing since 2009.
- On the other hand, car production is falling since 2009. The 2011 chained volume index more accurately reflects what has happened to real GDP because it gives more weight to what has happened to cars (the quantity has fallen) than to motor cycles (the quantity has risen) in line with the shift in the relative shares of cars and motor cycles in nominal GDP.



3. Which of the following transactions would be included in the measurement of GDP?

- a) The purchase of \$5,000 worth of shares in a company that is listed on the Australian Stock Exchange.
- b) The purchase of an investment house that was built in the 1960s.
- c) The payment of a pension by the government to an elderly individual.
- d) None of the above.**

**Question:** Which of the following events would result in an increase in a country's GDP?

a) the value of \$10,000 of shares purchased in BHP-Billiton

b) the Baillieu Library is sold to a private buyer.

**c) a family takes its baby to a commercial childcare centre rather than to the baby's grandparents for babysitting**

d) the purchase of an imported motor car

4. Which of the following statements is false:

a) Household production, such as the provision of cooking, cleaning and childcare, are not included in GDP since they are not market activities.

**b) The provision of government services, such as education, are not included in GDP since they are not market activities.**

c) Transactions related to criminal activities, such as the purchase of illicit drugs, are not included in GDP.

d) When GDP is calculated, it does not adjust for the depletion of natural non-renewable resources.

5. Suppose the total market value of all final goods and services *produced* in a particular country in 2009 is \$500 billion and the total market value of final goods and services *sold* is \$450 billion. We can conclude that

- a) GDP in 2009 is \$450 billion.
- b) Intended investment (I), in 2009 is \$50 billion.
- c) GDP in 2009 is \$500 billion.**
- d) inventories in 2009 fell by \$50 billion.

6. Over a three months period, not everything that is produced is necessarily purchased (i.e., there might be inventories of unsold stock). Yet, economists maintain that in any period, the values of production and expenditure will be the equal. How can this be?

**Answer:** An item may be produced within a period but not necessarily purchased. This item is treated as adding to a firm's inventory stock and changes in inventories over a particular period are recorded as an investment expenditure by firms (or, to put it another way, the assumption is made that firms buy their own unsold output in a situation where not everything that is produced is sold).

## Inflation, Interest Rates, Saving, Wealth and Investment

- Inflation rate in 2016 =  $\frac{CPI_{2016} - CPI_{2015}}{CPI_{2015}}$

Example:

2015, set of goods and services cost \$440

2016, cost of same set = \$512

Therefore,  $CPI = 512 / 440 = 1.164$

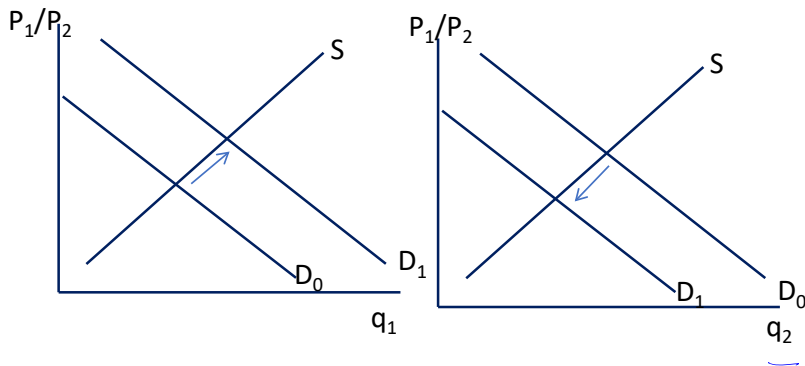
- Cost of Inflation
- Nominal and Real interest rate
- Fisher equation
- $r = i - \pi \Leftrightarrow 1 + r = \frac{1+i}{1+\pi}$
- Saving is positively related to real interest rate
- Investment is negatively related to real interest rate

## The Labour Market and Short-Term Economic Fluctuations

- Labour demand and supply
- Real wage and nominal wage
- Marginal product of labour
- Value of marginal product of labour
- Unemployment
  - Frictional unemployment
  - Structural unemployment
  - Cyclical unemployment
- Potential GDP  $y^*$ 
  - The flow of output (GDP) produced over a particular time period when productive resources (labour and capital) are being used at their normal rates.
    - No under-utilisation of resources
    - No over-utilisation of resources
- Okun's Law

$$100 * \frac{(y - y^*)}{y^*} = -\beta(u - u^*)$$

1. Why do many economists believe that inflation reduces the efficiency with which prices allocate resources?



Efficient to transfer resources from production of  $q_2$  to  $q_1$

Inflation: we don't know if price of good 1 increases



**Answer:**

- Efficient resource allocation relies on relative price changes (e.g. if the price of good X relative to Good Y increases, resources should be shifted out of the production of Y towards X).
- Inflation makes it harder to interpret price signals.
- Suppose the price of Good X increases. Will firms be able to tell that this is a relative price increase (in which case resources should be reallocated) or just part of a general increase in prices (in which case, resources do not necessarily need to be reallocated)?

**2. What do we mean by a “real interest rate”? Can a real interest rate be negative? Why or why not?**

**Answer:**

- A real interest rate is the percentage increase in the real purchasing power of a financial asset. We can calculate the real interest rate using the Fisher equation:

$$1 + r = \frac{1 + i}{1 + \pi}$$

where  $r$  is the real interest rate,  $i$  is the nominal interest rate and  $\pi$  is the expected rate of inflation.

- Typically, nominal interest rates must be above zero. Because holding currency (or cash) provides a nominal interest rate return of zero, it is hard to convince people to hold financial assets with a negative rate of return.
- Despite that a real interest rate will still be negative if inflation exceeds the nominal rate of interest. In that case, the high rate of price growth relative to the nominal interest rate implies that real purchasing power provided by a financial asset may be declining over time.

**4. Deflation is a decline in the price level. Economists typically argue that deflation is costly since it discourages consumption and investment. Explain why this is the case.**

**Answer:** Deflation is costly since it discourages consumption spending and investment spending. To see why note that the Fisher equation implies that negative inflation tends to raise the real interest rate. A higher real interest rate tends to discourage both consumption and investment. To understand why, note that individuals can use their income to save today or consume today. If prices are declining, then by holding on to their wealth and not consuming, they will be able to afford to purchase more goods in the future.

A similar affect applies to investment. An increase in the real interest rate is a disincentive to invest. Firms invest today in order to make future profits. The real interest rate is a measure of the opportunity cost of investing. We will see in later lectures that a decline in spending plans by consumers or firms can have a detrimental effect upon employment and output.

If house prices are falling, then people will have a tendency to wait and see before purchasing a house. They don't want to purchase a house and then see the value of the house fall by a significant amount.

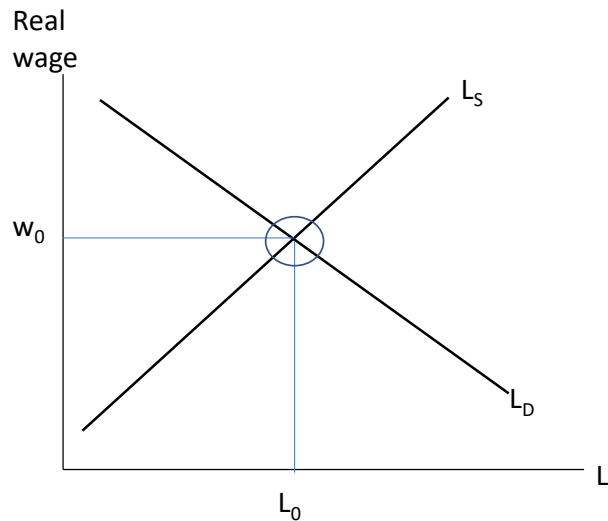
Question:

If both the lender and borrower agree on an 4% interest rate, both expect a 2% inflation rate, and inflation turns out to be -0.5%, then \_\_\_\_\_ by the deflation  $\pi \downarrow$ . borrower hurt  
lender better.

Possible Answers	
<b>the borrower is hurt and the lender gains</b>	
the borrower gains and the lender is hurt	
neither the borrower nor the lender are hurt	
both the borrower and lender are hurt	
either the borrower or the lender may be hurt	

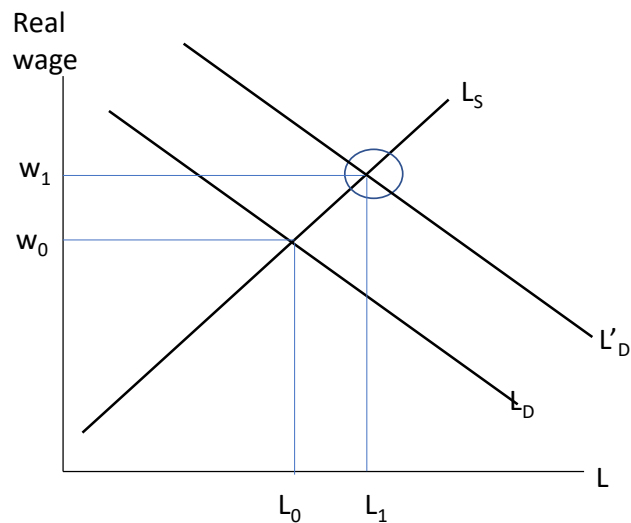
5. One common view of technology is that it increases productivity. Suppose the development of the microcomputer increased the productivity of labour in the late 20th century. Use a competitive model of the labour market to discuss what effect this change in technology will have upon wages and employment. Explain your reasoning and use a diagram to illustrate these effects.

## The competitive model of the labour market: Equilibrium



$w_0$ : equates firms labour demand and workers labour supply

## The competitive model of the labour market: Equilibrium



$w_1$ : Higher real wage

$L_1$ : Higher level of employment

6. Using Okun's Law, answer the following questions. Explain your reasoning. The data are hypothetical.

- a) In 2010,  $u$  be larger, smaller or the same as  $u^*$ ?
- b) In 2011, would Real GDP be larger, smaller or the same as Potential GDP?
- c) In 2012, would Real GDP be larger, smaller or the same as Potential GDP?
- d) In 2013, would  $u$  be larger, smaller or the same as  $u^*$ ?

Year	Real GDP	Potential GDP	$u^*$ (per cent)	$u$ (per cent)
2010	7480	8000	(a)	6
2011	8100	(b)	5	5
2012	(c)	8200	4.5	4
2013	8415	8250	5	(d)

Okun's Law

$$100 * \frac{(y - y^*)}{y^*} = -\beta(u - u^*)$$



Year	Real GDP	Potential GDP	$u^*$ (per cent)	$u$ (per cent)
2010	7480	8000	(a)	6
2011	8100	(b)	5	5
2012	(c)	8200	4.5	4
2013	8415	8250	5	(d)

**Answer:** Okun's Law suggests that

- (a)  $u^*$  be smaller than  $u$  since actual output is below potential.
- (b) Potential GDP must equal Real GDP since  $u = u^*$ .
- (c) Real GDP must be above potential GDP since  $u$  is below  $u^*$ .
- (d)  $u$  must be below  $u^*$  since to move from potential to real GDP there is an increase in output which reduces unemployment.

Question No. 10

Which of the following would reduce investment undertaken by firms

Possible Answers

a decrease in the real interest rate

**a fall in the price of output produced by the firm**

a decrease in the price of intermediate inputs purchased by the firm

a decrease in the preference for overseas produced products

none of the above

#### Question No.14

Data for an economy shows that the unemployment rate is 6%, the participation rate is 60%, and 20 million people 15 years or older are not in the labour force. How many people are in the labour force in this economy?

Possible Answers	
8 million	
10 million	
20 million	
<b>30 million</b>	
60 million	

Participation Rate is 60% and 20m are not participating (other 40%). Therefore to calculate labour force, you can use ratios ( $20/40 = x/60$ ).  $X = 30m$

**Question:** Assume workers and firms agree to long-term wage contracts that are set in nominal terms. If inflation is higher than expected, then workers will be \_\_\_\_\_ and firms will be \_\_\_\_\_.

- a) better, better
- b) better, worse
- c) worse, better**
- d) worse, worse

**Question:** In a perfectly competitive labour market, a decrease in the equilibrium wage and an increase in equilibrium employment may arise due to

- a) an increase in the number of people in the working age population**
- b) a reduction in the marginal product of labour due to the depreciation of capital goods
- c) an improvement in technology that raises the marginal product of labour
- d) a reduction in the willingness of individuals to work due to an increase in household wealth