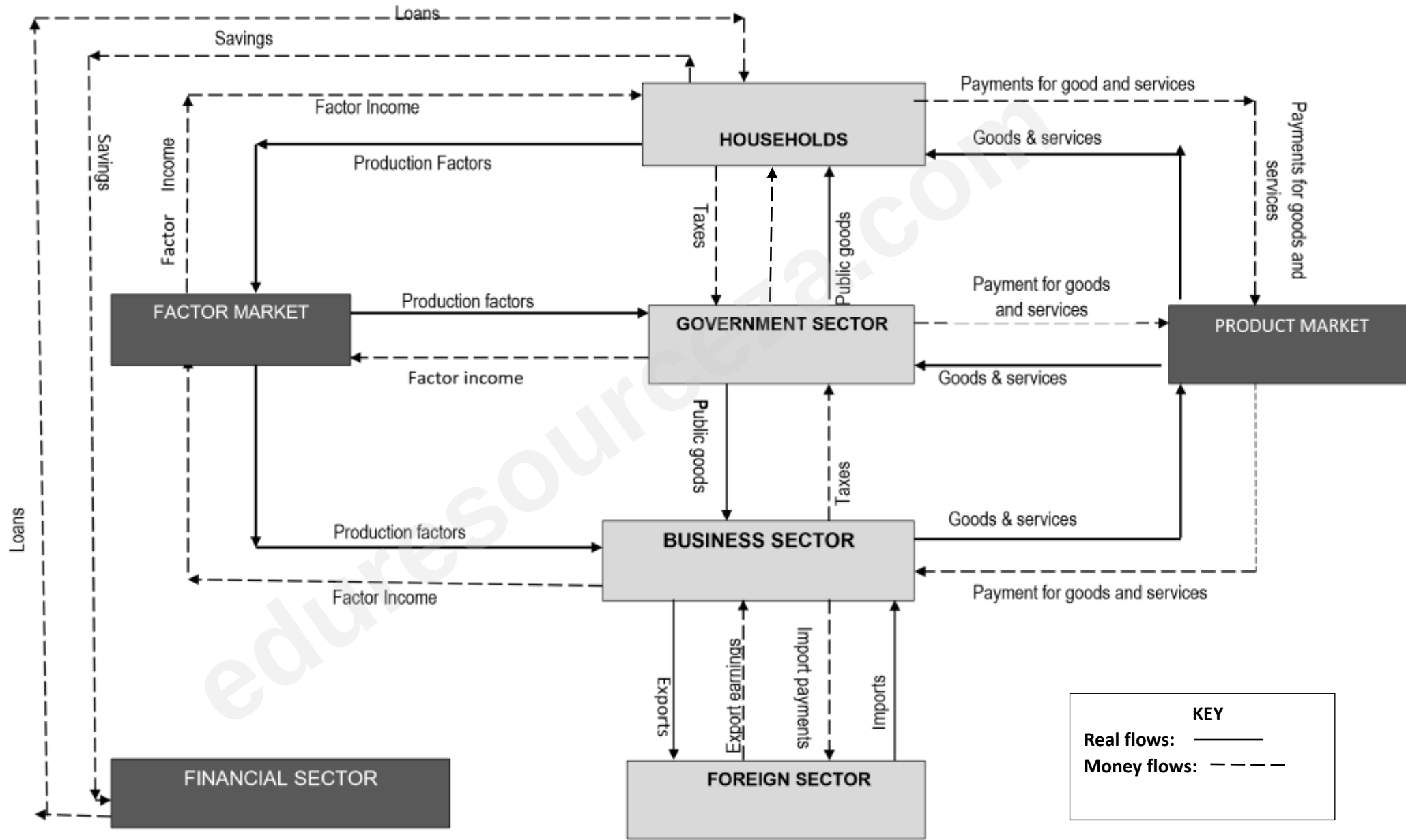




ECONOMICS NOTES
TOPIC 1: CIRCULAR FLOW
GRADE: 12
YEAR: 2024



TOPIC 1: CIRCULAR FLOW

Circular flow is a model that show the relationships between income, production and expenditure. It is a representation of how the economy works.

UNIT 1: PARTICIPANTS IN THE OPEN ECONOMY

- Open economy is an economy that engages in international trade, therefore it has four participants which are:

Households

- Households are the primary (main) participants in the economy and the consumers of goods and services.
- They are the owners of factors of production which are land, labour, capital and entrepreneurship
- They sell their factors of production on the factor market to government and firms.
- They receive payments (incomes) for their factors of production (rent, wages, interest and profit)
- They pay tax to government and buy goods and services from the business sector

Business Sector / firms/ producers

- Business buy factors of production to produce goods and services
- Businesses sell goods and services on the product market to household and government
- They pay tax to government from which they receive public goods such as infrastructure

Government/ Public sector / State

- Government refers to different levels of governance namely local, provincial and national level
- It buys factors of production from households on the factor market.
- It uses the factors of production bought to produce public goods and services e.g. education, health etc.
- It also buys goods and services from the business sector on the product market.
- It receives tax revenue from households, firms and foreign sector.

Foreign sector

- Foreign sector consists of all other countries in the world which can engage in business transactions with South Africa
- Foreign sector sells goods and services to the domestic market and this are called imports
- South African firms sell goods and services to the foreign sector and this are called exports
- Exports bring money in to the country while imports takes it out of the country

Financial sector

- Financial sector consists of banks, insurance companies, JSE and Pension Funds.
- It act as a link between households and firms who have surplus money and others in the economy who require funds.
- The money that households and firms provide to the financial sector is referred to as savings.
- Businesses can borrow money from the financial institutions and use it to purchase capital goods
- This spending on capital equipment by firms is referred to as investment.

REAL AND MONEY FLOWS IN THE CIRCULAR FLOW

Three most important flows in circular flow are production, expenditure and income. These flows consist of real and money flows

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- **Real flows**

- Factors of production: from households to firms and government.
- Goods and services: from firms to consumers and government.
- Public goods: from government to firms, household and foreign sector
- Imports: from foreign sector to business sector.
- Exports: from business sector to foreign countries.

- **Money flows**

- Incomes for factors of production: from firms and government sector
- Import payment: from business sector to foreign sector
- Export earnings: from foreign sector to the business sector
- Taxation: from business sector, households, foreign sector to government
- Payment for goods and services: from government and households

LEAKAGES AND INJECTIONS IN THE CIRCULAR FLOW

- **LEAKAGES ($L = T + S + M$)**

- Leakages are all economic activities that withdraws money from the circular flow.

These are:

- **Taxation (T)**: Households pay income tax to government on their incomes earned from selling factors of production. Government also taxes expenditure on goods and services e.g. VAT.
- **Savings (S)**: refers to part of the income that is not consumed (spent). The money leaves the circular flow to the financial institutions such as banks.
- **Import payment (M)**: this is money spend on foreign goods and services, therefore the money is withdrawn from the economy (circular flow) to foreign countries.

INJECTIONS ($J = G + I + X$)

Injectors are all economic activities that add money in to the economy (circular flow). **These are:**

Government expenditure (G): this is money spent by government on providing public goods and services e.g. schools, roads etc. this increases the total spending on goods and services in the country (for government to build a road some goods and services will have to be bought).

- Government expenditure represents the spending of tax revenue received by government. This shows that taxes (leakage) comes back into the circular flow as government spending
- **Investments (I):** This represents money spent by firms to buy capital goods such as machinery, land and equipment
- Producers/firms obtain loans from the financial sector to buy such capital goods
- This shows that savings (L) come back into the circular flow as Investments (**J**).
- **Export earnings (X):** money earned from other countries when goods and services were sold by South Africa. This represents earning of foreign exchange which is important for the payment of imports
- Export earnings show that the money spent as imports often comes back into the circular flow as payments for exports. This is because one country can sell one product to South Africa but it may also buy another product from South Africa.

UNIT 2: FOUR TYPES OF MARKETS IN THE CIRCULAR FLOW

(Discuss in detail the markets within the FOUR-SECTOR model) **Possible essay**

- **Product /goods/output market**

- It is a market where goods and services are bought and sold.
- Firms, government, and foreign sectors supply goods and services.
- These goods and services represent real flow in a circular flow
- Consumers, firms, government, and foreign sectors buy goods and services.
- The payments for goods and services represent the money flow.

- **Factor market/resource market/input market**

- It is a market where factors of production are traded (bought and sold).
- Households are the owners of factors of production and they sell them to firms, the government, and the foreign sector.
- The factors of production are labour, entrepreneurship, capital, and land and they are exchanged for wages, profit, interest, and rent.

- **Financial market**

- These markets render financial services to the other participants in the economy.
- It gathers surplus funds and lends it to those who need funding.
- Two kinds of financial markets are **money** and **capital markets**.
- Money market is a market for short-term loans and savings (three years and shorter)
- It includes inter-banking lending for a period as short as overnight.
- The securities traded include short-term deposits, short-term debentures, and treasury bills.

- Capital market is a market for long-term savings and loans.
- JSE is a key institution in this market as it trades in shares.
- Examples of securities traded in this market are long-term deposits, mortgage bonds, shares, and unit trusts.

- **Foreign exchange market**

- It is a market where currencies are exchanged for one another e.g. rands for dollars.
- It originates when one country imports goods from another country and domestic currency has to be exchanged in order to pay for such imports.
- It is a multi-national market as the currencies of all the countries are traded in this market.
- Foreign exchange can be bought and sold at banks and foreign exchange agencies.

UNIT 3: NATIONAL ACCOUNT AGGREGATES

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- The National Accounts Aggregate is a summary of a record of a country's economic activities which are production, income, and expenditure.
- Therefore, a country's GDP can be calculated using the production method, income method, and expenditure method.

- **Production method / Value added method (GDP (P))**

- Production takes place in primary, secondary and tertiary sector.
- The value that is added by each sector is added together. That is why this method is called value added method.
- Only final products are counted, if intermediate goods can be added there will be double counting of the value of some products.
- Double counting is when the value of a product is counted twice e.g. as an input and as a final product.

Gross value added in R millions	R million
Primary sector	289 504
Secondary sector	510 520
Tertiary sector	1 605 591
GDP at basic prices	?
+ Taxes on products	268 902
- Subsidies on products	13 083
GDP at market prices	?

- **Income method**

- When firms produce goods and services they employ factors of production.
- Therefore, the value of income in the economy is equal to GDP at factor cost.
- **These factor costs are:**
- compensation of employees which is wages and salaries paid to workers,
- Net operating surpluses which are rent, interest on capital and profit of entrepreneurs before taxation.
- Consumption of fixed capital which is the depreciation value of fixed asset

Income in R million	R million
Compensation of employees	1201990
Net operating surplus	821783
Consumption of fixed capital	350982
Gross value added (GDP) at factor cost	?
other taxes on production	46213
Subsidies on production	8478
Gross value added at basic prices	?
Plus: taxes on products	263988
Less: subsidy on products	15044
GDP at market prices	?

- **Expenditure method (GDP (E))**

- Expenditure on GDP measures the total money spent on final goods and services produced within the country in a year.
- Expenditures by all participants in an open economy are added together

Expenditure on GDP	R millions
Final consumption expenditure by households (c)	1575930
Final consumption expenditure by general government (G)	573470
Gross capital formation /INVESTMENT	517009
Residual item	298
Gross domestic expenditure	?
+ Export of goods and services (X)	727721
Less: Import of goods and services (M)	732994
Expenditure on GDP at market prices	?

NB: The three methods should give the same value of GDP for the given period.

NATIONAL ACCOUNT CONVERSIONS

- All countries in the world (including South Africa), use the same methods of measuring GDP.
- The System of National Accounts (SNA) is an internationally agreed standard of measuring the level of economic activity.
- The SNA is recommended by the United Nations and, hence used in all countries.
- It enables the economic information of different countries to be comparable.
- The economic data collected through the use of SNA can give information on the level of development of a country.
- There are **three kinds** of prices used in national accounts namely: basic prices, factor costs (factor prices), and market prices
- **Basic prices:** They are the initial prices in the production of final goods and services before considering any taxes and subsidies
- They represent the amount received by the producer from a consumer when a unit of their products is bought (market price – taxes + subsidies)
- **Factor cost (price):** the total cost of factors of production used to produce particular goods and services (rent, wages/salaries, rent, profit)
- **Other taxes on production:** taxes related to labour employed e.g. payroll taxes, or taxes related to other assets used in production e.g. licenses
- **Other subsidies on production:** for example, employment subsidies given to producers to enable them to employ more workers.
- **Market prices:** prices paid by the consumers to obtain particular products (and they consider tax and subsidy on products).
- **Tax on products:** Indirect taxes on final goods and services e.g. VAT, customs duties, excise duties, etc. They are paid by the consumer of final goods and services
- **Subsidy on products:** e.g. subsidy on a particular product to lower consumer price.

NOMINAL GDP vs REAL GDP

- **Nominal GDP:** is also referred to as GDP at current prices.
- It gives the monetary value of prices of the goods and services produced (i.e. in rands or dollars etc.)
- The prices include the effect of inflation (inflation not taken into consideration)
- **Real GDP:** is also referred to as GDP at constant prices
- The GDP figures have been adjusted for inflation, meaning the effect of inflation has been removed.

CONVERTING DOMESTIC FIGURES TO NATIONAL FIGURES

GDP TO GNI

GDP + (plus) primary income from the rest of the world
 - (minus) primary income to the rest of the world

Example:

	R millions
GDP at market prices	2661 434
+ Primary income (factor income) from the rest of the world	40123
- Primary income (factor income) to the rest of the world	98930
= GNI at market prices	2602627

- **Gross domestic product** is the market value of all finished goods and services produced within the borders of a country in a year.
- **Gross national income** is the total income earned by the permanent residents of a country in a year.

CONVERTING GDP TO GNP

GDP + primary income from the rest of the world
 - primary income to the rest of the world

Example:

	R millions
GDP at market prices	2661 434
+ Primary income (factor income) from the rest of the world	40123
- Primary income (factor income) to the rest of the world	98930
= GNP at market price	2602627

CONVERTING GNP TO GDP

GNP – (minus) primary income from the rest of the world
 + (Plus) primary income to the rest of the world

- **Gross national product** is the market value of all finished goods and services produced by the permanent residents of a country over a year.

Example:

	R millions
GNP at market prices	2602627
- Primary income (factor income) from the rest of the world	40123
+ Primary income (factor income) to the rest of the world	98930
= GDP at market prices	2661434

UNIT 4: THE MULTIPLIER

A multiplier process is whereby a small change in expenditure results in a proportionally larger increase in income/output.

- **Multiplier** the ratio of change in income to the ratio on change in injections.
- Multiplier process happens in the circular flow (economy) when a change in the level of injections leads to change in level of output/ national income.

• CALCULATION OF THE MULTIPLIER

- The size of the **K** is dependent on how much of the extra **Y** is **consumed**.

Consumption function: $C = \bar{C} + cY$ or $AE = \bar{A} + cY$

- $\bar{C}$ or $\bar{A}$ = autonomous consumption / consumption (spending) that is not dependent on income.
- This consumption is never zero even when an individual has no income.
- cY = induced consumption is consumption that dependent on income.
- cY consists of mpc and Y (income). This is the part of the consumption function that determines the size of the multiplier.

• TWO-SECT ECONOMY

- A simple economy where participants are Households and Firms
- Aggregate expenditure (AE) = $C + I$
- Leakage = **S** and Injection = **I**
- In multiplier, Income Y is = 1, so **mpc + mps** must always equal to 1 (consumption plus leakage)

SCENARIO

In a two sector economy, the citizens spend 75% of their income, the autonomous consumption ($\bar{A}$) is 25m. The initial equilibrium income (**Ye**) is 100. A particular firm invest an amount of 20 m in steel production in the economy.

- In a two-sector economy people either **save** or **spend** their income.
- The size of α or **K** can be determined using MPC or MPS formulae.
- In the economy above, the size of the multiplier will be:
- $K = 1 / (1 - MPC)$ **OR** $K = 1 / MPS$
 $= 1 / (1 - 0.75)$ $= 1 / 0.25$
 $= 1 / 0.25$ $= 4$
 $= 4$
- This means any ΔJ will multiply 4 times before its effect come to an end (before the new equilibrium income is reached).
- Original equilibrium income (**Ye**)

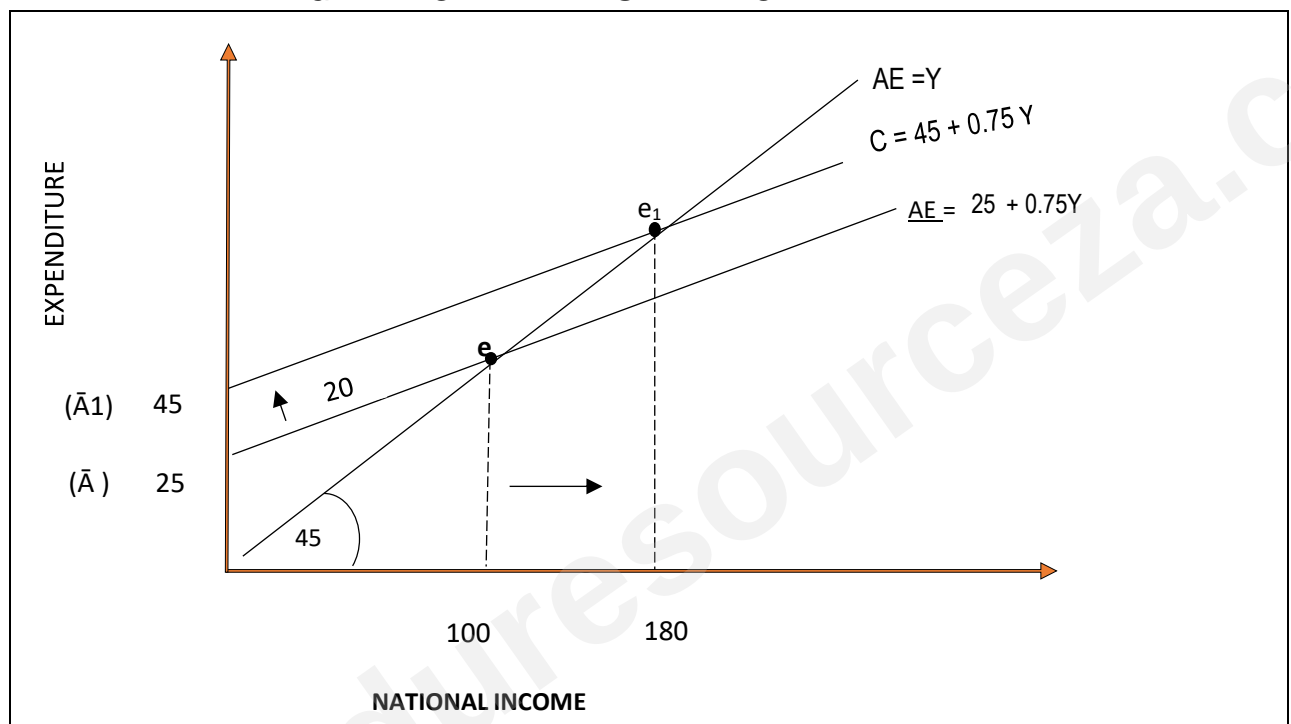
$$\begin{aligned}
 - \quad Y_e &= \frac{1}{(1 - \text{mpc})} \times \bar{A} \\
 &= \frac{1}{(1 - 0.75)} \times 25 \\
 &= \frac{1}{0.25} \times 25 \\
 &= 4 \times 25 \\
 &= 100
 \end{aligned}$$

NEW equilibrium income (Y_{e1})

$$\begin{aligned}
 Y_{e1} &= \frac{1}{(1 - \text{mpc})} \times \bar{A} \\
 &= \frac{1}{(1 - 0.75)} \times 45 \\
 &= \frac{1}{0.25} \times 45 \\
 &= 4 \times 45 \\
 &= 180
 \end{aligned}$$

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GRAPHICAL REPRESENTATION



DETERMINING THE SIZE OF MULTIPLIER USING OTHER FORMULA

$$\begin{aligned}
 K &= \frac{\Delta Y}{\Delta E} \\
 &= \frac{180 - 100}{45 - 25} \\
 &= \frac{80}{20} \\
 &= 4
 \end{aligned}$$

DETERMINING THE CHANGE IN INJECTIONS/EXPENDITURE

$$\begin{aligned}
 \Delta J / \text{ or } \Delta E &= \frac{\Delta Y}{K} \\
 &= \frac{180 - 100}{4} \\
 &= \frac{80}{4} \\
 &= 20
 \end{aligned}$$

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DETERMINING THE CHANGE IN INCOME

$$\begin{aligned}
 \Delta Y &= K \times \Delta J \\
 &= 4 \times 20 \\
 &= 80
 \end{aligned}$$

- MULTIPLIER IN A THREE SECTOR ECONOMY**

- A three-sector economy has three participants namely: households, firms and government. In other words, it is a **closed economy**.

- The formula for calculating the multiplier (size) is

- $$K = \frac{1}{(MPS + MRT)}$$

- MPS: Marginal propensity to save

- MRT: Marginal rate of taxation

- NB: taxation is a part of the formula because in a three sector economy there are two leakages which are **savings (mps)** and **taxation (mrt)**

SCENARIO

In a three-sector economy if the citizens saves 25% (0.25), the government's marginal tax rate is 15%. What will be the size of the multiplier? Mpc 0,6

- $$K = \frac{1}{(MPS + MRT)}$$
- $$= \frac{1}{(0,25 + 0,15)}$$

$$\begin{aligned}
 - &= \frac{1}{0.4} \\
 - &= 2.5
 \end{aligned}$$

- The effect of the second leakage which is tax is that it further reduces the amount available for consumption (MPC). Therefore the size of multiplier will be reduced compared to the one in the two sector economy.
- It will be impossible for the MPC to be as high as before the introduction of tax.

MULTIPLIER IN FOUR -SECTOR ECONOMY

- In a four–sector (open) economy there are three leakages which are **savings, taxes and imports**. These leakages are part of the formula to calculate the size of the multiplier which is:

$$K = \frac{1}{(MPS + MRT + MPM)}$$

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- MPM : Marginal Propensity to Import
- MPS: Marginal Propensity to Save
- MRT: Marginal Rate of Tax

Scenario

If in an open (four -sector) economy the citizens save 25%, the rate of importing goods is 8% and the government 'marginal tax rate is 15%, what is the multiplier?

$$\begin{aligned}
 K &= \frac{1}{(MPS + MRT + MPM)} \\
 &= \frac{1}{(0, 25 + 0, 15 + 0, 08)} \\
 &= \frac{1}{0.48} \\
 &= 2.1
 \end{aligned}$$

- The effect of the third leakage (MPM), makes the MPC to decrease to a level lower than in the three-sector economy.
- This is because the consumption of imports lead to the decrease in the consumption of locally produced goods. In other words, the MPM in addition to MPS and MRT leads to large reduction of MPC and therefore, a smaller size of the multiplier.