

Telematic Schools Project



2022 SUBJECT WORKBOOK Grade 11



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



forward together
sonke siya phambili
saam vorentoe



BROADCAST SESSIONS

GRADE 11

 National Account Aggregates
 Macro-economic Multiplier

Session	Date	Time	Topic
English	23/02/2022	16h00-17h00	National Accounts
Afrikaans	24/02/2022	16h00-17h00	Nasionale Rekeninge
English	07/03/2022	16h00-17h00	The Multiplier
Afrikaans	08/03/2022	16h00-17h00	Die Vermenigvuldiger



INTRODUCTION AND TOPICS

INTRODUCTION

This workbook will focus on the National Account Aggregates and the Macroeconomic Multiplier.

The focus in Grade 11 will be more on concepts and general terminology within these topics.

You are therefore expected to know and understand:

- The concepts National vs Domestic
- Production
- Income
- Injections
- Leakages
- 2 sector vs 3 and / or 4 – sector models
- Investment multiplier
- Formulae to calculate the multiplier
- The Keynesian Graph
- Autonomous expenditure

Topics	Description
National Income	The total value of all the incomes earned by the citizens of the country both inside and outside of the country

AND

Macroeconomic Multiplier	The Spill-over effects of how the injected expenditure will ‘snow-ball’, leading to economic growth.
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**OVERALL CONCEPTS FOR BOTH LESSONS****SUMMARY****WHAT YOU SHOULD KNOW****METHODS TO CALCULATE GDP:****• PRODUCTION**

- ✓ Sectors of the economy (stages of production) is core
- ✓ Added values at each stage of production

• INCOME

- ✓ Factors of Production is core
- ✓ Income as earned by factors of production

• EXPENDITURE

- ✓ Participants in the economy
- ✓ Who spends money in the economy?

• CONVERTING GDP at basic prices to GDP at market prices**• CONVERTING GDP to GNP****CONCEPT : 1**

- **Domestic Product**

CONCEPT 2

- **National Income**

CONCEPT 3

- **Macroeconomic multiplier**

CONCEPT 4

- **Circular Flow**

CONCEPT 5

- **Marginal Propensity (Consume or Save)**



INTRODUCTION: NATIONAL ACCOUNTS

- National Accounts deal with the calculation (recording) of:
 - Production (includes sectors of the economy: Primary, Secondary and Tertiary),
 - Expenditure (by participants in the economy) and
 - Income generated (revenue earned by resources or factors of production) by the economy.
- They are an important means to measure economic growth.
- The most important of these Aggregates being the Gross Domestic Product.



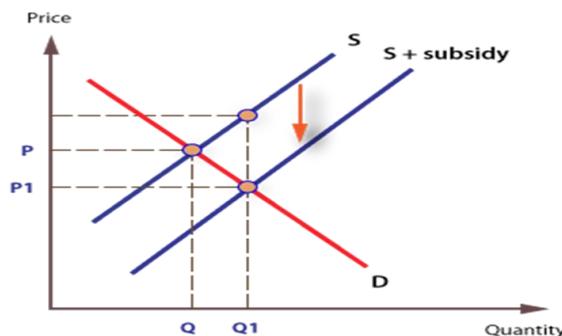
NATIONAL INCOME TERMINOLOGY

Term	Definition / Description
Final goods	goods that are ready for consumption by the participants in the economy
Intermediate Goods	goods that are used as inputs to produce other goods and services
Double counting	occurs when intermediate products are added to final products and will cause national accounts to reflect an incorrect higher total
Gross Domestic Product	total number of final products produced within the borders of the country
Gross National Income	total income earned by the citizens of a country both inside and out of the country



NATIONAL INCOME TERMINOLOGY

Term	Definition / Description
Residual item	balancing item due to errors and omissions
Taxes on production	refers to taxes on production not linked to a specific product
Taxes on products	are payable per unit of some good and service e.g. VAT
Subsidies on production	are not linked to specific goods and services
Subsidies on products	financial incentives to help struggling industries produce





METHODS OF CALCULATING NATIONAL INCOME

PRODUCTION METHOD:

Also known as **value added** as the value of final goods and services is made up of the values added by each stage of production or economic sector.

Primary sector:

- deals with the extraction of raw materials

Secondary sector:

- transforms raw materials into final goods and services

Tertiary sector:

- distributes the final goods and services



METHODS OF CALCULATION CONTINUED

INCOME METHOD:

This method takes a look at the contributions made by the various **factors of production**.

- Compensation paid to employees → Salaries & wages

✓ **Key word:** Compensation

- Net surplus → Net profit after tax

✓ **Key word:** Surplus

- Consumption of fixed capital → Depreciation

✓ **Key words:** Fixed Assets



METHODS OF CALCULATION CONTINUED

EXPENDITURE METHOD:

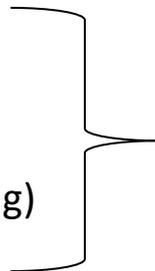
This method looks at the amount **spent** by each of the **participants** within the circular flow.

- Consumer expenditure (**H**) → C
- Government expenditure (**G**) → G
- Investment expenditure (**B**) → I
- Exports → X
- Imports (**F_s**) → M (Z)

This is similar to the GDP formula taught in Grade 10.

To Remember:

- **Ex + portation** (Exiting)
- **In + portation** (Incoming)



Foreign Sector / International Trade.
Exports = (+)
Imports = (-)



PRODUCTION METHOD CALCULATION

- Primary sector
- + Secondary sector
- + Tertiary sector
- = **GDP @ basic prices**
- + **Tax on produces**
- Subsidies on products
- = **GDP @ market prices**

CONVERTING GDP TO GNP

- GDP @ market prices
- + Primary income from the rest of the world
- Primary income to the rest of the world
- = GNP @ market prices

INCOME METHOD CALCULATION

- Compensation paid to employees (salaries and wages)
- + Net surplus (net profit after tax)
- + Consumption of fixed capital (depreciation)
- = **GDP @ factor cost**
- + Taxes on production
- Subsidies on production
- = **GDP @ basic prices**
- + Taxes on products
- Subsidies on products
- = **GDP @ market prices**



TAKE NOTE



Important Fact to consider:

It is important to note that while the national income figures are not **without problems**. The figures are not always accurate. For instance, the following are noted as problems in determining the calculation of national income figures:

- Double Counting
- Excluded products
- Accuracy
- Nominal vs Real national income, etc.



EXERCISE 1 | NATIONAL ACCOUNTS CONVERSIONS



WORKSHEET

NATIONAL INCOME

Complete the following activities after you have studied through your notes.

ACTIVITY ONE

- 1.1 Briefly explain the following concepts:
- GDP @ basic price (1)
 - GDP @ market price (1)
 - GDP @ factor cost (2)
- 1.2 What is the purpose of *subsidies* on products and production? (2)
- 1.3 How do we convert *GDP* to *GNP*? (2)
- 1.4 List an example of a *tax on product* and a *tax on production*. (2)

ACTIVITY TWO

2.1 Study the information below and answer the questions that follow.

GDP according to economic activity:

	R million
● Primary sector	246 380
● Secondary sector	317 965
● Tertiary sector	2 750 633
● Taxes on products	309 486
● Subsidies on products	17 558

- 2.1.1. Which method is used to calculate GDP? (1)
- 2.1.2. Calculate GDP at basic price. Show all calculations. (3)
- 2.1.3. Convert GDP at basic price to GDP at market price. Show all calculations. (4)



INTRODUCTION: Macroeconomic Multiplier

- Also known as the Ripple or Snowball effect
- Derived from the Marginal Propensity to Consume
- More spending by one person results into an income by the other
- Two elements are important: Consumption and Savings



THE MACROECONOMIC MULTIPLIER

DESCRIPTION:

The multiplier shows how an **increase** in spending (injection) produces a **more than proportional** increase in national income.

- The **multiplier effect** indicates the overall change in income due to the expenditure (investment) that took place.
- It is calculated **by multiplying the value of the multiplier by the total injection (investment)**.

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

For example, if you picked up a R100 and spend R75 and decide to save R25.

Then your marginal propensity to consume (mpc) = **0.75** and your marginal propensity to save (mps) = **0.25**.

Therefore: $mpc + mps = 1$

There are only **two things** one can do with new income and that is **spend** or **save** it.

NOTE:

- Marginal = Additional
- Propensity = Likelihood



MACROECONOMIC MULTIPLIER TERMINOLOGY

Term	Definition / Description
Injections	Cash injected into the economy
Leakages	Money withdrawn from the economy
Equilibrium	equilibrium exists when Aggregate Demand (AD) is equal to Aggregate Supply (AS)
A two-sector model	consists of households and businesses only
Marginal Propensity to Consume	An alignment to spend the additional income instead of saving it
Marginal Propensity to Save	An alignment to save the additional income instead of spending it
Keynesian Line	Also known as the Line of Equilibrium or a 45-degree line or $E=Y$

**WHAT YOU SHOULD KNOW****CONCEPTS TAUGHT WITH THE CIRCULAR FLOW:**

INJECTIONS: Money flowing into the economy

$$J = I + G + X$$

LEAKAGES: Money leaving the economy

$$L = S + T + M$$

EQUILIBRIUM: Where $J = L$

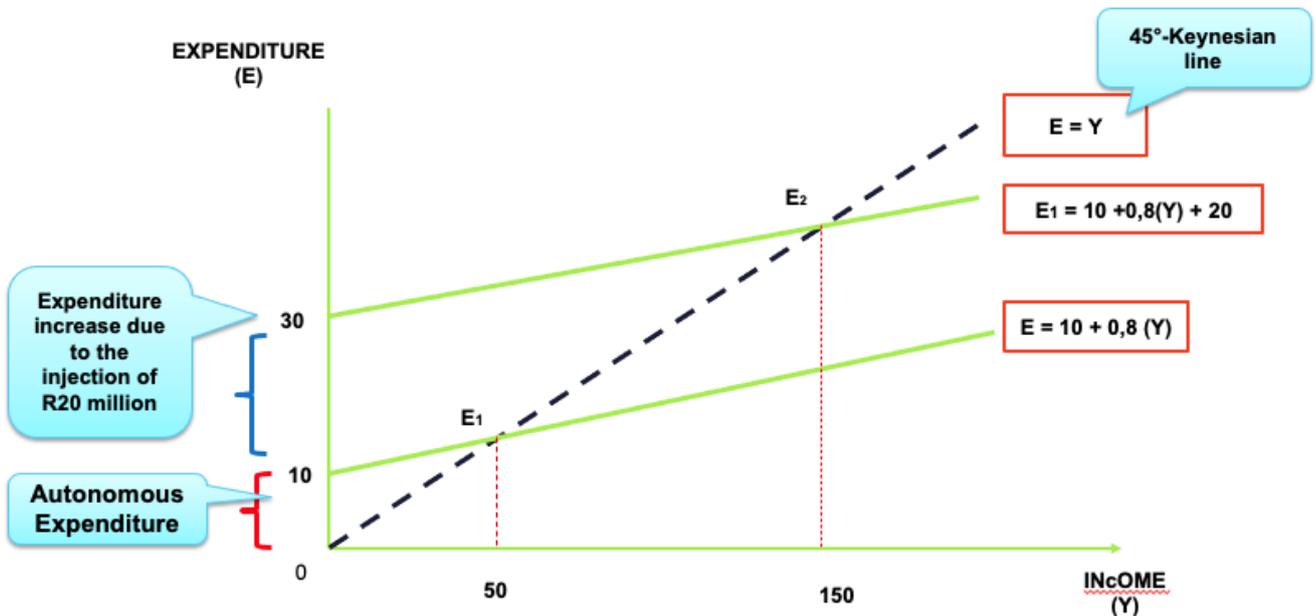
$$Y = C + I + G + (X - M)$$

- An increase in private consumer spending leads to an increase in economic activity.
- The government's main expenditure is on the salaries of civil servants and also on goods and services.
- GDP is the market value of all final goods and services produced within national borders within a certain period (usually a year).
- The GDP can be calculated in three different ways.
- These ways include the following: Income Method; Production Method and the Expenditure Method



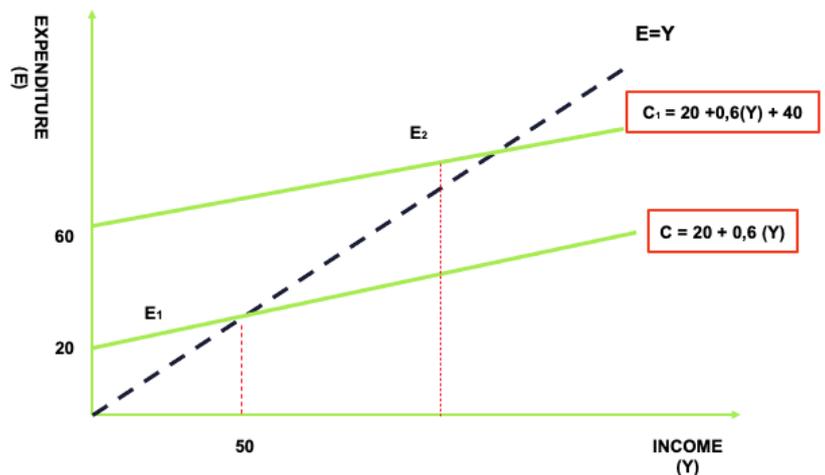
DRAWING THE GRAPH TO ILLUSTRATE THE MULTIPLIER PROCESS

The government investment of R20 million in the economy
 MPC=0.8



ACTIVITY

1. Name the value of autonomous consumption? =20
2. Identify the value of the mpc? = 0.6
3. What is the value of total injections into the economy? = 60 (20 + 40)
4. Calculate the value of the multiplier
 $k = 1/1-mpc$
 $= 1/0.4$
 $= 2.5$
5. Calculate the effect of the injections on the National income.
 $Y = 2.5 \times 60$
 $= 150$





EQUILIBRIUM IN A 2 – SECTOR MODEL

In a **2-sector model**, the following assumptions are made:

- No government present (No G)
- Households and businesses only (C + I)
- Closed economy
- No corporate savings

According to Keynes, equilibrium exists when Aggregate Demand (AD) is equal to Aggregate Supply (AS)

Keynes also assumes that all income is spent, and therefore income and expenditure are directly proportional

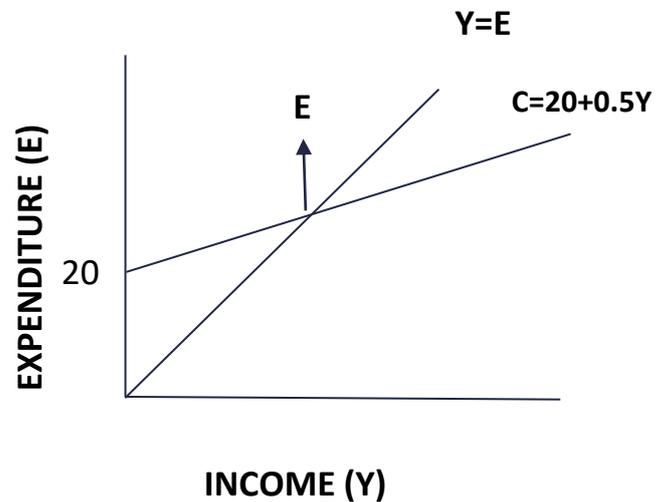


GRAPHICAL ILLUSTRATION OF THE KEYNESIAN MODEL

GRAPH EXPLAINED:

- $Y = E$ is called the line of equilibrium
- E is known as the point of equilibrium
- $C = 20 + 0.5Y$ means the following:
 - C is for consumption or total spending
 - Therefore, it is the total spent by businesses and households.
 - Businesses spent R20m
 - Households spend 50% of their income
 - Therefore, the $mpc = 0.5$

• THE KEYNESIAN GRAPH





CALCULATING THE EQUILIBRIUM

FORMULA:

$$K = 1/1-MPC$$

$$1/0.5$$

$$= 2$$

$$2 \times 20$$

$$= 40$$

Therefore, the equilibrium point is at R40m.

ALTERNATIVE METHOD:

$$C = 20 + 0.5Y$$

C is:

- $Y = 20 + 0.5Y$
- $Y - 0.5Y = 20$
- $0.5Y = 20$
- $Y = 20/0.5$

$$= 40$$



SUMMARY: MULTIPLIER

- ✓ **Expenditure is never zero** because there is always something we need to spend on.
- ✓ This is known as **autonomous consumption / expenditure**.
- ✓ This is **spending that is not dependent on income**.

- ✓ When **calculating the multiplier**, we look at the money that has been **spent** and not that which has been saved.

- ✓ The multiplier is **derived** from the marginal propensity to consume (mpc):
 - The size of the multiplier **depends** on the proportion of any increase in income that is spent.
 - The larger the mpc, the bigger the multiplier.
 - The smaller the mpc, the smaller the multiplier.
 - It is the money that stays in the economy.



EXERCISE 2 | MACROECONOMIC MULTIPLIER



WORKSHEET

MACROECONOMIC MULTIPLIER

Complete the following activities after you have studied through your summary notes.

ACTIVITY ONE

Complete the following Activities:

1. If $mpc = 0.1$ then $mps =$ _____
2. If $mps = 0.5$ then $mpc =$ _____
3. If $mpc = 0.3$ then $mps =$ _____
4. If $mps = 0.65$ then $mpc =$ _____

ACTIVITY TWO

CALCULATE THE VALUE OF THE MULTIPLIER:

- 1.1 $mpc = 0.9$
- 1.2 $mpc = 0.6$
- 1.3 $mps = 0.3$



RECAP OF THE TWO LESSONS

Summary 01

Real National Income is a measure of Economic Growth

Summary 02

To calculate the national income, we make use of 3 methods: Income, Production and Expenditure Methods

Summary 03

The Macroeconomic Multiplier is about Consumer Spending and how this injection generates more Income for the economy

Summary 04

A model developed by John Maynard Keynes, hence it is called a Keynesian Multiplier

