



GRADE 12

# ECONOMICS

MODULE 1



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- Modules are updated as the curriculum changes to ensure the validity of the learning material.



# CONTENTS



## TABLE OF CONTENTS

LEARNING OBJECTIVES .....	6
1. INTRODUCTION.....	7
1.1. Classification of topics for the Grade 12 Economics question papers.....	7
1.2. Cognitive levels.....	8
1.3. What is Economics .....	9
1.3.1. Macroeconomics:.....	9
1.3.2. Microeconomics .....	9
UNIT 2: CIRCULAR FLOW REPRESENTED AS A MACROECONOMIC MODEL .....	10
LEARNING OBJECTIVES .....	10
1. THE OPEN ECONOMY CIRCULAR FLOW MODEL .....	11
1.1. Key concepts .....	11
1.2. Definition of the open economy circular flow .....	14
1.3. The four-sector diagram.....	15
1.4. Participants in the four-sector economic flow .....	15
1.4.1. Household sector .....	15
1.4.2. Firms / business sector .....	16
1.4.3. The state / public sector .....	16
1.4.4. Foreign sector.....	16
1.4.5. The interaction between participants .....	16
1.5. Markets in the circular economic flow.....	17
1.5.1. Market for goods and services / products .....	17
1.5.2. Market for goods and services / products .....	17
1.5.3. Financial markets.....	17



1.5.3.1. Money markets.....	17
1.5.3.2. Capital Markets .....	17
1.5.4. Foreign exchange markets .....	18
1.5.5. Flows through different markets .....	18
1.6. Real and Money flows.....	18
1.6.1. Real flow .....	18
1.6.2. Money flow.....	19
1.7. Injections .....	19
1.8. Leakages .....	19
1.9. Equations .....	20
1.9.1. Equilibrium .....	20
1.9.2. Disequilibrium .....	20
<b>UNIT 3: NATIONAL ACCOUNT AGGREGATES AND CONVERSIONS ...</b>	<b>24</b>
<b>LEARNING OBJECTIVES .....</b>	<b>24</b>
<b>1. THREE METHODS DRIVING NATIONAL ACCOUNT</b>	
<b>AGGREGATES .....</b>	<b>25</b>
1.1. The production method .....	25
1.2. The income method .....	26
1.3. The expenditure method .....	27
<b>2. CONCEPTS USED IN NATIONAL ACCOUNTS .....</b>	<b>28</b>
2.1. Factor prices .....	28
2.2. Basic prices .....	29
2.3. Subsidies .....	29
2.4. Market prices .....	29
2.5. Net figures .....	29
2.6. Two national account aggregates measure a country's national	
account .....	30
2.6.1. Gross National product (GNP).....	30
2.6.2. Gross Domestic Income (GDI) .....	30
2.6.3. Nominal figures or prices.....	30



2.6.4.	Real prices .....	30
2.6.5.	Disposable national income .....	31
3.	THE MULTIPLIER EFFECT .....	31
3.1.	Definition of the multiplier effect .....	31
3.2.	The multiplier process: .....	32
3.2.1.	The multiplier process in a two-sector model .....	32
3.2.2.	The multiplier process in three and four circular flow models .....	33
3.3.	The multiplier in graphical form .....	34
3.4.	The multiplier effect in a nutshell .....	35
3.5.	The application of the multiplier effect .....	36
UNIT 4:	QUESTIONS AND ANSWERS .....	37
Learning Objectives .....		37
1.	ASSESSMENT – EXERCISES ON MACROECONOMICS .....	38
1.1.	Exercise 1 .....	38
1.1.1.	Question 1 .....	38
1.1.2.	Question 2 .....	38
1.2.	Exercise 2 .....	40
1.2.1.	Question 1 .....	40
2.	ANSWERS OF EXERCISE 1 .....	42
2.1.	Question 1 .....	42
2.2.	Question 2 .....	42
3.	ANSWER OF EXERCISE 3 .....	44
3.1.	Question 1 .....	44
ECONOMICS MODULE 1	MULTIPLE CHOICE QUESTIONS .....	46
ANSWERS TO ECONOMICS MODULE 1	MULTIPLE CHOICE	
QUESTIONS .....		49

## UNIT 1: INTRODUCTION

### LEARNING OBJECTIVES

At the end of this unit, you should be able to:

- Understand the outlay of the question papers that you will write.
- Detail of the question papers that you will write.
- The cognitive levels that will be required for the successful completion of your Economics National Examination.
- Distinguish between macroeconomics and microeconomics.
- Define the term 'economics'.



**You should spend more or less one hour on this unit.**

# 1. INTRODUCTION

## 1.1. Classification of topics for the Grade 12 Economics question papers

In your final examination, it will be expected from you to complete two question papers successfully in order to achieve a pass in Economics.

Paper 1: 1 hour 30 min for 150 marks

Main Topic: Macroeconomics

- Circular Flow
- Business Cycles
- Public Sector
- Foreign exchange markets
- Protectionism and free trade

Main Topic: Economic pursuits

- Growth and development
- Industrial development policies
- Economic and social performance indicators

Paper 2: 1 hour 30 min for 150 marks

Main Topic: Microeconomics

- Perfect Markets
- Imperfect Markets
- Market failures

Main Topic: Contemporary Economic Issues

- Inflation
- Tourism
- Environmental sustainability

Each question paper consists out of six questions that are divided into three sections. Of the six questions, only four questions must be answered per question paper.

The outlay is as follow:

- Section A – This consists out of Question 1 and this question and section is compulsory.
- Section B – This consists out of three questions, Questions 2, 3 and 4. From this section you must answer ant two of the three questions.
- Section C – This consists out of two questions, questions 5 and 6. Any one of the two must be answered.



## Section A:

This is the compulsory section in both question papers and will be answered in the answer book and not on loose sheets.

Question 1:

- 1.1 Multiple-choice questions
- 1.2 Matching column A and B
- 1.3 Identify the concept

## Section B:

One question per main topic and one combination question must be answered.

Short items

Data response with graph/cartoon/table/extract

One single question

## Section C:

Here one question of the two questions must be answered in essay form.

The structure of an essay:

Introduction (2 marks)

Body – Main part: In-depth discussion and evaluation of the topic (26 marks)

Body – Additional part: Give an opinion, draw graph and explain, compare, deduce (10 marks)

Conclusion (2 marks)

## 1.2. Cognitive levels

Paper 1 and Paper 2	Cognitive Level	Marks	%
	Low order	45	30
	Middle order	60	40
	High order	45	30





### **1.3. What is Economics**

Economics is the social science that studies the choices individuals, businesses, governments and societies make as they cope and adjust with the scarcity (inability to satisfy wants and needs) and the incentives (rewards that encourage an action or a penalty that discourage an action) that influence and reconcile those choices. Economics is divided into two parts:

#### **1.3.1. Macroeconomics:**

This is the study of the performance of the national economy and the global economy. Modules 1 to 4 deal with topics pertaining to macroeconomics.

#### **1.3.2. Microeconomics**

This is the study of the choices that individuals and businesses make, the way these choices interact in markets and the influence of government. Modules 5 and 6 deal with topics pertaining to microeconomics.

# UNIT 2: CIRCULAR FLOW REPRESENTED AS A MACROECONOMIC MODEL

## LEARNING OBJECTIVES

At the end of this unit, you should be able to:

- Discuss the concepts of an open economy circular flow.
- Complete a four-sector diagram
- Discuss the elements in an open economy circular flow.
- Discuss the different markets in an open economy circular flow.



You should spend more or less two weeks on this unit.



# 1. THE OPEN ECONOMY CIRCULAR FLOW MODEL

## 1.1. Key concepts



The following are key concepts that you need to know to understand the terminology that will be used in this subject. Ensure that you know the following by heart.

Keyword & Concept	Meaning
<b>Base year:</b>	A year with very small price changes or price fluctuations. The current base year used by the Reserve Bank is 2005.
<b>Basic prices (bp):</b>	Used when GDP is calculated according to the production method and represents the production costs of firms.
<b>Capital market:</b>	Markets for long-term financial instruments, for example, bonds, shares.
<b>Circular flow model:</b>	Continuous flow of spending, production and income between different sectors in the economy.
<b>Closed economy:</b>	An economy that has no foreign sector as a participator.
<b>Consumption (C):</b>	Consumption spending by the population.
<b>Domestic figures (GDP):</b>	Value of all final goods and services produced within the borders of a country for a specific period.
<b>Economic equilibrium:</b>	The economy is in equilibrium if leakages are equal to injections: $L = J$ or $S + T + M = I + G + X$ .
<b>Expenditure method:</b>	When the national accountants add together the spending of the four major sectors of the economy: $C + G + I + (X - M)$ .
<b>Exports (X):</b>	Goods and services produced locally and then sold for consumption outside the borders of the country.
<b>Factor market:</b>	Markets where factors of production are traded, for example labour market.



<b>Factor cost/Factor prices:</b>	These terms can be used interchangeably and refer to the cost of or price paid for the factors of production (land, labour, capital and entrepreneurship) used by firms. (Note that the term factor income may also be used.)
<b>Financial market:</b>	The market where both short- and long-term financial assets are traded.
<b>Financial sector:</b>	Those financial institutions that are not directly involved in the production of goods and services, for example banks, insurance companies, pension funds and the JSE.
<b>Foreign exchange market:</b>	The market in which one currency can be traded for another, for example Rands for Dollars.
<b>Goods market:</b>	Markets where goods and services are traded, for example cars, milk. (Also known as Product market.)
<b>Government (G):</b>	The expenditure of the government sector.
<b>Imports (M):</b>	Goods and services produced in other countries and purchased by local firms or households. Imports can also be represented by "Z".
<b>Income method:</b>	Gross Domestic Income is derived by adding all income earned by the owners of the factors of production – GDP(I).
<b>Injections (J):</b>	The introduction of additional money into the economy by investment (I), government (G), and payments for exports (X).
<b>Investments (I):</b>	Spending by firms on capital goods.
<b>Leakages (L):</b>	Money withdrawn from the circular flow, for example through savings (S), taxes (T) and import expenditure (M).
<b>Marginal propensity to consume (mpc):</b>	The marginal propensity to consume (mpc) indicates that, as disposable income increases, an increase in personal consumer spending (consumption) occurs. For example, a marginal propensity to consume of 0.65 indicates that for every extra rand earned, the household will spend 65 cents and save 35 cents.
<b>Market price (mp):</b>	Prices actually paid by consumers for goods and services plus all taxes less subsidies. Calculated according to the expenditure method.

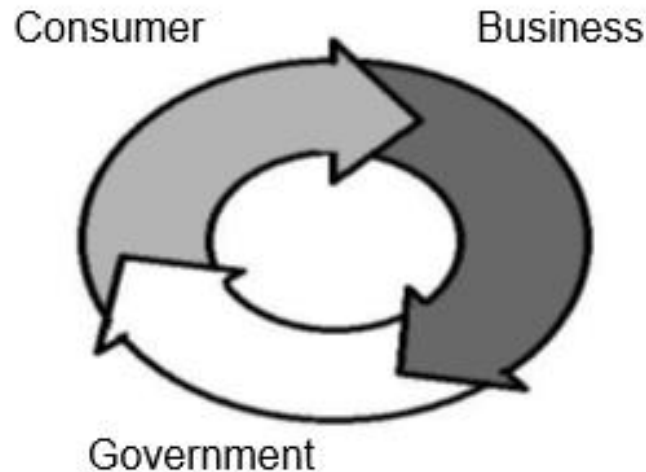


<b>Money flow:</b>	The flow of income and expenditure between the participants in the circular flow.
<b>Money market:</b>	The short-term and very short-term market for savings and loans.
<b>Multiplier:</b>	A small initial increase in spending produces a proportionately larger increase in aggregate national income.
<b>National figures (GNP):</b>	Value of all final goods and services produced by the permanent citizens of the country for a specific period.
<b>Net figures:</b>	Net indicates that some amount has been taken away, for example net exports reflects the value of exports less imports.
<b>Open economy:</b>	An economy that trades with the foreign sector.
<b>Production method:</b>	The adding of final values of all goods and services calculated as Gross Value Added – GDP(P).
<b>Real flow:</b>	The flow of goods and services between the participants in the circular flow.
<b>Savings (S):</b>	Income that is not consumed or used.
<b>Subsidies on production:</b>	Refers to subsidies that are not linked to specific goods or services, for example subsidy made on employment.
<b>Subsidies on products:</b>	Financial incentives to help struggling industries produce, as well as direct subsidies payable per unit exported to encourage exports (for example government subsidy on bread).
<b>Taxes (T):</b>	Compulsory payments made by private individuals or business enterprises to the government sector with no direct benefit.
<b>Taxes on production:</b>	Refer to taxes on production not linked to a specific good or service, for example tax on land and buildings.
<b>Taxes on products:</b>	Taxes that are payable per unit of some good or service, for example VAT, import duties.



## 1.2. Definition of the open economy circular flow

The circular flow model states that the three key sectors of the economy (consumer, business and government) all work together to ensure that society's needs are provided for through the creation of goods and services.



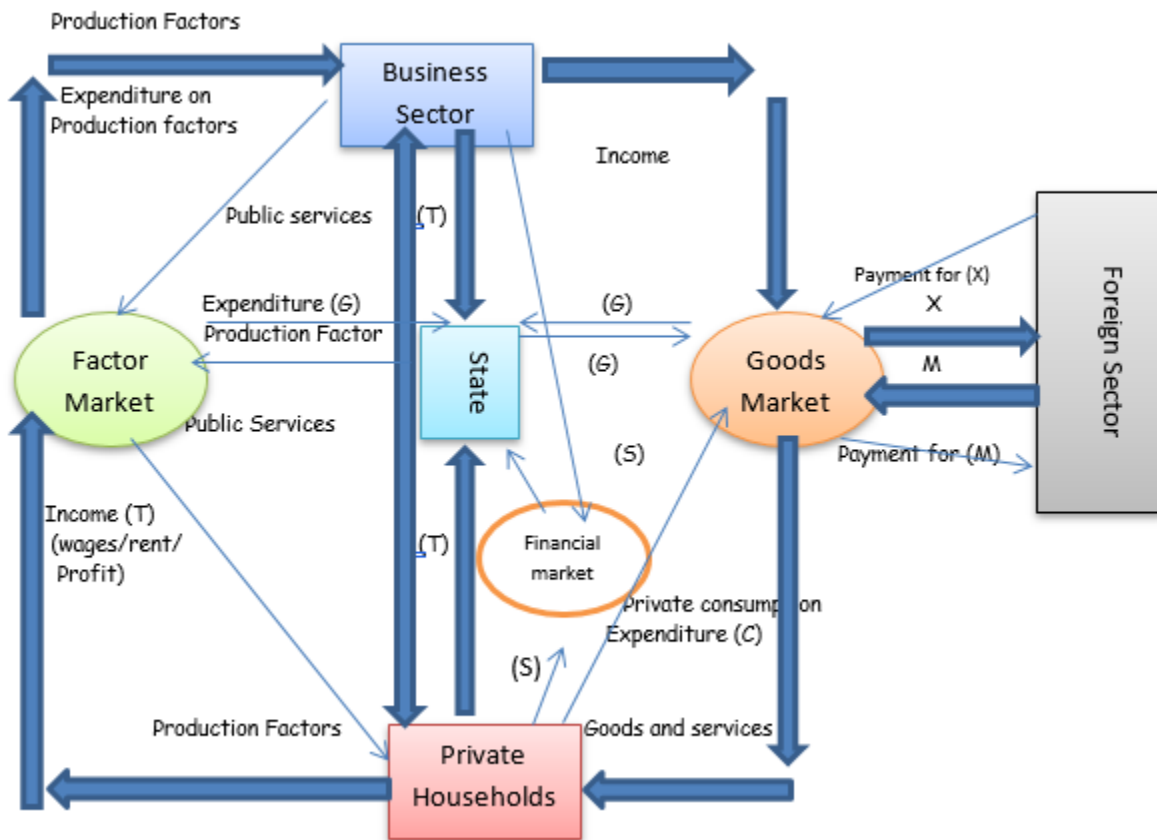
Thus, the circular-flow model of the economy is a simplification showing how the economy works and the relationship between income, production and spending in the economy as a whole.

The function of the circular-flow model of an open economy is to show the workings of an economy that is open to foreign trade.

The open economy circular flow is different to a closed economy because it includes the foreign sector. A closed economy flow does not include the foreign sector.



### 1.3. The four-sector diagram



Note:

Leakages = T, S and M

Injections = I, G and X



**NB!**

You must be able to draw a detailed circular flow diagram as the one above with all the factors labelled.

### 1.4. Participants in the four-sector economic flow

#### 1.4.1. Household sector

- Households are the major consumers of economic goods and services – they use their income to buy from businesses.
- Households are the primary economic participants because they are the owners of the four factors of production.



- Households sell factors of production in the factor market to businesses.
- Households receive a remuneration from the firms in the form of wages, rent, interest and profit.

#### **1.4.2. Firms / business sector**

- Firms purchase the factors of production from the household in the factor market.
- Firms use the factors of production to produce goods and services.
- Businesses sell goods and services to households, government and the foreign sector.
- Businesses receive an income from the other three participants (households, government and the foreign sector).

#### **1.4.3. The state / public sector**

- This refers to local, regional and national government.
- The state provides the households and businesses with public goods and services.
- The state receives taxes from households, for example income tax.
- The state receives taxes from the business sector, for example company tax.
- The state spends money in the economy. (G)

#### **1.4.4. Foreign sector**

- There is a flow of goods or imports that flow from the foreign sector and are paid for by the individual households, businesses and the public sector.
- These imports can be seen as expenditure by individual households, businesses and public sector. (This is an example of a monetary outflow.)
- There is also a flow of goods and services to the foreign sector from businesses (exports).
- These exports will result in an income for individual households, businesses and public sector. (This is an example of a monetary inflow.)

#### **1.4.5. The interaction between participants**

- Households provide production factors to producers (businesses).
- Households receive an income (Y) in return – rent, wages, interest and profits.
- Households purchase goods and services from businesses.
- Businesses receive income from sales revenue.
- Households and Businesses purchase goods and services from the foreign sector as imports (M).
- The foreign businesses receive money from businesses and households.
- Businesses sell goods and services to the foreign sectors, and this is called exports (X).





- Households and businesses pay taxes to the government. (T)
- The government provides public goods and services to households and businesses.
- The unexhausted (unspent) part of the household and businesses' income earned is saved in the financial sector of the economy. (S)
- The money invested by businesses and households is known as savings (S).
- The funds received by the financial sector are used by firms/businesses to purchase infrastructure for the production of goods and services.
- This flow of money from the financial sector for use by businesses is known as investment (I).

## **1.5. Markets in the circular economic flow**

### **1.5.1. Market for goods and services / products**

- These are markets for consumer goods and services.
- Buying and selling of goods that are produced in markets.
- Example:
  - Semi-durable consumer goods.
  - Durable goods.
  - Non-Durable consumer goods.
  - Services

### **1.5.2. Market for goods and services / products**

- Factors of production are traded on these markets.
- Natural resources, Labour, Capital, and Entrepreneurship are traded in this market.

### **1.5.3. Financial markets**

#### **1.5.3.1. Money markets**

- Short term loans and very short-term funds are saved and borrowed by consumers and business enterprises.
- Banks, Insurance companies are examples of money markets.
- Bank debentures, treasury bills, government bonds are traded.

#### **1.5.3.2. Capital Markets**

- Long term funds are borrowed and saved by consumers and business enterprises.
- An example of this is a mortgage bond.
- The Johannesburg Stock exchange is a key institution in the capital market.
- Shares are traded.



#### 1.5.4. Foreign exchange markets

- Businesses buy foreign currency to pay for imported goods and services.
- In South Africa these transactions occur via banks.
- The most important foreign exchange markets are in London, New York and Tokyo.
- The South African Rand is traded freely in these markets.
- An example of this is when a person buys travellers cheques to travel abroad.

#### 1.5.5. Flows through different markets

The ultimate aim of production is to consume or use products to satisfy wants and needs.

There are three major flows in an economy:

- Total production
- Total income
- Total spending

All three these flows are happening at the same time: Production occurs and income is earned and all or part of the income is spend to purchase the available goods and services in the economy.

Production, income and spending are all flow variables or flows. A flow variable is measured over or during a specific period of time. (A stock variable is measured at a particular point of time.)

In a mixed economy, households, businesses, government and the foreign sector all participate in the production process.

Thus: Production generates income for the various factors of production and part or all of this income is then spend to buy consumer goods and services.

### 1.6. Real and Money flows

#### 1.6.1. Real flow

The real flow process runs as follows:

- Factors of production flow from the owners (households) to producers via the factor markets.



- Goods and services flow from the producers via the goods markets to households and other users of goods and services.
- Factors of production and goods and services flow from foreign countries to South Africa (imports).
- Factors of production and goods and services flow from South Africa to foreign countries (exports).

### 1.6.2. Money flow

Factor remuneration represents the expenditure of producers and the income of households (wages, rent, interest and profit).

On the other hand, consumption expenditure represents the expenditure of households and the income of producers.

## 1.7. Injections

Injections refer to an inflow of money into the economy. Thus, the economy gets stronger.

The following are injections (additions to) the circular flow:

- Investment (I)
- Government expenditure (G)
- Payments for exports (X)

In other words:

$$J = I + G + X$$

Injections = Investments + Government expenditure + Export Income

## 1.8. Leakages

Leakages refer to the outflow of money from the economy. Thus, the economy gets weaker.

The following are leakages or withdrawals from the circular flow:

- Savings (S)
- Taxation (T)
- Payment for Imports (M)

In other words:

$$L = S + T + M$$

Leakages = Savings + Taxes + Import expenditure



## 1.9. Equations

### 1.9.1. Equilibrium

The economy is in equilibrium when leakages are equal to injections.

In other words

$$\begin{array}{ccc} & L = J & \\ & \swarrow \quad \searrow & \\ S + T + M & = & G + I + X \end{array}$$

### 1.9.2. Disequilibrium

The economy is in disequilibrium when:

- Leakages are more than Injections.
- Injections are more than Leakages.

Restoring the equilibrium causes changes to national income.


2.9.2.1 National Income increases when Injections are more than Leakages:

$$\begin{array}{ccc} & J > L & \\ & \swarrow \quad \searrow & \\ G + I + X & > & S + T + M \end{array}$$

- The amounts of injections which exceed leakages contribute to additional demand.
- This additional demand must be satisfied.
- This causes an increase in the production of goods and services.



### 2.9.2.2 National Income decreases when Injections are less than Leakages:

$$J < L$$

$$I + G + X < S + T + M$$

- The amount by which leakages exceed the injections contributes to a decreased demand. ( $J < L$ )
- Demand for goods and services drop.
- Less goods and services are produced.
- This leads to less income in an economy.

### 2.9.3 Mathematical and Graph Presentation

Income (Y) is equal to Expenditure (E):

Thus:  $Y = E$

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

Mathematical calculation:

Imports	R40 million
Investment Spending	R180 million
Consumption Spending	R 110 million
Exports	R 25 million
Government Spending	R110 million

- The Formula to calculate the Aggregate Income in the economy:

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

- Calculation of the Aggregate Income in the economy:

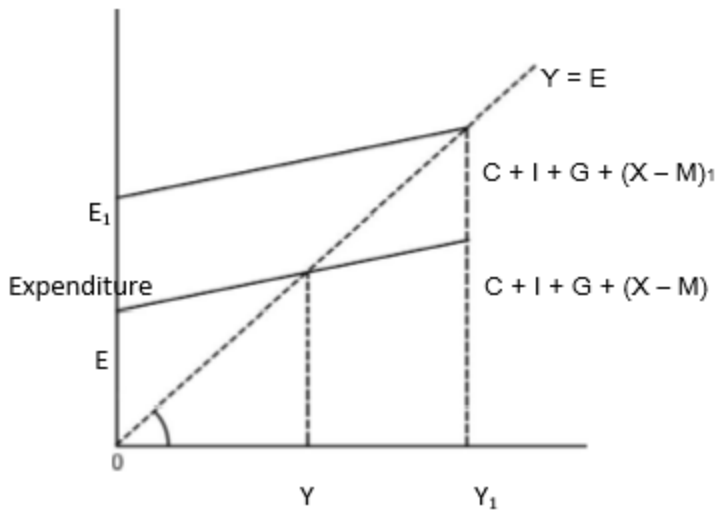
$$Y = C + I + G + (X - M)$$

$$Y = R110 \text{ million} + R180 \text{ million} + R110 \text{ million} + (R25 \text{ million} - R40 \text{ million})$$

$$Y = R385 \text{ million}$$



### Graphical Presentation:



Graph Interpretation of income and expenditure:

- Expenditure is (E) and it is shown on the Vertical axis.
- Income is (Y) and it is shown on the Horizontal axis.
- $E = Y$  and it is represented by a  $45^\circ$  line.
- It halves the  $90^\circ$  angle into two equal portions of  $45^\circ$ .
- Aggregate Expenditure (AE) =  $C + I + G + (X - M)$ .
- This curve shows the amount which consumers, producers, government and the foreign sector plan to spend at every level of income.
- It also equals aggregate demand.
- The curve slopes upwards and to the right.
- At an income of Y the AE intersects the vertical axis at E.
- Assume planned AE increases to  $E_1$ .
- This means more money is injected into the economy.
- This causes an increase in Y to  $Y_1$ .

THUS, When E (expenditure) increases it means more goods and services are being bought. This is good for the economy!

### Interdependence between Households and Businesses:

Households are described as people living together and who make joint economic decisions. Households are therefore the basic decision-making units in an economy. Members of households consume goods and services to satisfy their needs and wants. They are called consumers.



In a mixed economy, most of the factors of production are owned by households. The total spending of all households on consumer goods or services is called Total aggregate or aggregate consumption expenditure or total consumption.

The symbol 'C' is the abbreviation used for total consumption.  
In a market economy, households determine what should be produced.

In exchange for services of their factors of production, households receive an income to purchase consumer goods and services in the goods market. These goods and services are consumed to satisfy needs and wants.



# UNIT 3: NATIONAL ACCOUNT AGGREGATES AND CONVERSIONS

## LEARNING OBJECTIVES

At the end of this unit, you should be able to:

- Explain definitions used in this topic.
- Discuss the three methods used to derive National Accounts aggregates.
- Explain the concepts used in national accounts.
- Analyse, interpret and derive aggregates.
- Analyse national account conversions.
- Define the multiplier effect.
- Explain the multiplier process.
- Apply the basic formulae of the multiplier process.



**You should spend more or less two weeks on this unit.**





# 1. THREE METHODS DRIVING NATIONAL ACCOUNT AGGREGATES

National account aggregates refer to methods that are used to determine the value of the domestic economic activity in a country. The Reserve Bank has the responsibility in South Africa to prepare the national accounts. There are three methods that are used for different purposes to determine economic activity:

- Production method
- Income method
- Expenditure method

## 1.1. The production method

The production method is the GDP (P), gross domestic product with gross value added. This method determines the sum of all production units produced by the primary, secondary and tertiary sectors in the domestic economy. It is determined by the Gross Domestic Product at basic prices less the value of the input used in the production process.

In national accounts, Gross Domestic Production at basic prices is referred to as Gross Value Added (GVA) at basic prices.

Thus, the production method calculates the total amount of goods and services produced in a country for a certain period of time (usually a year).

NB! To avoid double or multiple counting, 'value added' is used in determining production output. If market values of all outputs are added up, the derivation will be greatly in excess of the economy's actual output.





## Example

2012 GDP of the economy in Rand millions

Value Added (GVA)	Rand millions
1. Primary Sector	335 409
2. Secondary Sector	542 821
3. Tertiary Sector	1 956 857
4. Gross Value added at basic prices	2 835 087
4.1. Add taxes on products	338 792
4.2. Less Subsidies on products	18 684
<b>5. Gross domestic product at market prices</b>	<b>3 155 195</b>

### 1.2. The income method

Gross Domestic Income (GDI) is the total of all income earned by individuals or firms in all sectors of the domestic economy in the production of goods and services. Every factor of production earns income when goods and services are produced or delivered. Thus, the total income earned must equal the total value of production.

Thus, the income method is used to determine the gross domestic product at factor prices by adding all the income earned by the owners of the factors of productions (gross domestic income).

In the national accounts this is referred to as Gross Value Added at factor cost.

NB! The income method determines all the total income of all the owners of all factors of production in a country:

- For a certain period of time (usually a year)
- Income received from the firms
- Includes rent, wages, interest and profit.





## Example

### GDI for 2012 in Rand millions

National Income or Gross Value added at factor cost	Rand millions
1. Compensation of employees	1 447 429
2. Add Net operating surplus	942 903
3. Add Consumption of fixed capital	404 947
<b>4. Gross value added @ factor cost</b>	<b>2 795 279</b>
5. Add Other taxes on production	54 166
6. Less other subsidies on production	14 358
<b>7. Gross value added @ basic prices</b>	<b>2 835 087</b>
8. Add Taxes on profit	338 792
9. Less subsidies on products	18 684
<b>10. Gross domestic product @ market prices (GDI)</b>	<b>31 155 195</b>

### 1.3. The expenditure method

Expenditure on GDP is the total expenditure on final goods and services produced within a country. Expenditure on GDP is calculated by adding all expenditures from the four participants in the domestic economy: Households (C), Government (G), Businesses (I) and the Foreign Sector (X – M).

REMEMBER!      X – EXPORTS  
                         M – IMPORTS

It is important to differentiate and distinguish between the two following expenditure types:

- Expenditure on GDP:  $C + I + G + (X - M)$
- Includes rent, wages, interest and profit.
- Gross Domestic Expenditure (GDE):  $C + I + G$





## Example

### Total Expenditure on GDP for 2012 in Rand millions

Gross domestic expenditure and GDP at market prices (Rbn)	Rand millions
1. Final consumption expenditure by households	1 907 247
2. Final consumption expenditure by government	707 031
3. Gross capital formation	612 551
4. Less Residual Items	24 585
<b>5. Gross domestic expenditure</b>	<b>3 251 414</b>
6. Exports of goods and services	891 562
7. Imports of goods and services	987 781
<b>8. Expenditure on gross domestic product @ market prices</b>	<b>3 155 195</b>

## 2. CONCEPTS USED IN NATIONAL ACCOUNTS

Globally, all countries use national account figures. In South Africa, the System of National Accounts (SNA) is used as prescribed by the United Nations.

GPD, GDE and GDI determine the prices used in South Africa: Nominal and real prices, process before and after tax.

Four sets of prices are used in the national accounts: Factor prices / cost, Basic prices, Market prices and net or gross figures:

### 2.1. Factor prices

Factor prices are used with the income method of measuring economic activity. It is used in the income method to calculate GDP; it excludes factor taxes such as property taxes and includes factor subsidies such as employee subsidies.

$\text{GDP (factor price)} = \text{GDP (basic price)} - \text{factor taxes} + \text{factor subsidies}$ .

Thus:

$\text{GDP at factor cost} - \text{other taxes on production} - \text{other subsidies on production} = \text{GDP at basic prices}$ .



## 2.2. Basic prices

This is used with the production method. It includes taxes on production but excludes subsidies on production. Taxes on production are payroll taxes, thus SITE and PAYE, recurring taxes on land and buildings and business licences. Thus, it is used in the production method to calculate GDP and it exclude product taxes and include product subsidies.

$\text{GDP (basic price)} = \text{GDP (market price)} - \text{product taxes} + \text{product subsidies.}$

## 2.3. Subsidies

Subsidies on production include employment subsidies and subsidies paid to prevent pollution.

## 2.4. Market prices

This is used with the expenditure method. Taxes on products are payable per unit (VAT) and subsidies on products include direct subsidies paid per unit. Thus, it is used in the expenditure method to calculate GDP.

$\text{GDP (market price)} = \text{GDP (factor price)} + \text{all taxes} - \text{all subsidies.}$

Market prices uses a conversion of values from the following:

- Basic prices to market prices:  
 $\text{GDP at basic prices} + \text{taxes on products} - \text{subsidies on products} = \text{GDP at market prices}$
- Factor cost to market prices:  
 $\text{GDP at factor cost} + \text{other taxes on production} - \text{subsidies on production} = \text{GDP at basic prices} + \text{taxes on products} - \text{subsidies on products} = \text{GDP at market prices}$

## 2.5. Net figures

- Net operating surplus - surplus after taxes
- Net income - Income after taxes
- Net fixed capital formation - Depreciation (After consumption of fixed capital)
- Net exports: Exports - Imports



## 2.6. Two national account aggregates measure a country's national account

- Total production – GNP
- Total income – GNI

### 2.6.1. Gross National product (GNP)

This measure total production, which is the total market value of all the goods and services produced by the citizens of a Country. The GNP includes the production of its citizens who work abroad, and it excludes production by foreign citizens in the country.

### 2.6.2. Gross Domestic Income (GDI)

This measure total income, which is the total amount earned by the factors of production of a country and it includes domestic factor income from abroad and it excludes factor income of foreign citizens working in the country

GNI can be written as follows:

$GNI = GDP - \text{factor payments to other countries} + \text{factor income from abroad.}$

Domestic figures refer to all economic activities that happen within the boundaries of a country.

National figures give information on the economic activities of the permanent residence of a country.

### 2.6.3. Nominal figures or prices

This is also known as market or money value and it is the national product at current prices. Inflation is not taken into account in nominal figures. The nominal value of production is calculated by multiplying the volume of the final goods and services by their prices.

### 2.6.4. Real prices

This is the national product at constant prices. The inflation rate as presented by the consumer price index (CPI) has been taken into account in the calculation. The real values of production are the nominal product adjusted for price increase and the real national product is the national product expressed in prices that is applied in a certain base year.

Thus, the GDP is expressed in both the nominal and real figures.



## Conversion of domestic totals to national totals:

	2012
<b>GDP @ Market Prices</b>	<b>2 964 261</b>
Add Primary Income from the rest of the world	38 118
Less Primary Income to the rest of the world	104 689
<b>Gross National Product @ Market Prices</b>	<b>2 897 690</b>

### 2.6.5. Disposable national income

National disposable Income is the income that is available or is at the disposal of the nation as a whole for spending. Thus, it is to know the amount of goods and services the domestic economy has at its disposal.

National Disposal Income = National Income + Net Indirect Taxes + Net Current Transfer

Net Current Transfers refer to gifts in cash and kind, for example consumer goods and military equipment. This has an impact on the purchasing power of the government.

## 3. THE MULTIPLIER EFFECT

### 3.1. Definition of the multiplier effect

Previously, we noticed that an increase in the level of spending in a country will lead to a higher gross domestic production (GDP). Similarly, a decrease in spending will lead to a decrease in gross domestic production (GDP).

The components of gross domestic production are households (C), government (G), businesses (I) and Imports (M) and exports (X).

The method of determining GDP is:  $C + G + I + (X - M)$ .

It goes without saying, that if any of these components increases, the real GDP will also increase. If businesses or investment shows an increase that leads to the increase in the real GDP, the change in output (real GDP) and income will be much greater than the initial change in businesses or investment. This result or outcome is called the multiplier effect.



Thus: An initial change in spending in any of the components in gross domestic production will change the level of output and income (real GDP) by more than the initial change in spending.

The multiplier effect is the extent of the change in real output and income that is caused by a change in aggregate demand. The size of the change in output (real GDP) and income is determined by the multiplier. Thus, to what extent was the output and income increased.

### **3.2. The multiplier process:**

Consumers either spent or save their money. The marginal propensity to consume (MPC) indicates the proportion spent by consumers. The marginal propensity to save (MPS) indicates the proportion saved by consumers. The MPC will indicate how much a person is likely to spend of a new income.

MPC is calculated by using the following formula:

$$MPC = \frac{\Delta C}{\Delta \gamma}$$

Indicators in the formula:

$\Delta C$  is the change in consumption

$\Delta \gamma$  is the change in income

MPS is calculated by using the following formula:

$$MPS = \frac{\Delta S}{\Delta \gamma}$$

Indicators in the formula:

$\Delta S$  is the change in savings

$\Delta \gamma$  is the change in income

Thus, the multiplier is derived from the marginal propensity to consume (MPC).

#### **3.2.1. The multiplier process in a two-sector model**

The size of the multiplier depends on the proportion of increase in income that is spent. The larger the MPC, the bigger the multiplier will be and the smaller the MPC, the smaller the multiplier will be. Thus, the multiplier determines the impact of the eventual change in income if money is injected into the economy through spending.







## Example

$$Y = R\ 100\ 000$$

$$S = R\ 40\ 000 = 40\% = 0.4$$

$$E = R\ 60\ 000 = 60\% = 0.6$$

Thus:

$$\text{Marginal propensity to consume (MPC)} = 0.6$$

$$\text{Marginal propensity to save (MPS)} = 0.4$$

The total of the MPC + MPS is always = 1

Formula to determine the multiplier:

$$K = 1/((1-MPC)) \quad (\text{k represents the multiplier})$$

$$K = 1/(1-mpc) = 1/(1-0.6) = 1/0.4$$

$$= 2\ \frac{1}{2} \text{ (Multiplier)}$$

### 3.2.2. The multiplier process in three and four circular flow models

The three-sector model includes government. Thus, the effect of taxation as a leakage must be included.

The formula will now be  $k=1$

MPS + MRT where is MRT is the marginal rate of taxation.

The four-sector model includes the foreign sector. The multiplier will now include the marginal propensity to import (MPM).

The formula will now be  $k=1$

MPS + MRT + MPM





**NB!**

- Injections: Money that comes from investment, government spending and exports. It increases the flows in the circular flow model.
- Leakages: Money that goes to savings, taxes and imported goods. It reduces the flows in the circular flow model.
- Net exports: Exports-Imports
- Formulae:

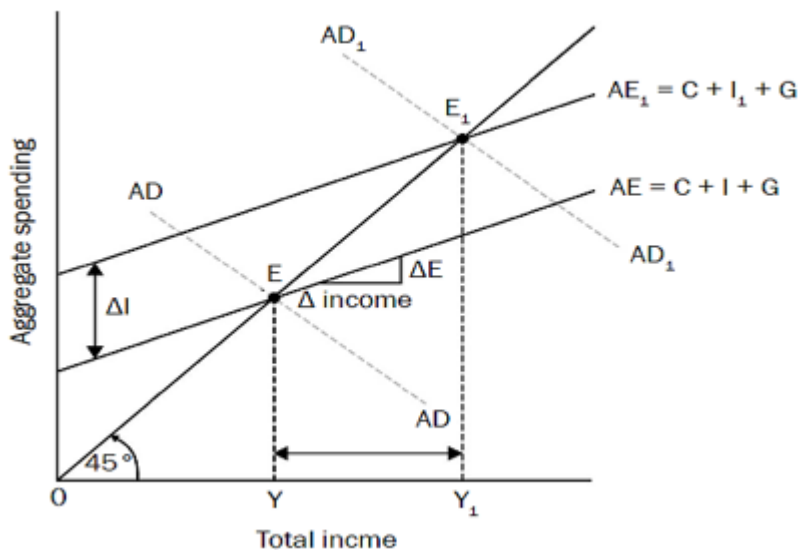
Factor price = GDP – factor taxes + fact subsidies

Market price = GDP + all taxes – all subsidies

$mpc + mps = 1$

$mps + mpc = 1$

### 3.3. The multiplier in graphical form



E = Original equilibrium

Y = Original income

Change in investment is added

The AE curve (aggregate expenditure) shifts upwards to  $AE_1$

Total spending at each level of income (Y) increases to  $Y_1$

Planned spending determines aggregate expenditure.



Aggregate Demand increases to AD<sub>1</sub>

The new equilibrium position is at E<sub>1</sub>

The multiplier effect shows that the increase in Y ( $\Delta Y$ ) is greater than the change in I ( $\Delta I$ )

The following formula is used to determine the multiplier from the graph:

$$M = \Delta Y / \Delta I$$

Information:

I = R 40 000m and it increases to R 50 000m

$\Delta I$  = R 10 000m (Investment in infrastructure, development and the building of houses)

Y = R 100 000m increases to R 125 000.

$\Delta Y$  = R 25 000m

$$M = \Delta Y / \Delta I$$

$$M = (25\ 000) / (10\ 000) = 2.5 = 2\frac{1}{2}$$

It is important to remember that the national income changes when:

Injections: Money that comes from investment, government spending and exports. It increases the flows in the circular flow model.

- Total spending  $\neq$  to production
- Total demand  $\neq$  to total supply
- Planned leakages  $\neq$  to planned injections

### 3.4. The multiplier effect in a nutshell

- The multiplier relates to how much national income changes as a result of injections or leakages.
- It assumes an increase in injections into the economy through investments, government spending and exports which would lead to a proportional increase in national income.
- It determines that the extra spending will create more spending.
- The size of the multiplier depends on the level of leakages in the form of income tax, savings and spending on imports.



### 3.5. The application of the multiplier effect

John Keynes was an economist who theorised that an economy needs to spend in order to grow.

This Keynesian approach states the following:

- Government spending must increase for the economy to grow. The government spending may be financed with loans.
- Government must decrease taxation to increase consumer spending.
- This extra consumer demand will increase the aggregate demand which lead to increase in production and employment.
- Government on its turn must decrease company taxes that will lead in its turn to higher investment rates by businesses (I).



# UNIT 4: QUESTIONS AND ANSWERS

## Learning Objectives

At the end of this unit, you should be able to:

- Apply the knowledge you gained from module 1.
- Complete different levels of questions on the topics covered in Module 1.



**You should spend more or less 8 hours on this unit.**

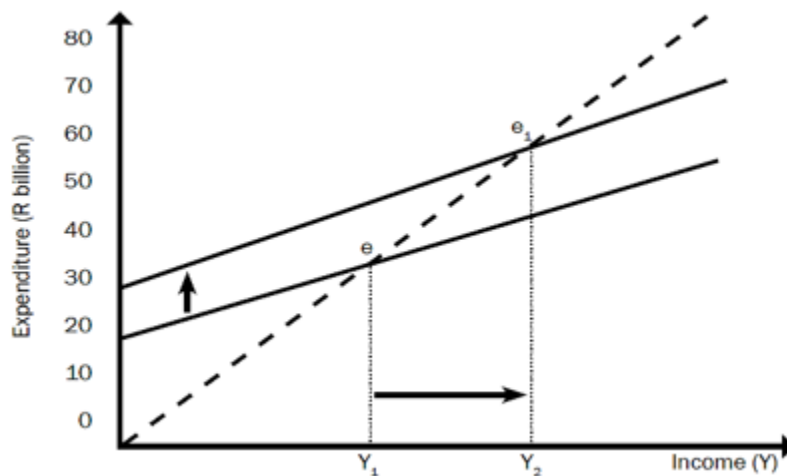


# 1. ASSESSMENT – EXERCISES ON MACROECONOMICS

## 1.1. Exercise 1

### 1.1.1. Question 1

Study the graph below of the Keynesian model in a two-sector economy where the consumption function is given by  $C = C_0 + C(Y)$  and answer the questions that follow:



- 1.1 Define the term multiplier.
- 1.2. With reference to the graph, name the TWO sectors involved in deriving the macro-economic multiplier.
- 1.3. Indicate what is represented by the dotted line.
- 1.4. What is the value of autonomous consumption for the original consumption function?
- 1.5. Suppose the marginal propensity to save (MPS) = 0.4. Use the multiplier formula to calculate the eventual change in aggregate income, if there was an injection of R10 billion into the economy. Show ALL the calculations.
- 1.6. Describe the relationship between the mpc and the multiplier.

### 1.1.2. Question 2

- 2.1 List the four participants that influence the flows of production, income and expenditure.
- 2.2 Explain what is meant by the term 'household' in economics.
- 2.3 Explain what the term 'leakage' refers to in economics.
- 2.4 Explain what the term 'injection' refers to in economics.
- 2.5 Give a formula for calculating the Gross Domestic Expenditure in a country.



- 2.6 Explain what is meant by the economic term 'aggregation'.
- 2.7 Name the two parts that make up the financial market.
- 2.8 Explain the importance of the exchange market for importers and exporters.
- 2.9 Study the following table and answer the questions that follow:

	<b>2009 R millions</b>
Compensation of employees	1 077 833
Net operating surplus	731 204
Consumption of fixed capital	332 584
<b>Gross value added to factor cost</b>	<b>2 141 621</b>
Other taxes on production	42 101
Less: Other subsidies on production	9 210
<b>Gross value added at basic prices</b>	<b>2 174 512</b>
Taxes on products	238 557
Less: Subsidies on products	14 914
<b>Gross domestic product at market prices</b>	<b>2 398 155</b>
Final consumption expenditure by households	1 460 911
Final consumption expenditure by general government	502 192
Gross capital formation	470 963
Residual item	-15 095
<b>Gross domestic expenditure</b>	<b>2 419 271</b>
Exports of goods and services	657 192
Less: Imports of goods and services	678 308
<b>Expenditure on gross domestic product (GDP at market prices)</b>	<b>2 398 155</b>
Primary income from the rest of the world	34 075
Less: Primary income to the rest of the world	87 593
<b>Gross national income at market prices</b>	<b>2 344 637</b>

- 2.9.1 Name the difference between gross domestic expenditure and expenditure on gross domestic product.
- 2.9.2 What is meant by gross capital formation?
- 2.9.3 Name the amount received by households in 2009 for the provision of labour to the economy.
- 2.9.4 If factor prices were used to calculate the gross domestic product, what was the value of the GDP equal to in 2009?
- 2.9.5 What was the subsidies received by firms on production in 2009?
- 2.9.6 What was the taxes on products in 2009?
- 2.9.7 What was the household consumption spending in 2009?



2.9.8 Was the primary income South Africans earned in 2009 less or more than the primary income we paid to the rest of the world?

2.9.9 Explain why the expenditure on GDP was less than the gross domestic expenditure in 2009.

2.10 Indicate and explain whether the following variables are leakages or injections:

Variable	Leakage or Injection	Reason
10.1 Savings		
10.2 Investment		
10.3 Taxation		
10.4 Government spending		
10.5 Imports		
10.6 Exports		

## 1.2. Exercise 2

### 1.2.1. Question 1

Answer the following questions.

1.1.1 Give TWO examples of injections in the circular flow.

1.1.2 What effect will quotas have on imports?

1.2 Study the table below and answer the questions that follow.

NATIONAL INCOME ACCOUNTS OF SOUTH AFRICA		
	R millions	
	2012	2013
Compensation of employees	1 451	1 576
Net operating surplus	922	961
Consumption of fixed capital	406	443
<b>Gross value added at factor cost</b>	<b>2 779</b>	<b>2 980</b>
Other taxes on production	56	64
LESS: Subsidies on production	15	14
... (A) ...	<b>2 820</b>	<b>3 030</b>
Taxes on products	338	374
LESS: Subsidies on products	20	19
<b>Gross domestic product at market prices</b>	<b>3 138</b>	<b>3 385</b>

[Adapted from SARB Quarterly Bulletin, September 2014]

1.2.1 What method of calculation was used in the table above to determine the gross domestic product?

1.2.2 Give ONE example of taxes on products.





- 1.2.3 Name the missing item labelled (A).
- 1.2.4 How would you convert GDP to GNP?
- 1.2.5 Calculate the compensation of employees as a percentage of GDP at market prices in 2013. Show ALL calculations.
- 1.3 How can the household, as an important participant in the circular flow model, contribute to building the economy?
- 1.4 How has the Keynesian (endogenous) school of thought influenced business cycles?



## 2. ANSWERS OF EXERCISE 1

### 2.1. Question 1

- 1.1 The multiplier shows how an increase in spending or injection produces a more than proportional increase in national income.
- 1.2 Household and Business
- 1.3 Indicates all points where income = expenditure or 45o line or Keynesian equilibrium
- 1.4 20 bn
- 1.5  $M = 1/mps = 1/0.4 = 2.5$   
 $2.5 \times 10bnP = 25 \text{ bn}$
- 1.6 The larger the marginal propensity to consume (mpc) the bigger the multiplier and vice versa.

### 2.2. Question 2

- 2.1 Households (consumers), firms (businesses), government (public sector) and the foreign sector.
- 2.2 In economics a household is any number of people that live together and make joint economic decisions. A household can consist of one person or any number of people. They sell their factors of production (productive resources) to the factor market.
- 2.3 A leakage occurs when money leaves the circular flow and decreases the amount of money in circulation in the economy.
- 2.4 An injection occurs when money enters the circular flow and increase the amount of money in circulation in the economy.
- 2.5 Final consumption expenditure by households (C) + Gross capital formation (I) + Final consumption expenditure by general government (G)
- 2.6 Although there are many different markets in macroeconomics, we group all these markets together and consider the goods market as a single market.
- 2.7 Money market and capital market
- 2.8 Foreign trade requires foreign currencies and these currencies can only be exchanged in the foreign exchange market. If you import goods from the United Kingdom you will have to pay for it in pounds and if you export goods to the USA, you will be paid for it in dollars.
- 2.9
- 2.9.1 Gross domestic expenditure represents the spending by households, firm and government between the borders of South Africa. Included in this figure is spending on imports. Expenditure on gross domestic product is the spending by households, firm, government and the foreign sectors on domestically produced goods and services.



- 2.9.2 Spending on capital goods used in the production of goods and services.  
 2.9.3 R 1 077 833 million  
 2.9.4 R 2 141 621 million  
 2.9.5 R9 210 million  
 2.9.6 R 238 567 million  
 2.9.7 R 1 460 911 million  
 2.9.8 Less  
 2.9.9 We have spent more on imports than the rest of the world has spent on our exports.  
 2.10

<b>Variable</b>	<b>Leakage or Injection</b>	<b>Reason</b>
10.1 Savings	Leakage	It is part of the income of households that is not spend. An increase in savings by households will decrease the flow of spending, production and income since households spent less on consumption.
10.2 Investment	Injection	Investment firms buy more capital goods from other domestic firms and the flow of spending, production and income increases.
10.3 Taxation	Leakage	It decreases the disposable income of households. As the disposable income decreases, households spend less and the flow of spending, production and income decreases.
10.4 Government spending	Injection	An increase in government spending increases the spending on goods and services and the flow of spending, production and income increases.
10.5 Imports	Leakage	Imports are spending on foreign goods and services. If spending on foreign goods and services increase, less is spent on domestic goods and the flow of spending, production and income decreases.



10.6 Exports	Injection	If we sell more goods and services to the rest of the world, the flow of spending, production and income increases.
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### 3. ANSWER OF EXERCISE 3

#### 3.1. Question 1

1.1

1.1.1

Export income / X

Investments / I

Government expenditure/spending / G

1.1.2 It will restrict imports (decline)

Imports become more expensive

1.2

1.2.1 Income method / GDP (I)

1.2.2 VAT

Sins tax / excise duty

Fuel levy

1.2.3 GVA (GDP) at basic prices

1.2.4 GDP plus primary income from the rest of the world minus primary income to the rest of the world / GDP plus/minus net primary income

1.2.5  $1\ 576/3\ 385 \times 100 = 46,55\%$  or 47%

1.3

- The owners of the four factors of production can try to increase the quality thereof to make a better contribution to the economy
- Households can sell their factors of production at lower rates to help to lower the inflation rate and build the economy
- Households (labourers) can limit labour unrest and strikes where they usually claim unreal increases in payment (much more than the current inflation rate)
- Households can increase their savings and contribute indirectly to increased production in the manufacturing sector
- Households can limit their spending on luxury goods that will limit the aggregate demand and stabilise prices
- Households can pay their relevant taxes and claim better service delivery and infrastructure development



- Households can concentrate on buying South African goods to stimulate local production, future exports and increased penetration of markets internationally

#### 1.4

- The Keynesian (endogenous) view is that markets are inherently unstable, therefore government intervention is necessary to stabilise the economy
- They argue that changes in value of total expenditure bring about changes in demand
- Government can intervene through fiscal policy which includes taxes and government spending
- During a recession, government can increase its spending and reduce taxes. (stimulate)
- This will increase the level of economic activity for example production, employment, income and demand
- During a peak the government can increase taxes and reduce government spending
- This will result in reduced income, reduced demand for factors of production, and expenditure



# ECONOMICS MODULE 1 MULTIPLE CHOICE QUESTIONS

1. Savings flow back into the circular flow as ...
  - A investments.
  - B government spending.
  - C exports.
  - D imports.
  
2. Economic activities which create value-added products in all sectors is known as ... development.
  - A social
  - B employment
  - C mining
  - D industrial
  
3. The point where economic contraction is at its lowest is called a ...
  - A trough.
  - B peak.
  - C trend.
  
4. The government is responsible for ... sector provisioning.
  - A private
  - B foreign
  - C public
  - D financial
  
5. The total remuneration that the owners of production factors receive is called national ...
  - A production.
  - B expenditure.
  - C exports.
  - D income.



6. An indication of long-term growth in the economy is referred to as the ...
- A trend line.
  - B amplitude.
  - C length.
  - D trough.
7. Households in South Africa spend most of their income on ...
- A durable goods.
  - B semi-durable goods.
  - C non-durable goods.
  - D services.
8. The circular-flow model of an open economy shows the functioning of an economy that includes the ... sector.
- A public
  - B business
  - C foreign
  - D domestic
9. A diagram that shows expansion and contraction periods of economic activities is called a(n) ... cycle.
- A business
  - B economic
  - C productivity
  - D inflationary
10. An example of a social indicator is ...
- A education.
  - B business confidence.
  - C employment.
  - D production.



11. An increase in the real value of production in a country is known as economic ...
- A development.
  - B growth.
  - C integration.
  - D prosperity.
12. The national aggregate that represents the value added in each phase of production is called the gross domestic ...
- A expenditure.
  - B product.
  - C income.
13. Large public corporations or business entities in the public sector are known as ...
- A corporates.
  - B enterprises.
  - C parastatals.
14. In an economy where injections exceed leakages, the ...
- A production of goods and services will decrease.
  - B national income will increase.
  - C national income will decrease.
  - D gross value added in production will decline.
15. An exchange rate system where the forces of supply and demand entirely establish the value of a currency is called a ... exchange rate system.
- A fixed
  - B managed
  - C free-floating





# ANSWERS TO ECONOMICS MODULE 1

## MULTIPLE CHOICE QUESTIONS

1. A
2. D
3. A
4. C
5. D
6. A
7. D
8. C
9. A
10. A
11. B
12. B
13. C
14. B
15. C

**END OF MODULE 1**

