Telematic Schools Project

2022 SUBJECT WORKBOOK
Grade 12

ECONOMICS

A joint initiative between the Western Cape Education Department and Stellenbosch University.

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GRADE 12

THE MACROECONOMIC MULTIPLIER
BUSINESS CYCLE
FOREIGN EXCHANGE MARKETS

Session	Date	Time	Topic
English	21/02/2022	16h00-17h00	The Multiplier (4 sector model)
Afrikaans	22/02/2022	16h00-17h00	Die Vermenigvuldiger (4 sector model)
English	16/03/2022	15h00-16h00	Business Cycles
Afrikaans	16/03/2022	16h00-17h00	Sakesiklusse
English	07/04/2022	16h00-17h00	Foreign exchange market
Afrikaans	11/04/2022	16h00-17h00	Buitelandse Valuta mark

INTRODUCTION

In these three sessions we shall be investigating three concepts:

1. The Macroeconomic Multiplier
2. The Business Cycles
3. The Foreign Exchange Markets

The economic activity is activated by Injections into the economy. These include Consumption by Households (C), Government Spending (G) and Investments by Firms (I). Any of the spending will result into a 'ripple – effect' phenomenon. All this will be dealt with in the first session.

Economic activity as shown by Real GDP fluctuates every year. These fluctuations are then referred to as Business Cycles. This will be the **second session** which will be dealt with in this workbook.

The **third and last session** deals with Foreign Exchange markets where the values of currencies change due to various reasons. Graphical illustrations will be used to explain this.

Topics	Description
The macroeconomic multiplier	Initial government spending causes a ripple effect on the entire economy and leads to more total spending.
The Business cycle	The business cycle shows the long run fluctuations of real GDP over time.
The Foreign Exchange Market	A market where foreign currency is bought and sold through International trade

THE KEYNESIAN MODEL OF THE MULTIPLIER

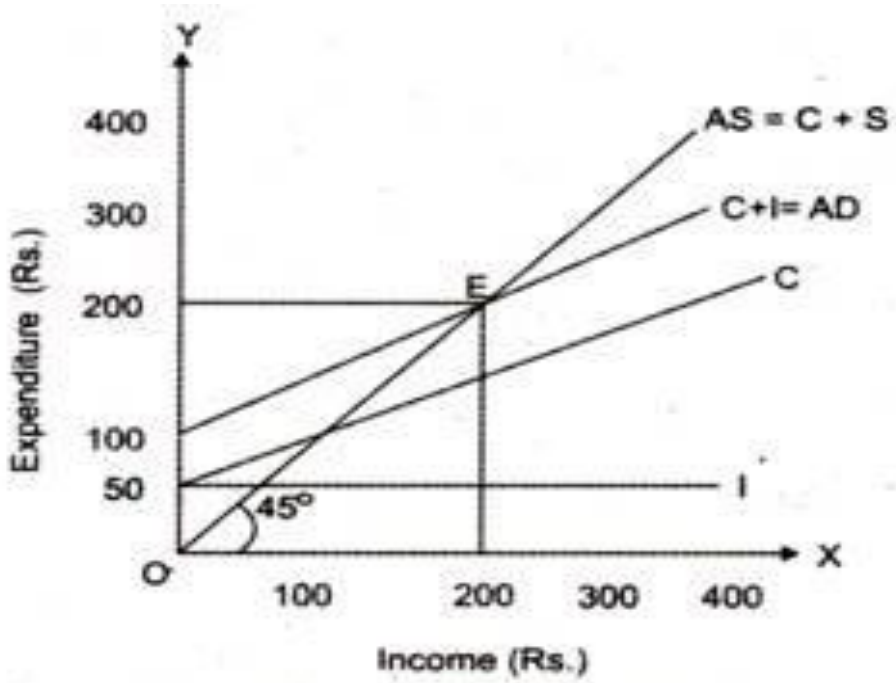


Figure-3: National Income Determination

Aggregate income = C + S which will represent supply

C: consumption

S: savings

Aggregate demand = C + I

I: investment

Point E: equilibrium

Y = R200b

E = R200b

TERMINOLOGY

Term	Definition
Description of The Macroeconomic Multiplier	Initial government spending causes a ripple effect on the entire economy and leads to more total spending.
Explanation:	The initial spending becomes someone's income. They **spend** some and **save** some. The spent portion becomes someone else's income. This someone spends some and saves some. And so it goes on. This is known as the **multiplier effect**.
MULTIPLIER EXPLAINED	There are only two things one can do with new income and that is **spend** or **save** it. This is known as the marginal propensity to save (mps) and the marginal propensity to consume (mpc). The size of the ripple effect depends on whether people save or spend.
Example:	If you picked up a R100 and spend R75 and decide to save R25. Then your mpc = 0.75 and you mps = 0.25. Therefore: mpc + mps = 1
Calculation:	The equation for the simple multiplier is as follows: k = 1/mpc = 1-mpc Therefore, if mpc = 0.5, then mps = 0.5. Thus, 1/0.5 = 2
Formulae	• k = 1/1 – mpc • k = 1/mps • k = △Y/△E • k = Y/E

CALCULATIONS

Term	Definition
EXAMPLE 1:	**If the government spends R2 million, total spending will become R4 million.**
EXAMPLE 2	Assume the mpc is 0.9 and government wants the total spending to increase by R20 million: You need to ask yourself **two questions**. 1. How much is the multiplier? 2. How much must government initially spend to reach the goal?
EXAMPLE 2 EXPLAINED	To calculate the value of the multiplier, you need to use the following formula: **k = 1/1 - mpc** **= 1/1 - 0.9** **= 1/0.1** **= 10** In order to achieve the goal of R20 million spending, government will have to spend **R20m/10 = R2million**
2-sector model	No government present Households and businesses only Closed economy No corporate savings
3-sector economy	**Households (C)** **Businesses (I)** **Government (G)**
4-sector economy	Households Businesses Government Foreign sector

THE MULTIPLIER

We note that in both examples the initial spending was R2 million, but the total spending differs.

This is because the mpc differed.

In example 1, the mpc = 0.5, total spending = R4 million.

In example 2, the mpc = 0.9, total spending = R20 million.

Therefore the higher the mpc, the higher the multiplier.

AUTONOMOUS CONSUMPTION

C = Autonomous + mpc(Y)

$$C = \bar{C} + cY$$

C = 20 + 05 (Y)

Autonomous Consumption
- **Expenditure that occurs when income levels are zero.**
- **Expenditure is not dependent on income.**
- **Money is borrowed, or available savings are used.**

EFFECTS OF EXPORTS AND IMPORTS

Symbols used to depict exports and imports:

X	=	Exports
M	=	Imports

Effects:

- If X > M = Net injection therefore, National Income will increase.
- If X < M = Net leakage therefore, National Income will decrease.

Injections increase NI & Leakages decrease NI

INJECTIONS (J)

- **Government Expenditure (G)**
- **Investment (I)**
- **Exports (X)**

LEAKAGES (J)

- **Taxes (T)**
- **Savings (S)**
- **Imports (M)**

- The multiplier is derived from the marginal propensity to consume (mpc)
- The size of the multiplier is determined by the portion of the increase in income spent.

The greater the mpc, the greater the multiplier.

If leakages decrease, the mpc and the multiplier will be greater

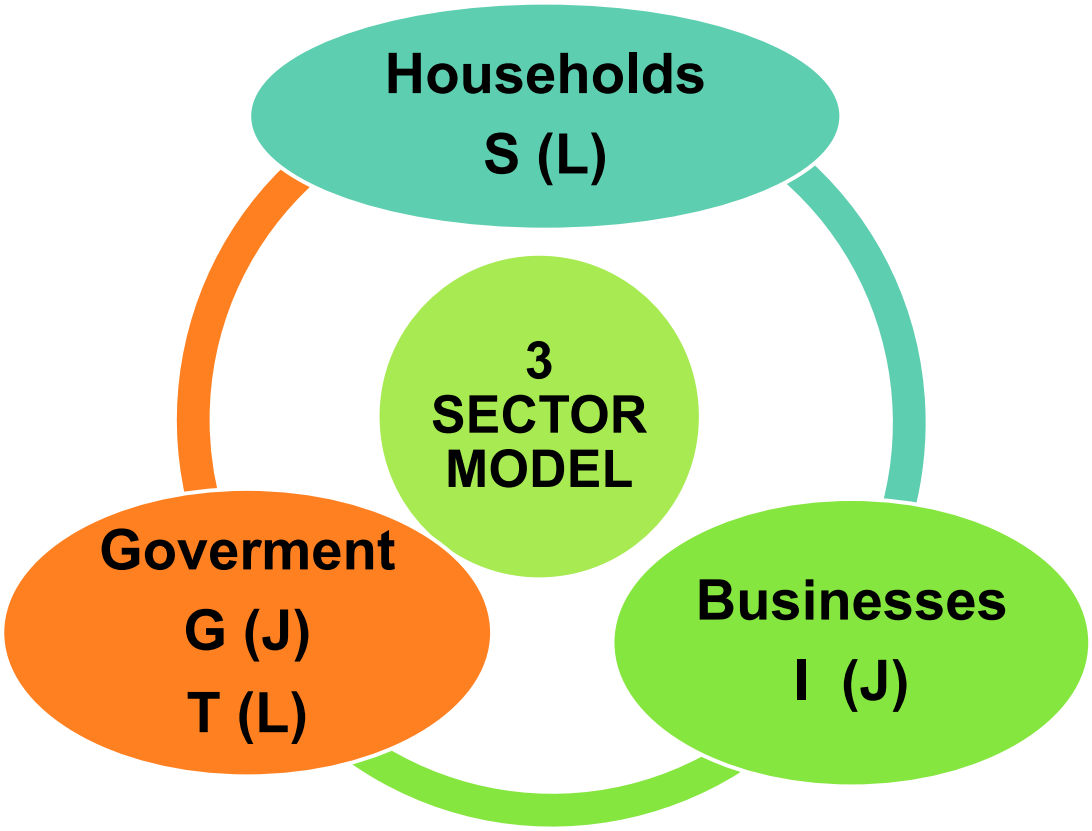
If injections increase, the mpc and the multiplier will be greater.

The smaller the mpc, the smaller the multiplier.

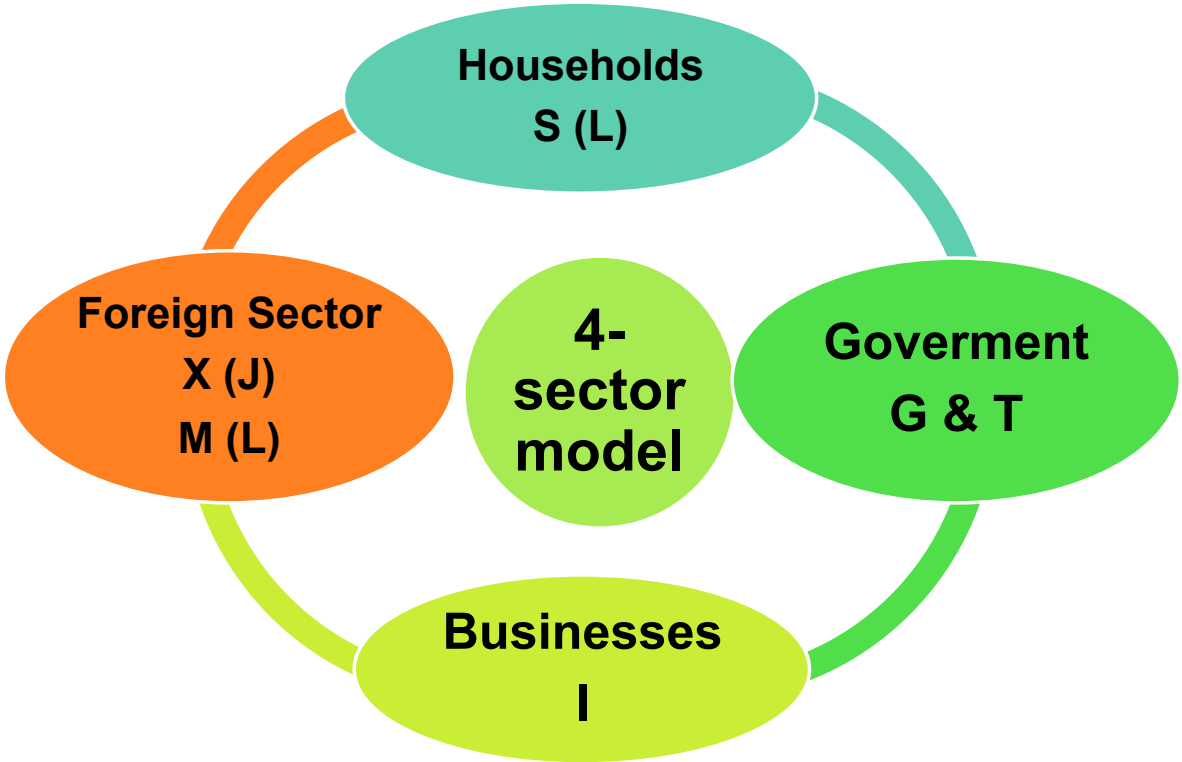
If leakages increase, the mpc and the multiplier will be smaller.

If injections decrease, the mpc and the multiplier will be smaller.

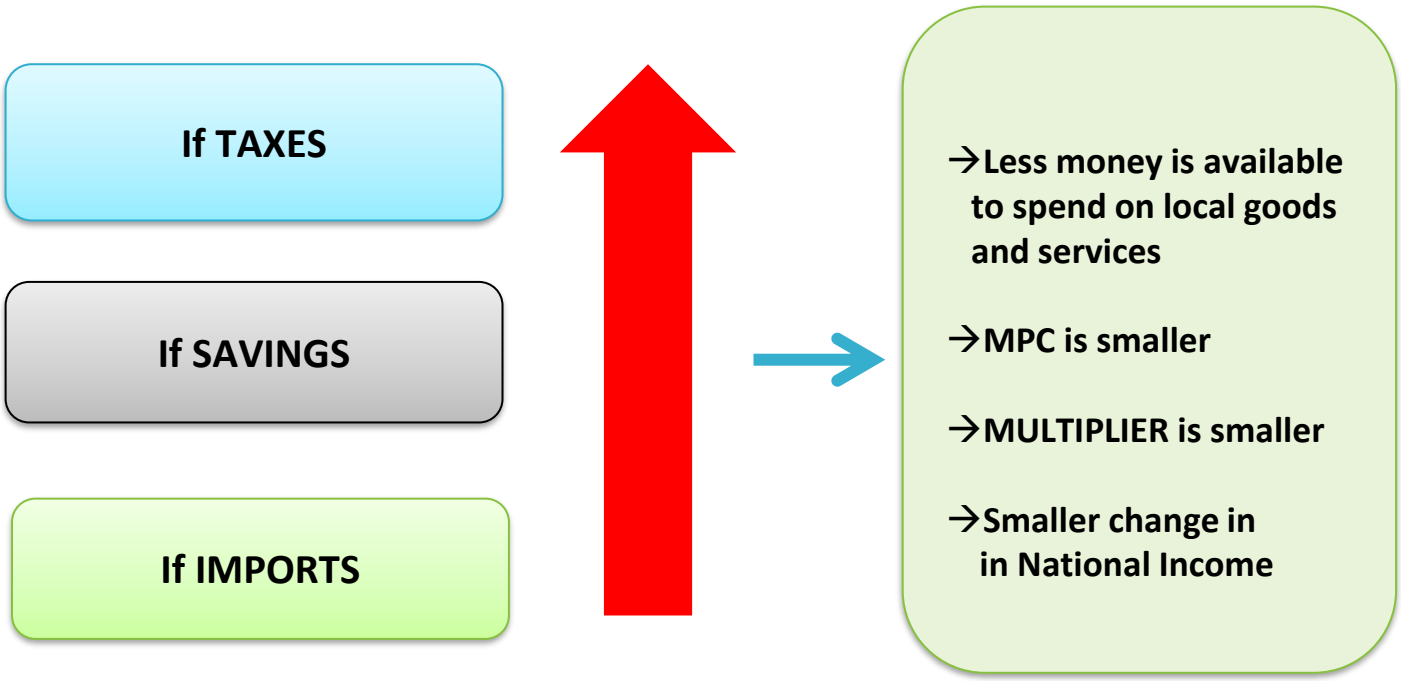
3-SECTOR MODEL – LEAKAGS (L) AND INJECTIONS (J)



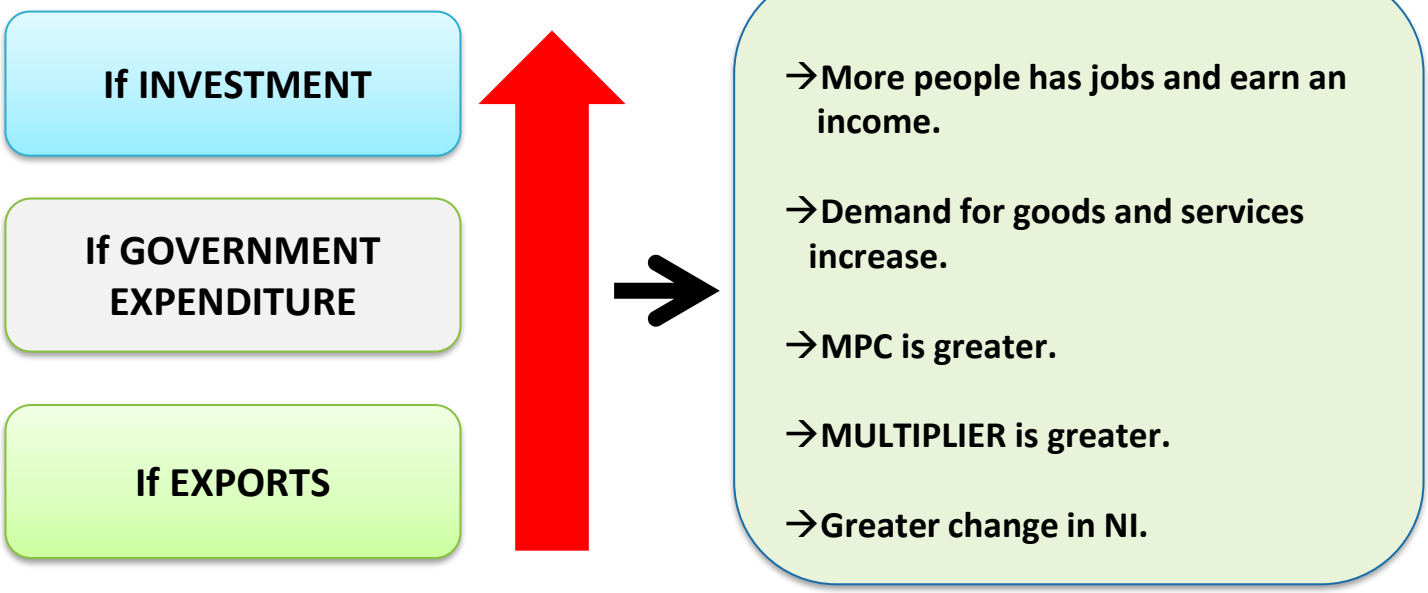
4-SECTOR MODEL - LEAKAGS (L) AND INJECTIONS (J)



IMPACT OF LEAKAGES



IMPACT OF INJECTIONS



EQUILIBRIUM LEVEL OF INCOME

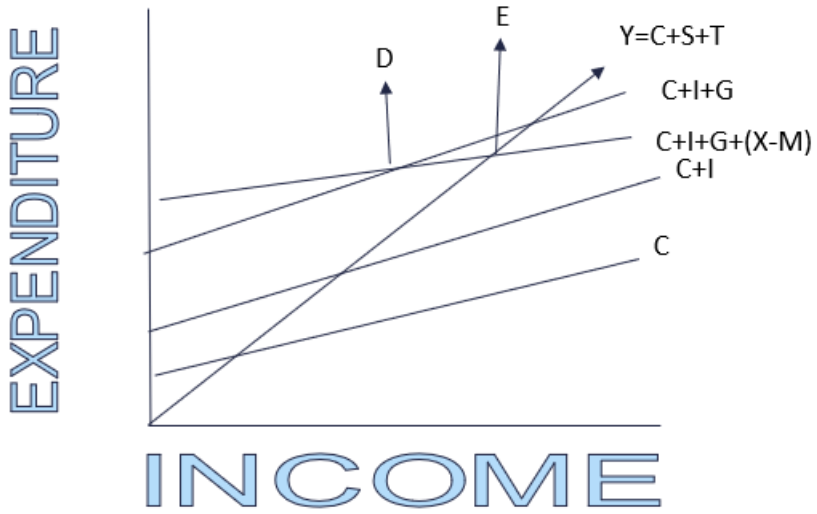
EQUILIBRIUM POSITION OF AN OPEN ECONOMY

Will exist when National Income (Y) = National Expenditure (E).

Y = Consumption + Savings + Taxes → GNI→ Aggregate Supply
E = C + I + G + (X - M) → GNE → Aggregate Demand

Equilibrium exists where AS = AD

A GRAPHIC REPRESENTATION OF A 4 SECTOR MODEL



THE MULTIPLIER

WHAT YOU SHOULD KNOW

2 SECTOR MODEL

$Y = C + I$

3 SECTOR MODEL

$Y = C + G + I$

4 SECTOR MODEL

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

Before

An injection of the new demand for goods and services into the circular flow of income, stimulates further rounds of spending.

During

Government aims to build new schools to the value of R20m. Businesses, such as construction industries, architects, furniture suppliers, etc. will benefit directly.
A new flow of income created in the form of wages and profits.

After

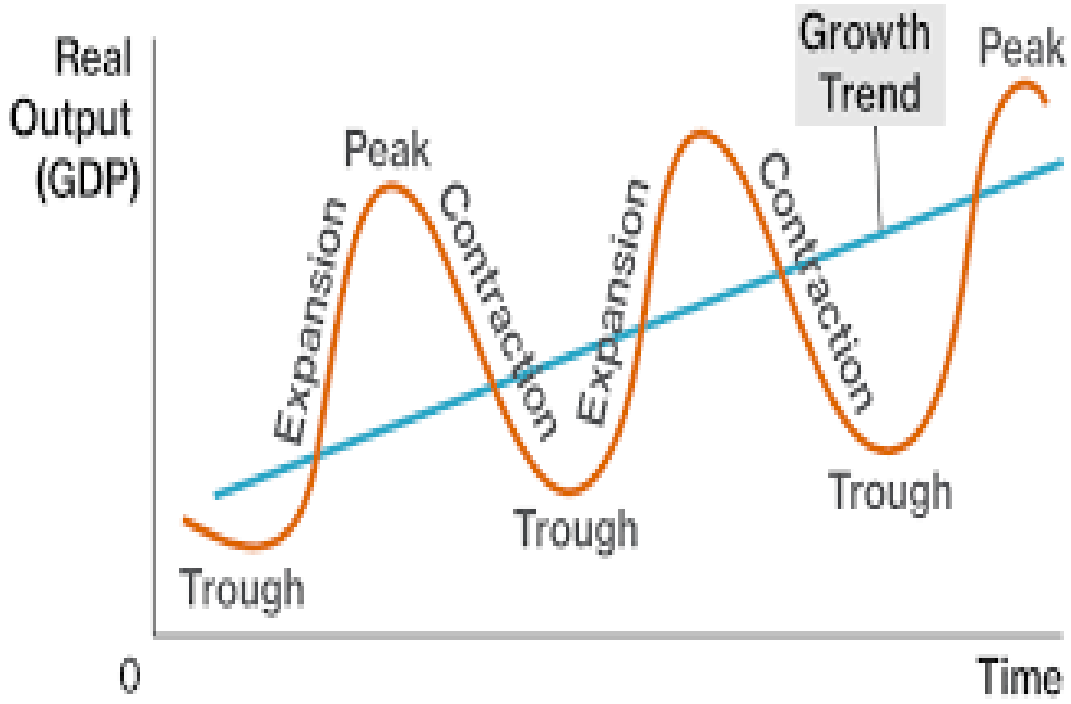
If this new income remain in the circular flow, the multiplier effect will be strong and thereby have a larger impact on GDP.

BUSINESS CYCLES

The business cycle shows the long run fluctuations of real GDP over time.

Unpacking the definition:

- Real GDP is when inflation has been accounted for.
- GDP is used to measure economic growth which is directly linked to the levels of production.
- Fluctuations refers to the upswings and downswings.
- Time relates to the number of months or years.



- Assuming the state is meeting its objective of economic growth, there is a trendline showing growth which is an upward sloping line
- The fluctuations around the trendline is known as the business cycle.
- If the economy grows very fast, the line is above the trendline until it reaches a peak, then the economy will contract or recede, and the line moves below the trendline until it reaches a trough, and the cycle starts all over again.

REASONS FOR CYCLES

EXOGENOUS/ MONETARIST APPROACH

- Believe market is stable
- Invisible hand theory
- Outside factors influence
- Big factor being government intervention

ENDOGENOUS/ INTERVENTIONISTS

- Believe market is unstable
- Government intervention needed
- Fiscal and monetary policies

THE SMOOTHING OF CYCLES

- Governments want to ensure that the fluctuations remain as close as possible to the goals set for growth.
- Economist would predict what will occur, but it is very difficult if not impossible to predict the business cycle as one cannot always tell how people will react to varying situations.
- Governments try to smooth out the cycles by making use of both fiscal and monetary policies.
- Expansionary policies are used when they want to stimulate economic activity and restrictive policies are employed when they wish to reduce the amount of money in circulation.

NEW ECONOMIC PARADIGM

- The new economic paradigm explains the shift governments have employed. Instead of fine tuning the economy, they are more focused on inflation targeting.
- The SARB has set inflation for SA between 3 and 6 percent.
- Ensuring stability of prices is another macroeconomic objective.
- Government uses demand-side and supply side policies to achieve its objectives of ensuring that output increases and maintaining price stability.

DEMAND SIDE POLICIES

- The fiscal policy is more successful in stimulating a depressed economy and the monetary policy is more effective when 'dampening' an overheated economy that has inflation rising.
- The demand-side policies are there to mainly stimulate demand, but we need to bear in mind that supply also needs to be stimulated to avoid inflation setting in.
- Tools of the fiscal policy: government spending and taxation
- Tools of the monetary policy: interest rates, cash reserve requirements, moral persuasion and open market transactions

SUPPLY SIDE POLOCIES

- Improving efficiency of markets
- Improve efficiency of inputs
- Reduction of costs

BUSINESS CYCLE

WHAT YOU SHOULD KNOW

FEATURES UNDERPINNING FORECASTING

Before	LEADING
During	COINCIDENT
After	LAGGING

COMPOSITE: Summary of various indicators of the same type into one index.

EXTRAPOLATION: Past data is used, where predictions are made about the future based on assumptions related to trends

AMPLITUDE: It is the difference between the value of total output between peak and trough measured from the trend line to the peak and trough

TREND: The trend indicates the general direction in which the indexes that were used in the business cycle, moves

LENGTH: We measure a business cycle from a peak to a peak and a trough to a trough

MOVING AVERAGE: This method is repeatedly calculating a series of different average values along a time series to produce a smooth curve

CLASS DISCUSSION

WHY WAS SOUTH AFRICAN BUSINESS CYCLE AT ITS PEAK IN 2010 AND DECLINED THEREAFTER TO A CONTRACTION?

LET US DISCUSS!

RECAP OF TODAY'S CLASS

We discussed the following aspects with regard to Business cycles:

- Definition
- Phases
- Reasons
- Smoothing
- New economic paradigm
- Features underpinning forecasting
- Indicators

INTERNATIONAL TRADE: Introductory Pointers

In Open Economies, countries trade with each other. Some countries are endowed with resources that others do not have.

It is for this reason that trade (buying and selling) between countries takes place.

Various currencies are used as mediums of exchange for this reason. These are governed by various exchange rate systems. These include the following:

- Free-floating exchange rate system
- Fixed exchange rate system
- Managed floats or Controlled floats

REASONS FOR INTERNATIONAL TRADE

DEMAND REASONS

- Size of the **population**
- **Income** levels
- Change in the **wealth** of the population
- **Preferences** and tastes
- The difference in **consumption patterns**

SUPPLY REASONS

- **Natural** resources
- **Climatic** conditions
- **Labour** resources
- **Technological** resources
- **Specialisation**
- **Capital**

UNDERSTANDING THE FOREIGN EXCHANGE GRAPHS

- We will start with the explanation of supply and demand for different currencies as well as the reasons for the shifts of the curves.

- When the value of the currency of one country **appreciates**, the value of the other country **depreciates**.

- The **exchange rate** is the rate at which one country's **currency** can be exchanged for that of another country.

- For example, R15 for 1 US Dollar ($1:R15) . This means that South Africans pay R15 for every dollar purchased.

THINKING ACTIVITY

WHAT WILL HAPPEN TO THE RAND?

1. More Chinese travelling to South Africa.

   D↑ Rand appreciates

2. A severe recession in China.

   D↓ Rand depreciates

3. Increase in price level in South Africa.

   D↓ Rand depreciates

4. Higher interest rate in South Africa.

   D↑ Rand appreciates

ANALYSING FOREIGN EXCHANGE GRAPHS

GRAPH 1: analysing demand and supply of Rands.

GRAPH 2: analysing demand and supply of Dollars.

Always take the other currency over the currency you analysing, to calculate the price of the currency (exchange rate)

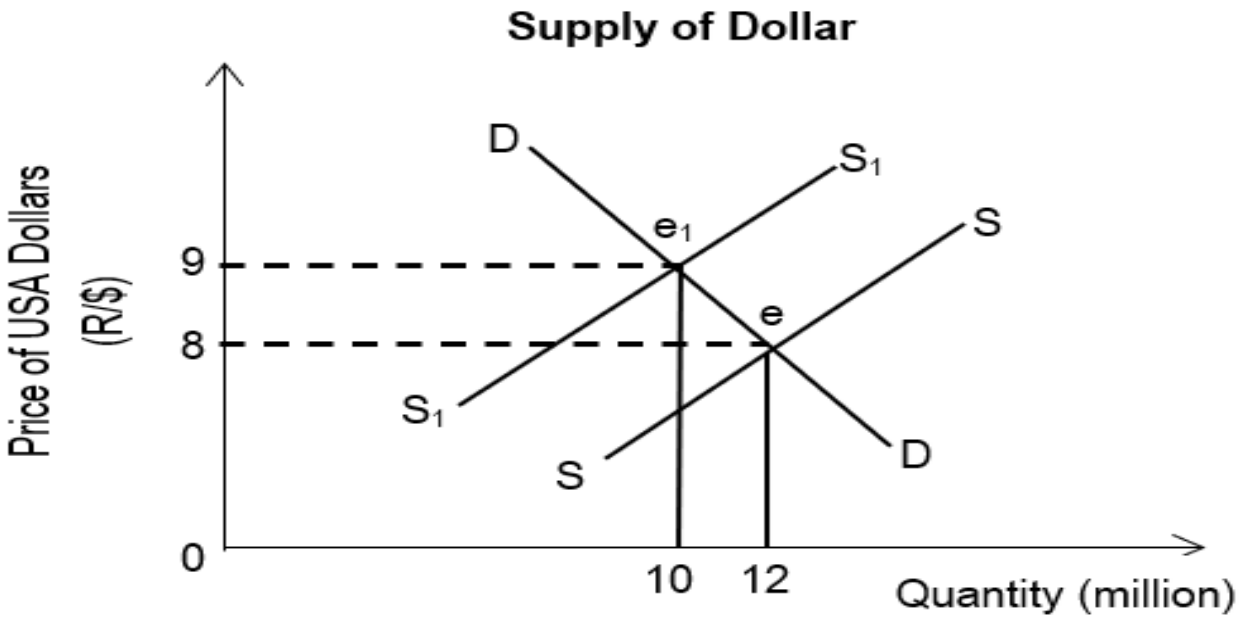
It is important to determine who is demanding and who is supplying in each graph.

- Graph 1: SA is the supplier and US is demanding.
- Graph 2: SA is demanding, and US is supplying.

NB: Pay close attention to graphs drawn by presenter.

ACTIVITY – FOREIGN EXCHANGE GRAPH

Study the graph below and answer the questions that follow.



- What is the equilibrium quantity at $1: R8,00?
- What is the result of a decrease in the supply of the dollar on the value of the rand?
- Briefly describe the term *appreciation* of a currency.
- What will the impact be of an overvalued currency on the Balance of Payments?
- Why do some countries prefer a fixed exchange rate system?