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COURSE – ECS 1601

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WHO MADE THIS MATERIAL POSSIBLE?



| Unit. | Topic. | Description. | Est Reading Time (mins). |
|--------------|--|---------------------|---------------------------------|
| 1 | Production, Income and Spending | | 30 |
| 2 | Monetary Sector | | 36 |
| 3 | Government Sector | | 28 |
| 4 | Foreign Sector | | 40 |
| 5 | Measuring the Performance of the Economy | | 24 |
| 6 | Simple Keynesian Model | | 45 |
| 7 | Keynesian Model with the Government and Foreign Sector | | 45 |
| 8 | Aggregate demand and supply curves | | 36 |
| 9 | Inflation | | 30 |
| 10 | Unemployment | | 18 |
| 11 | Economic growth | | 8 |



Unit 1: Production, Income and Spending

The economy is driven by three flow variables, these flows are known as the **three vital flows** and include:

- Production
- Income
- Spending

These factors all happen at the same time, they all feed off each other and stimulate each other.

Factors of Production – are used in the production process to create goods and services for sale. These are natural resources (land), labour, capital, entrepreneurship and technology.

Income Factors of Production – all F.O.P earn incomes for the service provided. Income includes rent – for land, wages or salaries – for labour, interest – for capital and profit – for entrepreneurship.

Macroeconomics studies variables that affect the economy as a whole vs **microeconomics** that studies individual parts of the economy, for example, certain industries, companies and products.

Production, Income and Spending

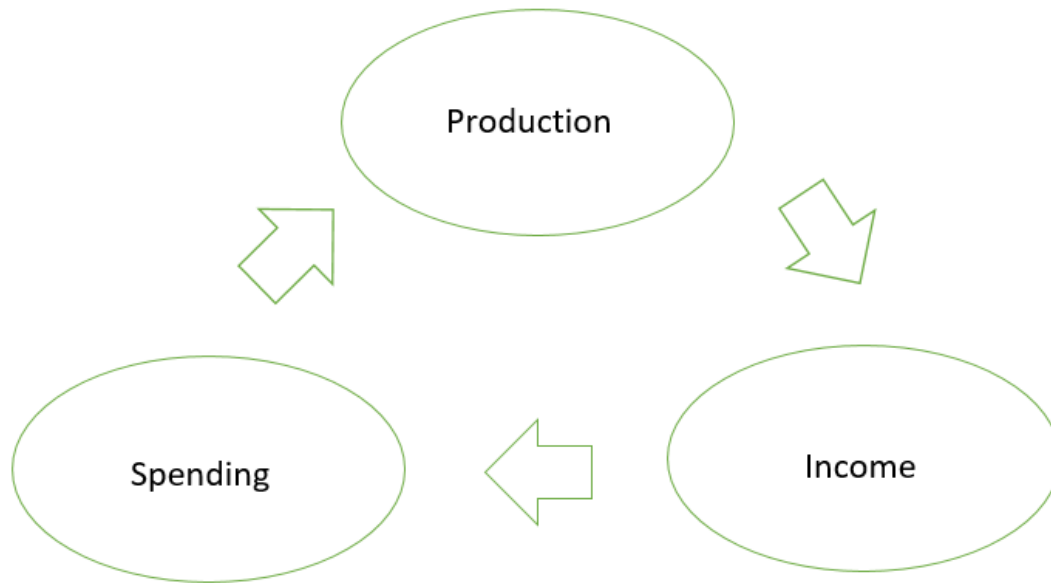
The purpose of production is to satisfy consumers' demands. Production will react and supply demand, not the other way around.

The economic process is as follows:

- Households own the factors of production
- Firms use factors of production (scarce resources) to produce goods and services
- Firms pay income (returns on factors of production) to the households for the factors of production
- Households use the income to spend on goods and services



The three major flows in the economy



Production generates an income for the various factors of production. This income is then spent on available goods and services. All these flows are happening at the same time.

The main participants (**sources of spending**) in the economy are:

- Households
- Firms
- Government
- Foreign sector

They all spend, and therefore, they all earn an income. They **exchange income** in the marketplace, for either goods and services in the goods market or factors of production in the factor market.

Production, income and spending are what we call “flows” or “flow variables”. We differentiate between flow variables and stock variables:

Stock variables – have no time dimension and are measured at one point in time. For example, a shopkeeper taking stock of all goods in the shop at one particular time.

Examples: Wealth, inventories, savings account balance

Flow variables – on the other hand, have a time dimension and can only be measured over a period of time. For example, the same shopkeeper calculating profit or loss, the calculation is done for a period of time such as 1 month.

Examples: Income, production, spending



The Sources of production: the factors of production

Examples of the four main factors of production:

1. Natural resources
 - a. Land
 - b. Raw materials
2. Labour
 - a. Human resources
3. Capital
 - a. Capital equipment
4. Entrepreneurship
 - a. The driving force that combines the above factors to produce
5. Technology is known as the fifth factor of production. We assume that technology can only improve and therefore will only boost or increase production.

Note: Money is **not a factor of production**. Money cannot be used to produce goods and services, money is exchanged for factors of production to produce goods and services.

How should we produce these goods and services? We have two options for production, namely: capital-intensive or labour-intensive production. If the production process uses predominately machinery and capital equipment for production, it is referred to as being **capital-intensive production**. In contrast, if production is more labour orientated, then the technique is known to be **labour intensive**.

Sources of income: the remuneration of factors of production

As previously indicated, income is generated through production. The only way to increase income is to increase production. There are four types of income, each associated with a different factor of production.

- **Natural resources:** Rent
- **Labour:** Wages
- **Capital:** Interest
- **Entrepreneurship:** Profit



Sources of spending: the four spending entities

The third component in the flow diagram is spending or expenditure. There are four sources of spending in the economy: households, firms, the government and the rest of the world or foreign sector.

1. Households:

Households are defined as all the people who live together and who make joint decisions or are subject to the economic decisions of others. Every person living in the economy is deemed to be part of a household. The household is the **basic decision-making unit** in an economy. Members of households are called **consumers** because they consume goods and services produced by firms. The act of consuming goods and services is called **consumption**. All 4 factors of production are owned by consumers, who are members of households. The households (consumers) sell their factors of production (eg: labour) to firms. Firms then pay an income to these consumers who in turn use this income to buy and consume.

The symbol used for consumption is “C”

We assume that consumers are “rational” meaning they will always attempt to maximise their consumption.

2. Firms:

Firms produce the goods and services that consumers demand. Whereas households are engaged in consumption, firms are engaged primarily in production. Firms employ the factors of production and transform them into goods and services. Firms are the productive units in an economy. Firms will decide how goods and services are produced, via the pricing mechanism. Firms operate with the sole intention of realising a profit.

One of the factors of production purchased by firms is **capital**. This includes goods such as man-made factors of production like machinery and equipment which are used to produce goods and services.

The act of purchasing capital goods is called Investment. Firms invest in the economy and this is denominated by the letter “I”.

3. The Government:

The third main source of spending in the economy is the government which includes, local, regional/provincial and national government. Contrary to households and firms who are assumed to act rationally, the assumption is that government does not always act in a rational manner.



The government also purchases factors of production (primarily labour) from households in the factor market as well as goods and services from firms in the goods market. In return, government provides households and firms with public goods and services such as defense, law and order and roads. These goods and services are financed mainly by the collection of taxes from income and expenditure of households and firms. The government also transfers some of its tax revenue directly to needy people such as old-age pensioners.

Government's economic activity involves three important flows:

1. Government expenditure on goods and services – denoted by “**G**”
2. Taxes levied on (paid by) households and firms – denoted by “**T**”
3. Transfer payments, i.e the transfer of income and expenditure from certain individuals and groups (wealthy) to other individuals (poor)

4. The foreign sector:

The fourth source of spending is the rest of the world, known as the foreign sector. South Africa's economy is considered an open economy. This means that South Africa trades goods and services with the rest of the world. The foreign sector is made up of all countries and institutions outside our borders.

The flow of goods and services between South Africa and the foreign sector are **exports “X”** and **imports “Z”**. Exports are goods produced (domestically) within a country and sold to the rest of the world while imports are goods produced in the rest of the world but purchased for use in the domestic economy. When we export goods and services, the spending originates in the rest of the world, this spending represents an income for our exporters. In the case of imports, the spending originates in South Africa. This spending by importers represents the income of the other countries' exporters.

The various flows (exports and imports) between South Africa and the rest of the world are summarised in the **Balance of Payments**.

All trade of goods and services, as well as factors of production, needs to take place in a market. A market does not need to be a physical place, for example, telesales would also be considered a market.

Market – A market is any contact or communication between potential buyers and potential sellers of a good or service.

We divide all trade into either the **goods market** or the **factor market**.

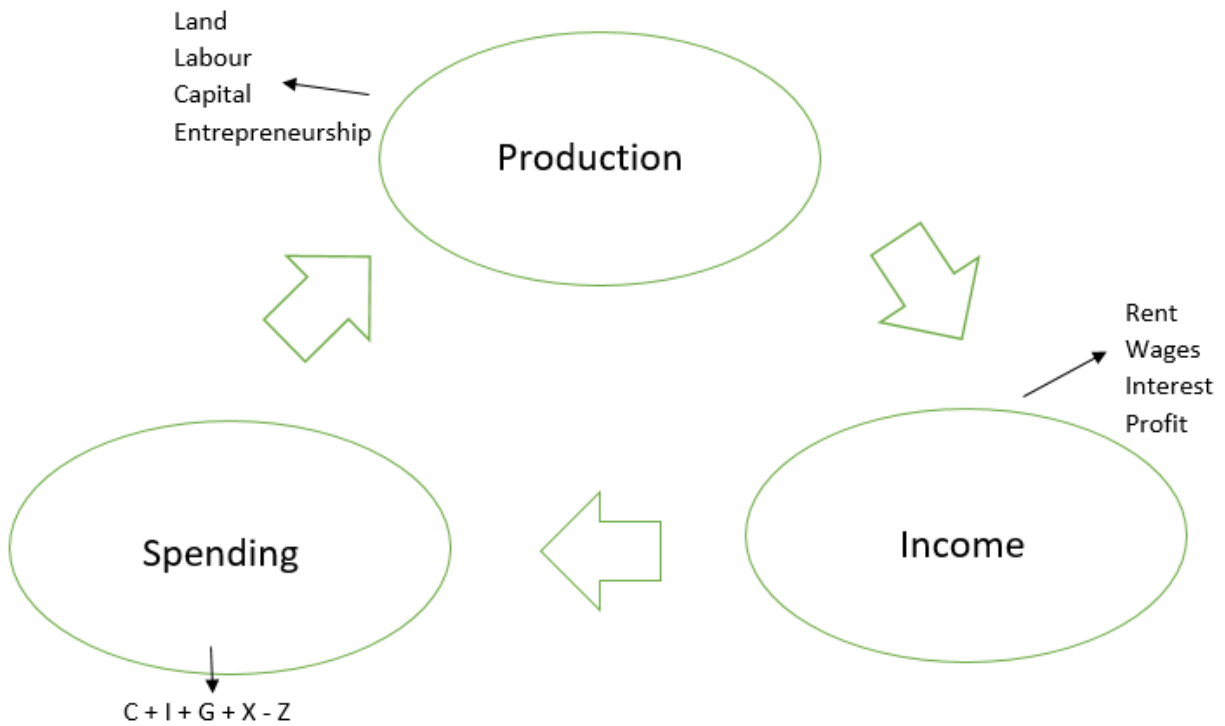
The goods market in **macroeconomics** is treated as a single market which is representative of the markets for all goods and services.



Factor Market:

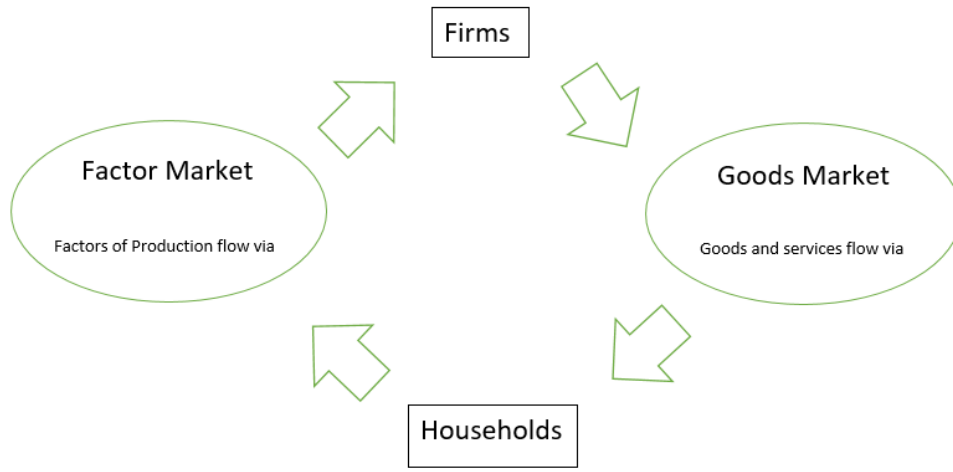
Factors of production are bought and sold in a number of markets. These markets are called factor markets. These factor markets include the labour market and the markets for capital goods. In **macroeconomics**, factor markets are aggregated and treated as if there is only one market for factors of production of the economy – the factor market.

Production, Income and Spending diagram:



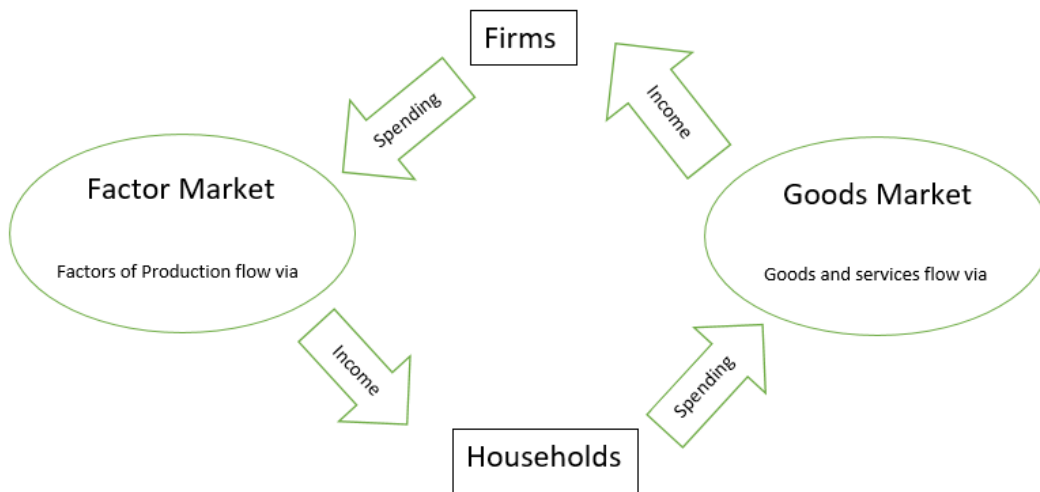
Goods and Factor Markets

Below is an illustration of the flow of goods and services and factors of production between households and firms.



Households sell their factors of production to firms in the factor market. The firms transform these factors into goods and services which are then sold to the households in the goods market.

The interaction between households and firms is illustrated below in the circular flow of income and spending.



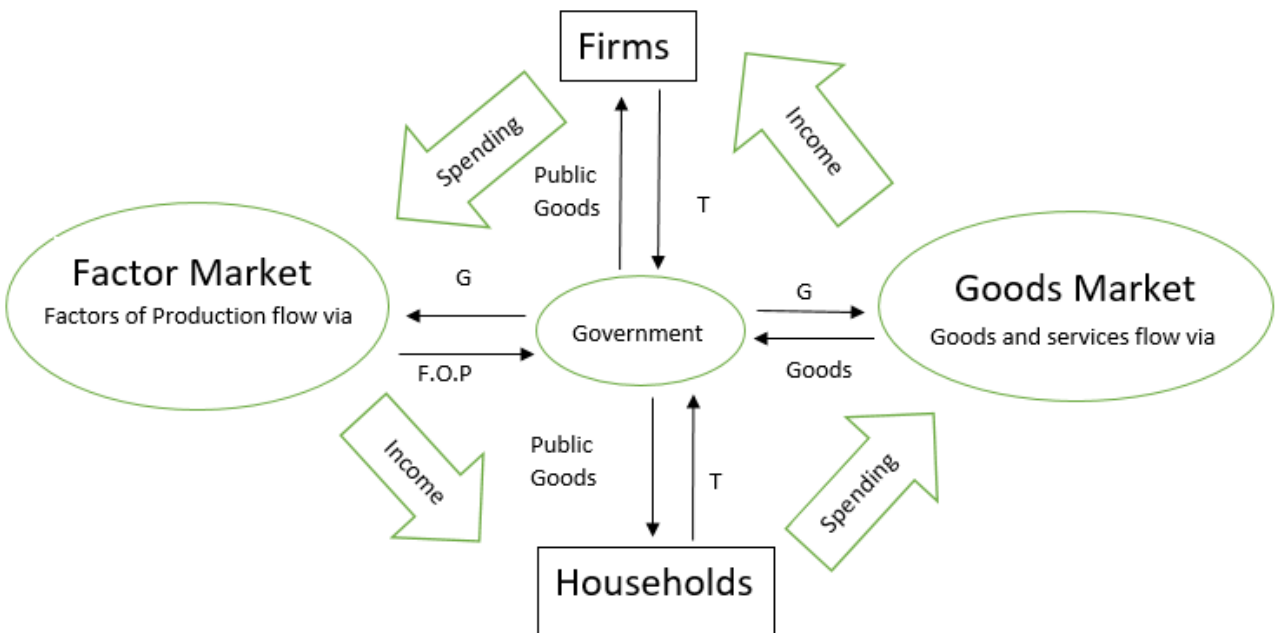
Firms purchase factors of production in the factor market. Their spending represents the income of the households (i.e. the sellers of production). Households then spend their income in the goods market to purchase goods and services. Their income represents the income of the firms.



Adding the Government:

Government economic activity involves three important flows, namely, government spending G, taxes T and transfer payments. Unlike G and T, transfer payments do not directly affect the overall size of the production, income and expenditure flows.

NOTE: Government is seen as a separate entity from our economy. Therefore, government spending G, constitutes an addition or injection into the flow of spending and income, while taxes T constitute a leakage or withdrawal from the circular flow of income between households and firms.



The government purchases factors of production (mainly labour) from households in the factor market, and goods from firms in the goods market. Government provides public goods and services to households and firms. Government spending is financed by taxes paid by households and firms.

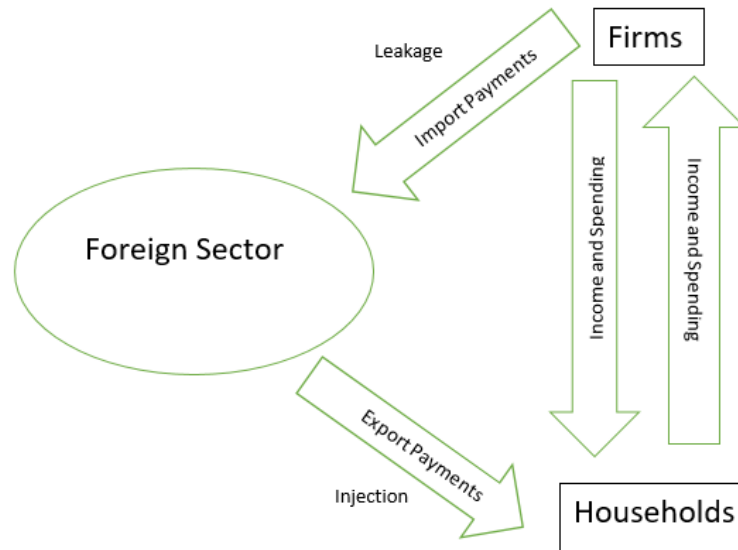


Adding the foreign sector

Remember the foreign sector = the rest of the world

Exports (X) - Injection or addition

Imports (Z) – Leakage or withdrawal



Domestic firms and households import goods and services from the rest of the world. Payment for imports constitutes a leakage of income and spending to the rest of the world. Goods and services are exported to other countries. Payment for exports constitutes an injection into the circular flow of domestic income and spending.

Financial institutions in the circular flow of income and spending

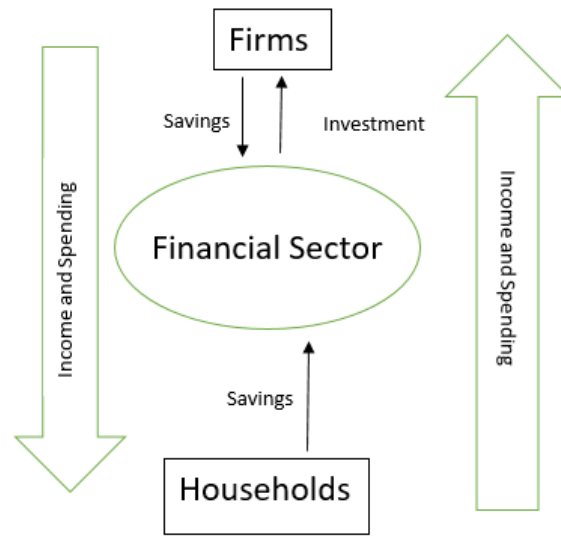
Financial institutions fit into the circular flow as **links between the firms and households**. Any surplus funds of households are deposited at a bank and the bank will then lend this money out to those firms requiring extra funds for investment opportunities. Financial institutions are simply **intermediaries** (middle-men) between sectors of the economy with surplus units and those with a shortage of units referred to as a deficit. Households who do not spend all their income during a period will save. The decision to **save** is a decision **not to consume**, therefore we consider:

Savings (S) by households & firms is a **leakage** from the circular flow of income and spending. Saving is then channeled to financial institutions in the form of deposits.

These funds are then available to firms to borrow to expand their productive capacity. This is called investment.

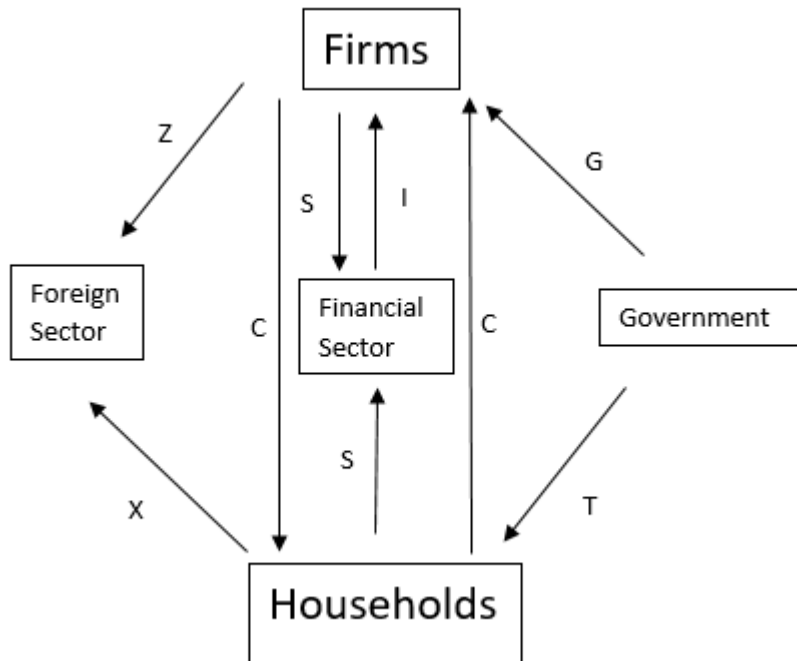


Investments (I) is an **injection** into the circular flow of income and spending.



Households and firms do not spend all their income. Part of their income is saved. Savings flow to the financial sector which lends funds to firms to finance investment spending

The overall picture



This figure summarises the essence of the previous circular flow diagrams. The basic flow is between households and firms. This represents consumption expenditure (C). Savings (S), taxes (T) and imports (Z) are all leakages from the circular flow. Investment spending (I), government (G) and exports (X) are all injections into the circular flow.



Unit 2: Monetary Sector

NOTE: There is no mechanical connection between the **quantity of money** in circulation in an economy and the **level of production and income**. If this was true, then world poverty could be solved simply by printing more money.

The Functions of Money

Money as a Medium of Exchange

Money is a vital part of our lives. In earlier years (when money did not exist), people had to make use of the barter system. The **barter system** is an economy in which goods are traded for other goods through which a double coincidence of needs was necessary between parties concerned for the exchange to take place → inefficiency of the barter system led to the emergence of money (earliest form).

Money is a **medium of exchange**; it is the medium through which exchange is able to take place.

Advantages of a monetary economy:

Double coincidence of needs is not needed
Money smoothes out the exchange process

Money is anything that is commonly accepted as payment for goods and services, or that is accepted in settlement of debts.

Money as Unit of Account

Money allows us to calculate and measure the **prices** of goods and services. This then enables us to obtain the total value of goods and services produced in the economy, such as GDP. Consumers can determine what they can and cannot afford given their available means (money). Money is a **unit of account**. The function of money as a unit of account is closely related to its function as a medium of exchange. Money can lose some of its value due to **inflation**. Therefore, economists specify nominal (current) or real prices.

Money as a Store of Value

A large portion of wealth is held in the form of money. The justification for this is that money is easy to exchange for goods and services at a future date. Wealth can also be held in other assets such as property, real assets and stocks. The advantage of holding wealth in the form of money is that it has an **immediate value**, it is said to be the **most liquid** form of wealth.

When is it a disadvantage to hold money as a store of value?

In times of inflation, money will lose its real value.



Money also acts as a **standard of deferred payment**. This means that money acts as a **measure of the value of future payments**. If you buy a house the future repayments will be given in Rands and cents per month. Money is also the means whereby credit is granted.

What money is not

Money is not income or wealth.

Income is the reward earned by the factors of production in the production process.

Land earns an income of rent, labour earns wages, capital earns interest and entrepreneurship earns a profit. This reward income is paid money.

Wealth is made up of assets that have been collected over a period of time, wealth is represented in several forms. It can consist of property, shares, artworks, money, etc. Income and wealth are simply expressed in monetary terms, e.g. Rands.

Different Kinds of Money

Originally the **intrinsic value** and **exchange value** were the same (e.g. a gold coin). The gold of the coin was worth what was written on the coin. Today however, the paper of a R100 note is not worth R100 on its own.

Properties of money:

1. Uniformity
2. Durability
3. Divisibility
4. and the ability to be carried (portability).

Money itself has **no intrinsic value**. The **value** of money (both coins and notes) is based only on **confidence**. This means that a R100 note is worth R100.00 for no other reason than you (and the rest of South Africa's consumers) believe it has a value of R100.00. You have confidence that somebody else will take that R100.00 note from you for payment for goods and services to the value of R100.00! **The paper it is printed on is not worth R100.00.**

Cheques and EFT's themselves, however, are not money. A demand deposit (e.g. a positive balance in a current account) is money, the cheque simply transfers that money from one person to another.

Money in South Africa

Money is quite easy to define, but it is difficult to measure. The South African Reserve Bank, who is in charge of the money concerns in South Africa, uses three different measures of money – M1, M2 and M3.



M1 (conventional measure)

M1 is based solely on the function of money as a **medium of exchange**. M1 includes coins, notes and demand deposits (including cheque and transmission deposits) of the domestic private sector with monetary institutions.

Note: coins and notes in circulation do not include cash in bank vaults as it cannot be used as payments for goods and services.

$$M = C + D$$

Where:

M = Quantity of money

C = Cash (coins and notes)

D = Demand deposits

It is important to note that **demand deposits** make up more than 92% of the total quantity of money in the M1 money aggregate.

M2

M2 = M1 + Short and medium-term deposits

M3 (Most comprehensive measure)

M3 is the most comprehensive measure of money in the economy.

M3 = M2 + Long term deposits

Financial Intermediaries

The goldsmiths of earlier times were the first bankers. They would take gold deposits from people for safe keeping and issue IOUs. These IOUs became the **first form of money** as we know it today.

The difference between real transactions and financial transactions can be used to split the economy into a real and financial sector. In the financial sector, there are a number of varying institutions each of which specialise in a specific service or section of the market.

The main function of financial intermediaries is to act as an intermediary between the surplus units and deficit units in the economy.

Financial institutions act as middlemen between participants, households and firms who have surplus funds and those who need or have, a deficit of funds.

There are 2 types of financing available for deficit units in the economy. Surplus and deficit units can either contact each other directly, called **direct financing**, or, as the majority of financial transactions occur, through financial intermediaries called indirect financing.



Credit is granted when a person lends funds to another. In exchange for the funds, a piece of paper (**security or credit instrument**) is normally issued. This document stipulates the **interest rate** at which the funds are loaned as well as when and how the loan is to be repaid. When the government borrows money, it uses **Treasury bills** and government stocks or bonds as security.

The South African Reserve Bank

The central bank is the most significant financial institution in any modern economy. The South African Reserve Bank is the **central bank** of the Republic of South Africa.

The South African Constitution states that

a. The *primary objective* of the SARB is to protect the value of the currency in the interest of balanced and sustainable economic growth (**achievement and maintenance of financial stability**)

b. In pursuit of the above, the SARB must perform its *functions* independently, however, regular consultation between the SARB and cabinet members responsible for national financial matters must occur

Therefore, the Constitution guarantees the independence of the SARB. Consequently, the government should not be able to dictate how the SARB uses its tools of monetary policy

The **SARB** is the main monetary authority in South Africa and has **four main functions**:

1. Formulation and implementation of monetary policy.

The main instrument of the SARB is the *accommodation policy/refinancing system* more commonly known as the *repo rate*. It is through this policy the Bank is able to provide daily liquidity to banks. Other policy instruments include reserve requirement and open market operations – used to drain excess liquidity from the money market to ensure liquidity purposes at all times

2. Service to the government.

The SARB is the banker and advisor to the government. They are the advisor on monetary and financial concerns and is responsible for all administration of all exchange control regulations. The SARB is also the *Custodian of gold and foreign exchange reserves*, responsible for the formulation of *exchange rate policy and Administration of exchange control*.

3. Provision of economic and statistical services.

SARB collects, processes, interprets and publishes economic stats and other data for policymakers, analysts and researchers



4. Maintaining financial stability.

The SARB supervises and regulates the commercial banks as well as acts as the banker to other banks

The Demand for Money

At any given point in time, people need to decide in which form to hold their **wealth**. There are various forms, including fixed property, paintings, stamps, antiques and financial assets.

We assume that people hold their wealth in only 2 assets:

Money (which does not earn the holder interest) and

Bonds (which are interest-bearing assets and do earn interest).

What is a bond?

A bond is a financial instrument that promises the issuer(borrower) will pay the lender(buyer) of the bond the capital amount + a certain amount of interest after a period of time.

Government as an example issues bonds in order to finance portions of their expenditure

Bonds are traded on the **bond market**, which forms part of the **capital market**. The capital market is a market for **long-term financial** instruments. Interest rates established in the capital market are as a result of existing market forces of supply and demand within the capital market. There is an inverse relationship between bond prices and market interest rate.

The **demand** for money can best be explained as the **amount of money that participants in the economy plan to hold in the form of money balances**. The **opportunity cost** of holding money is the interest that could have been earned had the money been used to purchase interest-bearing bonds.

Money will be held ONLY if the value of the things it can do for you exceed the cost of holding the money. The demand for money is, therefore, directly related to the functions it can perform for you.

The two most important functions of money being:

- a. money as a medium of exchange and
- b. money as a store of value

The two fundamental elements of the **demand for money** are as follows:

1. The *transactions demand for money* which is based on the function of money as a medium of exchange
2. The *demand for money as an asset* which is based on the function of money as a store of value



John Maynard Keynes, in his *liquidity preference theory*, identified the following **reasons for holding money**:

Transaction motive – Without money, there is no exchange of goods. The amount of money needed for transactions will depend on the total value of transactions in the economy. Transaction demand for money is therefore a function of national income.

Speculative motive – There is a **negative** relationship between the quantity of money demanded for speculative purposes (hold money as a store of value) and the level of **interest**. Thus, the higher the prevailing interest rate, the lower the speculative demand for money, since the opportunity cost of money is high.

The demand for active balances represents the **transaction** demand for money. The purpose of money in this instance is to spend the money.

The demand for passive balances (also called idle balances) refers to the **speculative** demand for money. The purpose of money in this instance is to hold the money passively as a store of value

Interest Rate

Some interest rates in our economy include the **repo rate, the interbank lending rate and bank prime rates**.

The inverse relationship between interest rates and bond prices

Note: The higher the interest rate, the lower the price of bonds and vice versa.

The stock of money: how is money created?

The role of banks in the money creation process

Banks create deposits by making loans on the condition that there is a demand for loans from creditworthy potential borrowers. If no loans are demanded or if banks have decided that borrowers are not creditworthy, no loans will be granted and as such, no money creation will take place.

The quantity of loans is determined by the interest rate – the price of loans. In this instance, new loans will be granted and bank deposits created. However, regulation is required in terms of how much money is created. The central bank (SARB) is responsible for regulating the creation of money to prevent excessive amounts of money being created. This is to combat inflation. They are also required to stimulate the economy (with the intention of increasing economic growth) when too little money is being made. The central bank uses *INTEREST RATES* which affect the demand for loans to influence the rate at which new money is created by banks.



Note, that there is no independent money supply curve. What occurs is that the stock of money (quantity of money) is determined by the interaction of the demand for money and the cost of money also known as the interest rate which is determined mainly by the central bank.

The determination of the quantity of money

Insert graph here

The quantity of money is determined by the interaction of the interest rate and the demand for money. At the initial interest rate i_0 the quantity of money is M_0 . A reduction in the interest rate to i_1 will increase the quantity of money to M_1 . The money supply depends on the demand for money and the cost of credit (the interest rate).

Monetary policy

The monetary policy framework in South Africa

Monetary policy can be defined as the measures taken by the monetary authorities (SARB) to influence the quantity of money or the rate of interest with a view to achieving stable prices, full employment and economic growth.

Monetary policy in South Africa is formulated and implemented by the SARB. The decision regarding appropriate monetary policy in South Africa is determined by the Monetary Policy Committee of which consists of:

- The governor
- The deputy governors
- A few senior officials at the bank

Monetary Policy History in South Africa

In the 1960s to 1970s, South Africa ran policy regimes with direct intervention. This changed to a more market orientated policy approach and from 1986 onwards, explicit monetary growth targets for M3 were announced on a yearly basis. These growth targets were largely ineffective. As of March 1998, an informal inflation target of 1-5% was established for the first time. A new system of monetary accommodation with daily tenders for cash reserves through **repurchase transactions** came into effect.



23 February 2000, the Finance Minister announced a **formal inflation target** of 3-6% to be achieved by the year 2002. This is the system we still currently use.

Major characteristics of the South African monetary policy framework:

- the *ultimate objective* is balanced and sustainable economic growth
- the *intermediate objective* is a preannounced inflation target
- the *operational variable* is the short-term interest rate, which is governed by changes in the repo rate
- the *monetary control system* is a classical cash reserve system

The main parts of the classical cash reserve system are:

- a minimum cash reserve requirement of 2,5% of banks liabilities
- various policy instruments aimed at creating a persistent liquidity shortage
- the provision of cash reserves through the repo system
- the impact of the repo rate on short-term interest rates
- the impact of short-term interest rates on credit creation, the money stock and other variables and, ultimately, on the rate of inflation

The instruments of monetary policy

Monetary policy can be defined as the measures taken by the monetary authorities to **influence the quantity of money** or the rate of **interest** with a view to achieving **stable price, full employment and economic growth**. Monetary policy in South Africa is formulated and implemented by the SARB.

Accommodation policy

When a bank experiences a shortage of cash reserves, it can either change other financial assets into cash or it can **borrow** on the interbank market (borrow from other banks) to overcome the shortage. Alternatively, through the repurchase tender system (**repo** system), liquidity is provided to the banks by means of **repurchase agreements** between the **Reserve Bank** and its banking clients. The accommodation policy of the Reserve Bank therefore mainly comprises changes in the repo rate, and the SARB can regulate the quantity of money through variations in the cost of credit.

Open-market policy

Open-market transactions consist of **the sale or purchase of domestic financial assets (mainly government bonds and Treasury Bills) by the central bank (SARB)** to exert a specific influence on interest rates and the quantity of money, via its influence on the cash reserves of the banks.



Banks borrow funds from the central bank when there is a liquidity shortage. The central bank however, uses open market operations to ensure such shortages (also called money market shortage) to keep the banks borrowing from the central bank so that the central bank can exert its repo rate on the banks.

When the central bank wishes to increase a liquidity shortage, it will sell government bonds which will reduce banks cash reserves. Banks are forced to use the central bank's financing facilities through the repo system, resulting in the central bank's accommodation policy more effective.

When the central bank wishes to stimulate the creation of bank deposits open market transactions can be used to ease liquidity conditions and lower interest rates. In this instance, the central bank will buy government bonds, by offering higher prices to persuade banks to sell their bonds. Bond prices therefore tend to increase and due to the inverse relationship of the price of bonds and the interest rate, the interest rate will fall.

Other instruments: (non-market-oriented measures)

- Credit ceilings and deposit rate control
- Changes in terms of hire purchase agreements
- Changes in exchange control regulations
- SARB intervention in foreign exchange markets
- Public debt management

Moral suasion is the final instrument at the Reserve Bank's disposal.

The SARB can, by means of consultation & persuasion, influence the banks in a certain direction when it does not want to use other policy instruments.



Unit 3: The Government Sector

The government or public sector

The government also known as the public sector in South Africa is comprised of the following:

- The central government is concerned with mostly national issues e.g. defense and the foreign sector
- The regional/provincial government is concerned largely with regional issues such as housing, education and health services
- Local government handles local issues such as the provision of local roads/street lighting
- Public corporations, as well as other government business enterprises, include organisations such as Eskom, Transnet and Rand Water

The role of government in the economy

The free market is the most **efficient** system in which the allocation of available resources is done in the best possible way. However, even when the market outcome is efficient, it may not necessarily be **equitable** (fair).

The appropriate division or mix between the government and the market can be addressed through considering the following important points:

- Private initiatives and market forces are considered to be the most efficient in addressing the basic economic problem – **WHAT? HOW? FOR WHOM?** Therefore, the government should not get involved in the production of goods and services that can be produced more efficiently by the private sector.
- For the most part, free markets cannot function without government intervention in the form of government enforcement under which private households and firm contracts operate. Market economies can also not operate in the absence of well-defined property rights, enforcement contracts etc. Furthermore, the government is necessary for upholding of justice, maintenance of law and order etc.
- It should also be acknowledged that markets do not always produce **efficient** outcomes, in these instances government intervention may occur due to market failure
- Lastly, market systems do not produce **equitable** outcomes, therefore when a society has goals which include the equitable distribution of income, government intervention once more becomes justifiable



How does the government intervene?

The instruments which government can use to achieve its objectives:

1. **Public provision of goods and services.** This can be achieved by public ownership or by public financing of production undertaken by the private sector. E.g. Eskom or construction and operation of prisons and hospitals by private firms on behalf of the government.
2. Government plays a role as a **market participant**. Government is the largest employer of labour in the economy, and the government is an important purchaser of goods and services. In this way the government can try to stimulate specific firms, promote employment or achieve price stability and redistribution of income.
3. Both the level and composition of **government spending** have a significant impact on the economy. Increased government spending filters through all sectors of the economy and results in greater levels of income and output. The government also makes transfer payments (e.g. pensions/grants) which can be used to change the distribution of income.
4. The **level and structure of taxation** can be used to achieve various objectives. The main purpose of taxation is to finance government expenditure; but taxation can be used to redistribute income, to promote certain desirable activities and to penalize other socially undesirable activities. E.g. tax incentives, sin taxes etc.
5. The government can make use of **regulation** to influence economic outcomes. Regulation refers to all laws, rules and regulations that affect private behavior. E.g. labour laws, competition policy, anti-tobacco law, minimum wages etc.

Government failure

We have looked at the justification of why government intervenes in the free market. We have also considered the tools that government has at its disposal when they choose to intervene in the market place. All of this DOES NOT mean that government intervention will always be successful. In many cases government intervention is very unsuccessful, resulting in government failure.

The reasons for government failure:

1. Government is made up of **politicians**, who are human and therefore have their own agendas, attitudes, beliefs, morals and perceptions. Politicians often do merely what is required to **secure** or **retain political office**. Their attention is not always focused where it should be – the public good. In fact, it is often focused on their personal agendas and the best interests of society come in at a distant second.
2. **Bureaucrats** (who are appointed) working in government departments. A basic reason for bureaucratic failure is due to governments usually not being subject to competition and as such not constrained by a profit-and-loss account.
3. A further cause of government failure stems from **rent-seeking behaviour** by economic participants. Rent-seeking refers to attempts by households, businesses, labour unions and other interest groups to **benefit at the expense of society** in general.



For example, farmers may lobby the government to provide subsidies on certain agricultural produce, the textile industry may try to limit competition by asking the government to enforce import quotas, or labour unions may lobby the government to implement minimum wages. Rent-seeking can therefore result in unfair or inefficient re-allocation of resources in favour of the successful interest group (use political influence to seek economic rent – is that part of the remuneration of the owners of factors production over and above the payment that the resource would receive in the best possible alternative).

Nationalisation and privatisation

Nationalisation – is when the state takes control of scarce resources or key industries of a country, with or without compensation, in order to protect the consumer against the exploitation of big business. Targeted industries for nationalisation would include the mining sector, banks and the financial sector, and property such as commercial farmland.

Nationalisation is often attractive to politicians and political parties as a vote winner but, in reality, nationalisation often leads to inefficiencies, bureaucracies and political interference.

Note that nationalisation refers to the actual **transfer of ownership from the private sector to the government**. Nationalisation does not include the establishment of **state owned enterprises**.

State owned enterprises or industry – usually occurs when the investment required to start the enterprise or industry is too great or the return too long term and, therefore, there is little or no interest from the private sector to initiate or establish the industry in question. The government uses its resources to set things in motion and take control of the industry. (The businesses listed as examples in this paragraph are therefore **not** examples of nationalised industries.)

Privatisation - is the opposite of nationalisation. Privatisation involves the **transfer of ownership** of assets from the government (the public sector) to the private sector. The most recent trend is now towards privatisation, rather than nationalisation.

The **case for privatisation** is usually based on three arguments:

- Justifying increasing government expenditure when taxes are already high and budgets stretched. Privatisation is a chance to “free up” funds that may be used to lower government debt and personal income tax.
- Government ownership is usually more inefficient than private ownership.
- Losses caused by inefficient state-owned enterprises are a serious drain on the economy.



Arguments in favour of privatisation:

- State-owned enterprises (SOE's) are bureaucratic, inefficient and unresponsive to the consumers wishes and often burden the tax payer
- SOE's lack creativity and innovation by management as well as have poor financial control, lack of accountability to the taxpayer as well as produce low levels of productivity
- Privatisation attracts FDI, which increases foreign exchange reserves
- Public enterprises do not pay tax while privatisation broadens the tax base

Arguments against privatisation:

- Privatised firms may not necessarily be more efficient. It may well result in a government monopoly being substituted for a private monopoly.
- External costs and benefits may be overlooked.
- Private firms often do not take the broader public interest into account.
- Trade unions like COSATU tend to oppose privatisation because job losses are normally par for the course.

Commercialisation or **corporatisation** means that state owned enterprises are being changed into commercial entities. The enterprise remains in the public sector but is run along the lines of a private company and is liable for tax. Examples include Transnet and Eskom.

Fiscal Policy and the budget

All governments spend money on goods and services. In order to pay for their spending, they need to raise taxes and/or engage in borrowing. Governments, therefore, regularly decide what their spending is going to be – announced in the annual budget. They also indicate how they will finance their spending. All governments have a policy in terms of **level** and **composition** of government spending, taxation and borrowing. This is commonly called **fiscal policy**.

The **main instrument of fiscal policy** is the **BUDGET** and the main **policy variables** (tools) are:

1. Government spending
2. Taxes

The budget is presented to Parliament annually by the Minister of Finance, usually in February.

*Why is fiscal policy regarded as an instrument of **demand management**?*

The fiscal policy influences total income, production and spending in the economy. These are all determinants of demand and therefore, they all affect demand.



The other important instrument of demand management is **monetary policy**.

Fiscal policy refers to the use of government spending, taxation and borrowing to affect economic activity, monetary policy on the other hand, entails the manipulation of interest rates. Fiscal policy is controlled by the government, while monetary policy is conducted by the central bank.

Explain the difference between an expansionary fiscal policy and a restrictive or contractionary approach?

The expansionary Fiscal policy is used to stimulate the economy. This will include an increase in government expenditure and/or a decrease in tax.

The contractionary Fiscal policy is used to “cool” economic activity, usually to combat inflation. This involves a decrease in government expenditure and/or an increase in tax.

Describe what is meant by the term “lags” in relation to economic policy?

A lag is the time difference between a policy change and its impact on the economy.

Government spending

Remember $GDP = C + I + G + (X - Z)$. It is clear that government spending forms part of total spending in the economy. Government spending in the South African economy has generally been on the increase since the 1950s.

Some reasons for an increase in Government Spending (G):

Change in consumer preferences. As income in the economy increases so does a consumer’s demand for services. Since government provides some of these public services, government spending increases in proportion to total income and expenditure.

Political and other shocks. South Africa’s involvement in wars in South West Africa (Namibia), Angola and Mozambique resulted in increased military spending. Growing domestic unrest during the 1970s and 1980s meant increased spending on law and order.

Redistribution of income. The government can use social spending to move the focus of spending from the wealthy sector to the poorer sector.

Misconceptions and entitlement. Large burdens are placed on the shoulders of government by people’s belief that they are **entitled** to certain things for free. Many people don’t realise the true cost of public services. Government’s efforts to meet these popular demands could also contribute to rapid growth in government expenditure.

Population growth and urbanisation. Urbanisation leads to a large increase in demand for basic services. The government must spend in order to supply these services.



Financing of Government Expenditure

There are three **ways of financing government spending**:

Income from property – includes interest and dividend income derived from government's full or part ownership of certain enterprises – Eskom, Telkom, Transnet.

Taxes – the main source of government income. But taxation alone is usually insufficient to cover government spending.

Borrowing – the difference between income (tax) and spending by the government is the budget deficit. Borrowing finances this deficit. The government can borrow from **domestic or international capital markets** (by issuing bonds), as well as the SARB. Borrowing from the SARB can be inflationary as it increases the money supply; as a result, this is called **inflationary financing**.

Explain the following terms:

Budget deficit:

The budget deficit is the negative difference between government revenue and expenditure.

Public debt:

Public debt is the total amount of borrowing (money) that the government owes the economy.

Taxation

Tax is a compulsory payment to the government and is the largest single contribution to funding government spending. In 2013 taxes made up 97,7% of South Africa's total budget revenue.

Name the 3 criteria for a good tax:

1. **Neutrality**
2. **Equity**
3. **Administrative simplicity**

Exploiting loopholes in a (complicated) tax system is called **tax avoidance**. This is legal, but it lowers the government's tax revenue. **Tax evasion** occurs when people do not pay the taxes that they are supposed to pay – tax evasion is illegal.



Different types of Tax

Direct – levied on persons – income tax, company tax and estate duty among others.

Indirect – taxes on goods and services or production, levied on transactions – vat, excise and customs duties, among others.

General – Vat is a general tax as it is levied on most goods and services. Selective – Excise tax is a selective tax as it is applied only to alcohol, tobacco, fuel and a number of luxury goods in South Africa.

Progressive – As your income rises, so the % payable to tax rises – income tax.

Proportional – The tax rate remains the same at all levels of income – basic company tax in South Africa (fixed percentage of company profits).

Regressive – As your income increases, so the % payable decreases – VAT.

In South Africa - personal income tax is a progressive tax (tax rate (%) increases as income increases) while company tax is a proportional tax (fixed rate (%), regardless of profit amount) and VAT is a regressive tax (tax rate (% tax paid) decreases as income increases).

Personal income tax is the most significant form of direct taxation in South Africa and the most important source of tax revenue to the government. Personal income tax is levied on individuals' taxable income.

- **Taxable income** is obtained by deducting personal and other allowances from an individual's income.
- Tax tables are then used to determine how much tax should be paid. The tax tables consist of a number of tax brackets. For each bracket, there is a minimum amount of tax and a tax rate that is applied to each rand by which taxable income exceeds the starting point of the bracket.
- This rate is called the **marginal tax rate**. The marginal tax rate is thus the rate at which each **additional** rand of income is taxed.
- The **average tax rate** is the ratio between the amount of tax paid and taxable income. The average tax rate is also called the **effective tax rate**.

The Impact of a Specific Excise Tax

Two types excise tax:

Specific – fixed amount applied to each product

Ad Valorem – levied as a percentage, for example VAT.



Unit 4: The Foreign Sector

The world's economies are becoming more integrated: trade is expanding, capital markets have opened in developing economies, tourism is increasing and new technologies are linking all corners of the globe. This process is known as **globalisation**.

Globalisation is good for economies as it opens up many new opportunities. There are however, also **risks** such as increased vulnerability to external shocks, which have their origin in the foreign sector for example the great financial crisis in the USA in 2008.

The extent to which one country is involved in the international community (trade) is called their **degree of openness or integration**.

South Africa is described as an **open economy**.

Why Countries Trade

Do countries **benefit** from trading? Would it not better for each country to simply produce their own products and be self-sufficient? **In reality, it is better for people (and countries) to specialise in what they do best and then trade.** This was a central principle addressed by Adam Smith in his book "*The Wealth of Nations*".

The idea is that countries must do what they do best and then trade with other countries for those goods and services that they do not have skills to produce efficiently. What countries are good at doing is directly related to their **factor endowments**. Factor endowments are mainly **natural resources**. South Africa has major deposits of **minerals** and **gems** but does not possess significant reserves of **crude oil**. Japan has little or no natural factor endowments but rather a vast intellectual capital and therefore they export no minerals etc but rather capital and technology-based goods. They benefit from their endowment in **mental ability, work ethic** and **knowledge base**.



Absolute Advantage

Consider a trading ratio of:
10 shirts for 1 cellphone

| Country | Production and consumption | |
|--------------|--|--|
| | Before Trade – per worker, per week | After trade – per worker, per week |
| Zimbabwe | 100 shirts <i>or</i> 5 cellphones | 50 shirts <i>and</i> 5 cell phones |
| South Africa | 50 shirts <i>or</i> 10 cell phones | 50 shirts <i>and</i> 5 cell phones |

In the above example, we deal with **two countries** and **two products**. Without trade, Zimbabwe produces 100 shirts OR 5 cellphones; South Africa produces 50 shirts OR 10 cell phones.

We can see that **Zimbabwe** has an **absolute advantage** in the production of **shirts** while **South Africa** has an **absolute advantage** in the production of **cell phones**.

Both countries will gain if each specialises in the production of the good in which it has an absolute advantage. Zimbabwe will export some of its shirts to South Africa and South Africa will export some of its cell phones to Zimbabwe.

Comparative (or Relative) Advantage

In a modern economy production processes are usually broken up into different stages or parts and are performed by an individual worker or group of workers. This is called the **division of labour**. This specialisation creates wealth, but the gains from specialisation can be achieved only if there is exchange or trade between the different participants.

Specialisation, opportunity cost and comparative advantage

In which activities should a particular country or economy specialise in? The answer is where the opportunity costs are the lowest.



Comparative advantage – states that countries should trade in the products that they are relatively better at specialising in. The **law of comparative advantage** states that the total output of a group of individuals or an entire economy will be greatest when the output of each good is produced by the person, firm or country with the lowest opportunity cost for that good.

Absolute advantage is not a prerequisite for trade: Trade can take place even when one country has an **absolute advantage** in the production of **both** goods. In other words, trade can still take place if one country is more efficient in the production of both goods. This theory was developed by David Ricardo and is called the principle of **comparative advantage**.

According to this theory, **both countries can (and will) benefit from trade if the opportunity costs of production differ in each country.**

Opportunity cost is the price of one good in terms of the other.

Each country will tend to specialize in and export those goods for which it has a comparative advantage. What is important is the *relative* cost. The cost of each good is expressed in terms of the other good – not in Rands.

Example: suppose there are only two countries, Greece and South Africa:

| <u>Country</u> | <u>Maximum output per worker</u> |
|----------------|-----------------------------------|
| Germany | 2 tractors or 8 barrels of olives |
| South Africa | 1 tractors or 6 barrels of olives |

Greece has an **absolute advantage** over South Africa in producing **both** goods. So does Greece have nothing to gain from trading with SA?

In order to answer this, we need to consider the cost of producing the goods in both countries using the **opportunity cost** principle.

In Greece, the cost of producing 2 tractors is 8 barrels of olives. That means Greece has to give up 1 tractor to produce 4 barrels of olives. In SA on the other hand, we have to give up 6 barrels of olives to produce 1 tractor. Thus, it costs **relatively** less to produce tractors in Greece than in SA in terms of barrels of olives.

To produce 6 barrels of olives however, SA has to sacrifice only 1 tractor (opportunity cost of 1 barrel = $1/6$ of a tractor). In Greece the cost of producing 4 barrels of olives is 1 tractor (opportunity cost of 1 barrel = $1/4$ of a tractor). It therefore costs relatively less to produce olives in SA than in Greece. SA has to give up only $1/6$ of a tractor for a barrel of olives whereas Greece needs to give up $1/4$ of a tractor for a barrel of olives.

Although Greece has an absolute advantage over SA in the production of both goods, it does not have a relative advantage in both. This implies that Greece is relatively more efficient in producing tractors, whereas SA is relatively more efficient in producing olives.

Each country will tend to specialize in and export those goods for which it has a comparative (relative) advantage.



Equal Advantage

In cases where the opportunity cost in the production of both goods is the same for both countries, a situation of **equal advantage** exists, and there is no basis for trade.

The Balance of Payments (BOP)

International trade leads to the flow of funds between different countries. All of these flows are measured by the BOP. The BOP is an account that records the economic transactions between the residents of one country and the rest of the world in a certain period. It is made up of the **current account**, **capital transfer account** and the **financial account**. The balancing item is the change in the country's **foreign exchange (forex)** and **gold reserves**.

The Current account

The current account deals primarily with the import and export of goods and services.

Merchandise imports and exports simply reflect the rand value of the **goods** exported and imported during the period.

Together with **net gold exports** they constitute what is referred to as the **trade balance**. South Africa's balance of payments enters **net gold exports** as a separate item – this is because gold is our most important export.

Service receipts and payments for services: Trade in services includes the transportation of goods and passengers between countries, travel, construction services, financial and insurance services etc. Money spent by tourists on food and accommodation while traveling in foreign countries falls in this category as well. In South Africa's case, the payments for services are larger than the service receipts.

Income receipts and income payments: Income receipts refer to income earned by South African residents living abroad, while income payments refer to income earned by non-residents in South Africa. **Note:** income receipts in the BOP is equal to the "primary income from the rest of the world" identified in the national accounts. Likewise, income payments in the balance of payments is equal to "primary income to the rest of the world" identified in the national accounts.

Current transfers: This entry includes social security contributions and benefits, taxes imposed by government, and private transfers of income such as gifts. A transfer means that money, gifts or services are transferred without anything being received in return.

A "**Surplus**" on the current account indicates that the value of the country's exports exceeded the value of its imports during the period. A "**deficit**" means imports were greater than exports.



The Financial account

This account records transactions in assets and liabilities. The financial account has three main components:

Direct investment – purpose is to gain control of, or have considerable influence over, the management of an enterprise. This can be either via the acquisition of an existing operation or starting a new operation.

Portfolio investment – purchase of assets such as shares and/or bonds where the investor is interested only in the expected financial return on the investment.

Other investments – all other financial transactions not included in the above two categories. These include loans, currency and deposits and **short-term trade credit** falls in this category.

A **surplus** on the financial account indicates more funds flowed into the country than out during the period concerned. In this case, we say there was a **net inflow** of foreign capital into the country. A **deficit** indicates there was a **net outflow** of foreign capital.

The unrecorded transactions are the next entry on the BOP. Since the double entry system is used to record transactions on the BOP, the net sum of all credit and debit entries should equal the change in the countries net gold and other foreign reserves. In reality, this does not happen. All mistakes and omissions are recorded in the “unrecorded transactions”.

Gold and other Foreign Reserves

A country receives foreign exchange (forex) for exports and pays forex (for imports). If the income (receipts) of forex exceeds payments, then the country's forex reserves will increase. If payments of forex exceed receipts, then forex reserves will fall. The sum of all the accounts we have discussed thus far will, therefore, be reflected in the change in foreign reserves. A part of South Africa's gold production is held by the SARB as part of foreign reserves. If necessary, the government can sell their gold holding on the foreign market to secure more foreign exchange (forex) reserves.

Gold and foreign reserves are the most important totals on the South African balance of payments:

1. They show the overall position of the BOP.
2. They ensure smooth flow of trade – they act as a buffer between cash inflows and payments which don't always coincide.
3. Forex reserves prevent large movements in the exchange rate.
4. They are a measure of how successful the government has been in stimulating economic growth without running into BOP difficulties.



The balance of payments and economic activity in South Africa

In SA, exports are a major source of demand for domestically produced goods, and therefore also of production, income and employment.

How can exports be promoted?

1. Keep the cost of production low and keep our prices competitive.
2. Promote exports with subsidies, which artificially lower the price of exports
3. Allow a depreciation of the Rand so that our goods become cheaper in terms of foreign currency.

A large portion of South African domestic spending is on imported goods and services, particularly on capital and intermediate goods required by domestic industry. As economic activity in South Africa increases, imports increase as well.

When demand for imports increases, the demand for foreign exchange increases. If foreign exchange is lacking, or if there is no intervention, the Rand will depreciate against other currencies. This will assist exporters in the short run but will also lead to higher import prices which stimulates inflation.

The SARB can prevent sharp fluctuations in the value of the rand if it has sufficient reserves; if not, the demand for imports must be cut back. Reducing domestic demand will be accompanied by a fall in imports, but this means that domestic production, income and employment have to be sacrificed.

Exchange Rates

Trade means that payments must be made in forex such as Euros, Dollars, Yen, etc. South African importers must pay in the currency of the country from which they are importing. If an importer is importing from Italy, they are required to pay the manufacturer in Italy in Euros, NOT Rands. A South African exporter will be paid in South African Rands once the forex has been exchanged on the international forex markets. It is clear that there is, therefore, a demand and supply of foreign currencies which must be met by the SARB.

Thus, South African exports lead to a supply of forex, and South African imports lead to a demand for forex.

The rate at which currencies are exchanged is known as the rate of exchange or exchange rate. Most countries use the **direct method** of quoting exchange rates. This method shows how much of the local currency (Rands), have to be exchanged for one unit of a foreign currency.



Direct method: R10 = \$1. The direct method uses 1 unit of the foreign currency. This is the method used in the news.

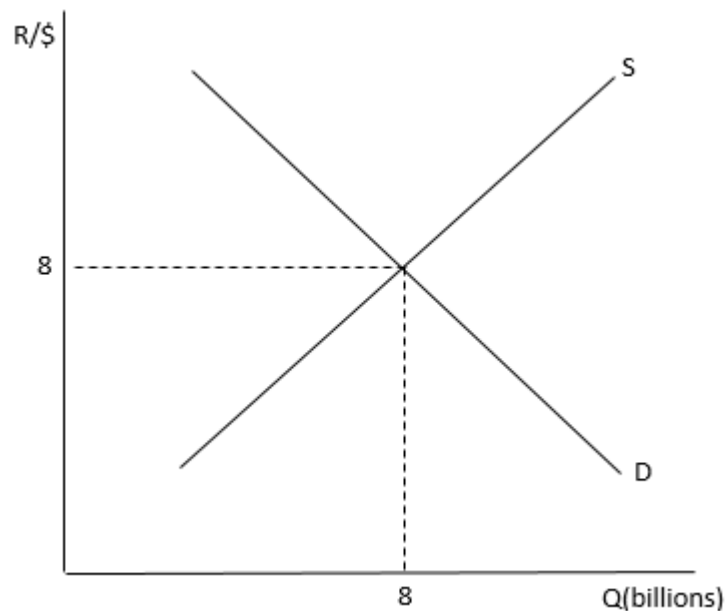
Indirect method: \$0,10 = R1. The indirect method uses 1 unit of the local currency.

Foreign Exchange Market

Forex is traded on the foreign exchange market – centered in London.

The below figure shows the forex market for Rands and Dollars. It is very similar to the demand and supply graph you studied in microeconomics. The only difference is the value measured on the vertical axis.

The foreign exchange market



The figure above shows the market for US dollars. The price of dollars (in Rands) the exchange rate is indicated on the vertical axis.

The quantity of dollars (billions per day) is indicated on the horizontal axis.

D represents the demand for US dollars and S the supply of US dollars. The equilibrium exchange rate is \$1 = R8

The equilibrium quantity is 8 billion Dollars per day.

The only difference between a standard Demand and Supply curve is the y-axis which has the exchange rate instead of the price.



Demand for Foreign Exchange (Dollars)

The following transactions contribute to the demand for a foreign currency:

1. South African importers who import goods and services for which they have to pay in US dollars.
2. South African residents who wish to purchase dollar-denominated assets, such as shares of American companies.
3. American investors who sell their South African assets (e.g. shares, bonds) and wish to convert the proceeds into US dollars.
4. South African tourists who buy dollars or dollar-denominated travelers' cheques.
5. Speculators who anticipate a decline in the value of the rand relative to the dollar.

Note: Currency is like any other commodity, has a negative relationship between its price and the quantity demanded.

For foreign exchange, the more expensive the dollars are, the smaller the quantity of dollars demanded will be.

Supply of Foreign Exchange (Dollars)

The following **transactions** contribute to the supply of foreign currency:

1. Foreign buyers of South African exports
2. Foreigners who purchase South African assets e.g. shares on the JSE
3. South African investors who sell foreign assets denominated in dollars and convert proceeds back to Rands

Equilibrium Exchange Rate

The market forces of demand and supply for currencies determines the exchange rate.

For the graph above, the equilibrium exchange rate is R8 = \$1

Changes in Supply and Demand: Appreciation and Depreciation

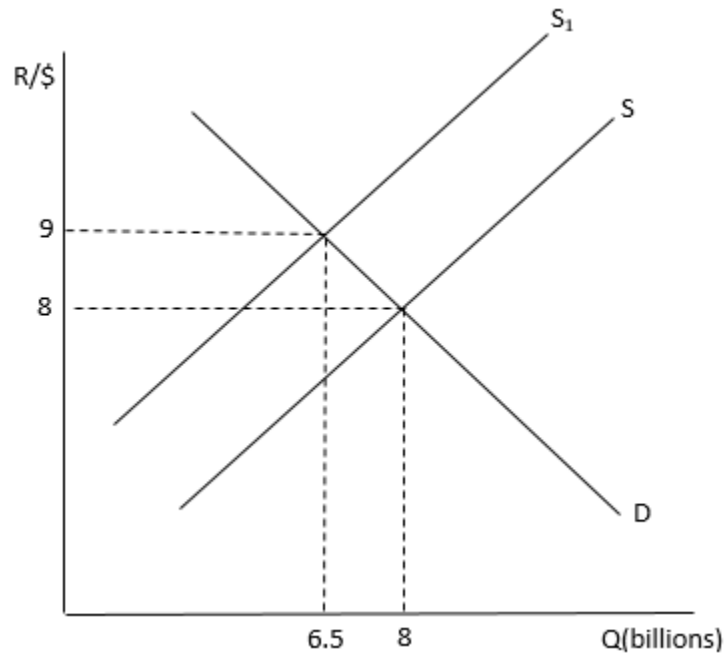
As you expect for any other good, if the supply decreases and demand stays the same, the **price** of the good in question will **rise**. Currencies are no different from physical goods and services.

When the dollar becomes more expensive in terms of Rands, we say that the dollar has **appreciated** against the rand. This implies that the rand has **depreciated** against the dollar.

Show, by means of a change in the exchange rate, a rand depreciation:



A decrease in the supply of dollars



If there is a decrease in the supply of Dollars, it will drive up the price of Dollars and this is a depreciation of the Rand against the Dollar.

Changes in Demand and Supply summary

| Change | Illustrated by | Impact on rand/dollar exchange rate (ceteris paribus) | |
|---------------------------------|--|--|-------------|
| | | Rand | Dollar |
| Demand for dollars Increases | A shift of the demand curve to the right | Depreciates | Appreciates |
| Supply of dollars increases | A shift of the supply curve to the right | Appreciates | Depreciates |
| Supply of dollars decreases | A shift of the supply curve to the left | Depreciates | Appreciates |
| Demand for dollars falls | A shift of the demand curve to the left | Appreciates | Depreciates |



Impact of changes in Rand/Dollar exchange rate for South Africa.

| Change in R/\$ exchange rate | Impact on | | | |
|-------------------------------------|----------------------------|--------------------------|-----------------|-----------------|
| | Export prices (in dollars) | Import prices (in rands) | Current account | Domestic prices |
| Rand depreciates against the dollar | Decrease | Increase | Improves | Deteriorates |
| Rand appreciates against dollar | Increase | Decrease | Deteriorates | Improves |

Exchange Rate Policy

Exchange rates can be one of the most important prices in an economy. What can be done if the rates are particularly **volatile**?

If you have a floating exchange rate (open to influences from changes in demand and supply in the forex market), then there are three choices:

1. Do nothing – leave the market forces to run their course
2. Intervene in the forex market – with buying or selling of forex on the forex market to influence the market, often called managed floating.
3. Use interest rates – if the SARB wants to avoid the Rand depreciating, it can raise the interest rates relative to the rest of the world and thus attract an inflow of portfolio investment (capital). The result will be an increase in the demand for Rands relative to other currencies and, as a result the rand will appreciate or worst-case scenario, remains unchanged.

The Terms of Trade

Terms of trade is the ratio of export price to the import price.

Terms of Trade = (Export Price Index / Import Price Index) x 100



Unit 5: Measuring the Performance of the Economy

Macroeconomic Objectives

The following 5 macroeconomic objectives are used to assess the performance of the economy of South Africa:

1. Economic Growth – Increase in total real production of goods and services. This needs to be higher than the population growth rate in order for it to be beneficial to the economy.
2. Full Employment – The ideal situation for a country is where all resources (particularly labour) are fully utilised.
3. Price Stability – Keeping inflation as low and stable as possible. The SARB has an inflation target of 3% - 6% per annum.
4. Balance of Payments Stability – Ensuring that the balance of payments does not run a prolonged deficit OR surplus.
5. Equitable Distribution of Income – This relates to a socially acceptable distribution of income amongst the participants of the economy.

1. Measuring the Level of Economic Activity: GDP

To measure economic growth, it is necessary to determine the total production of all final goods and services in a country in a specific period. In South Africa, this task is carried out by Statistics SA and the South African Reserve Bank. One of the most important concepts for measuring economic activity is **Gross Domestic Product (GDP)**

Exam! GDP – Total value of all final goods and services produced within the borders of a country in a given period, usually a year.

The above definition contains some key elements:

Value – use the **price** of the goods and services produced to obtain the total value of production.

Final – One of the biggest problems with calculating GDP is the care that must be exercised in **avoiding double counting**. It is very easy to overestimate the value of GDP by counting things more than once.

One solution to avoid double counting is to only count the **value added at each stage**.

EG: In the production of bread:



| Participant | Value of sales (R) | Value added |
|-------------|--------------------|-------------|
| Farmer | 10 000 | 10 000 |
| Miller | 12 500 | 2 500 |
| Baker | 18 000 | 5 500 |
| Shopkeeper | 21 000 | 3 000 |

If we add all the sales to the GDP we would calculate the following:

Value of Total Sales = Total Primary Income + Value of Intermediate G & S.

R61 500 = R21 000 + R40 500

Note: Flour used by a baker is an “intermediate” good but flour used by a household for own use would be classified as a “final” good. Unused flour during the period in question becomes part of **inventories**.

A second way to avoid double counting is to use the **expenditure method**. That is to say you **ONLY** count the values of goods and services which reach their final destination; in other words, exclude intermediate goods and services. In the example above, we only count the bread.

The third (final) way of avoiding double counting is by using the **income method**. The income that is earned by producing a good or service is equal to the value that is added at that stage. Income is earned by producing, i.e. adding value. For example, the farmer’s selling price of R10 000 includes Rent of R3 000, Labour costs (wages) of R3 000 and profit of R4 000.

EXAM! The three methods of calculating GDP:

1. Value-added or Production method
2. Expenditure method
3. Income method

Further Aspects of the Definition of GDP

1. Goods and services produced in an earlier period are not taken into consideration. The **resale** of existing goods (eg: houses, cars) is not part of GDP.
2. GDP **ONLY** reflects production that took place in the year in question. GDP is a **flow** variable.

GNP = GDP - *net primary income to the rest of the world*

NNI = GDP - consumption of fixed capital - net primary income to the rest of the world Note that the *net national income at factor cost* is always referred to as the **national income** of the economy.



The term “gross” in GDP:

No provision for depreciation of fixed capital has been made.

The term “net” in NDP (Net Domestic Product)

Provision has been made for consumption of fixed capital

Explain the difference between GDP and NDP.

GDP – is used more often

NDP – is a more correct measure of economic performance

Measurement at Market Prices, Basic Prices and Factor Cost (or Income)

The three ways of calculating GDP will only give the same result if the same sets of prices are used in all three calculations. There are three sets of prices that may be used:

Market Prices – used when calculating GDP according to the **expenditure** method.

Basic Prices – used when calculating GDP according to the **production** or **value-added** method.

Factor Income – used when calculating GDP according to the **income** method.

The difference between these three prices above is due to various taxes and subsidies. Where taxes and subsidies are involved, the amount paid for a good or service differs from both the cost of production and the income earned by the relevant factors of production.

(1) GDP @ Market prices

Less Taxes on products

Plus Subsidies on products

= GDP @ Basic Prices

(2) GDP @ Basic Prices

Less other taxes on production

Plus other subsidies on production

= GDP @ **Factor cost**

Note: if you reverse this process you go from GDP at factor cost back to GDP at basic prices and then back to GDP at market prices.

The following are examples of the different **subsidies** and **indirect taxes**:

Taxes on products include VAT and duties.

Taxes on production include payroll taxes, business and professional licenses.

Subsidies on products include per unit export subsidies.

Subsidies on production include subsidies on production or payroll.



Measurement at Current Prices and at Constant Prices

It is important to understand the difference between current and constant prices. If one is asked to compare GDP values from one year to the next it is not possible to compare them if inflation has not been taken into account.

When GDP is measured for a particular period, the prices prevailing in that period are used: these are called **current prices** or **nominal prices**. If you are asked to compare the GDP of 2000 with that of 2001, it is not possible simply to compare the face value of the GDP figures as inflation between periods can be very misleading. Therefore, economists have to make use of the price in the base year; that is, the year against which you wish to compare the current level of GDP. An economist must therefore adjust the current prices to the same prices in the base year; in other words, s/he must remove the effect of inflation. Once this has been done the prices are said to be adjusted to real or constant prices. An economist is then in a position to compare the real values – in the absence of inflation.

The following is an example to demonstrate the difference between **constant (real) and current (nominal)**: If the South African economy manufactured 100 units of “Good A” and they were sold for R10 each the GDP would be R1 000 for the period in question. In the next period South Africa still only manufactures 100 units of “Good A”, but the price is now R15 per unit, and the value of GDP has risen to R1 500. (Assume that the price difference is due to inflation rates of 50% pa). If you only consider the face values it appears as though the economy has grown (R1000 in value compared to R1 500 in value), but in reality, you can see that the South African economy is producing exactly the same quantity of goods as it was in the previous period – 100 units. The price difference was caused by inflation and, in reality, there has been no growth in the economy.

Other measures of Production, Income and Expenditure

While GDP is the most commonly used measure of economic activity, it is not the only one.

Gross National Income

In calculating GDP, it did not matter who owned the factors of production or who produced the goods and/or services. All that mattered was that they were made within the boundaries of South Africa.

In terms of GNI, economists are trying to calculate the **income earned** by South African citizens or permanent residents of South Africa.

$$\text{GNI} = \text{GDP} - \text{primary income payments} + \text{primary income receipts}$$

Note that Primary income **receipts** include all profits, interest and any other income from investments abroad which accrue to South African residents including wages and salaries earned by permanent residents outside South Africa.



Primary income **payments** include all profits, interest and any other income from domestic investments which accrue to residents of other countries including all wages and salaries earned by foreign workers engaged in domestic production (production in South Africa).

GDP is used to indicate the **level of economic growth**, while **GNI** is used to indicate the **standard of living of South African citizens**.

GDP is the best measure of the level of economic activity in the country.
GNI is a better measure of the standard of living of the citizens of a country.

Expenditure on GDP

$GDP = \text{Expenditure on GDP} = C + I + G + X - Z$

C = Consumption Spending

I = Investment Spending

G = Government Spending

X = Exports

Z = Imports

Gross Domestic Expenditure

GDE is used when we are interested in calculating the **expenditure within the borders of South Africa**.

GDE **includes imports** (as the spending originates in South Africa) but **excludes exports** (as the spending originates in the rest of the world).

$GDE = C + I + G$ – We assume that imports form part of C, I, G

$GDP = C + I + G + X - Z$

If $GDP > GDE$, Exports are greater than imports

If $GDP < GDE$, Exports are less than imports

In the national accounts, **gross capital formation** has 2 components: **gross fixed capital formation** and **changes in inventories**.

Fixed capital formation refers to the purchase of capital goods, (e.g. buildings), while **changes in inventories** reflect goods produced during the period that have not been sold, or goods produced in an earlier period but only sold in the current period.



Measuring Employment and Unemployment

In order to assess whether the **macroeconomic objective of Full Employment** is being achieved, it is necessary to measure employment and unemployment.

Unemployment rate: The number of unemployed persons can be expressed as a percentage of the total number of people who are willing and able to work.

$$\text{Unemployment rate (\%)} = \frac{\text{Number of unemployed persons} \times 100}{\text{Economically Active Population}}$$

Measuring Prices: the CPI

How is the **macroeconomic objective of price stability** assessed?

We use the inflation rate. Inflation – defined as a continuous and considerable rise in the general price level.

The price level is important because it indicates what is happening to consumers buying power. As prices rise, consumer's buying power falls. It would be very difficult and time-consuming to check every price in the economy, so economists make use of the CPI.

The CPI is a general price measurement of a basket of goods and services used by the average South African family. The relative rise and fall in the inflation rate is an indication of whether or not there is price stability.

The Consumer Price Index (CPI)

The CPI represents the cost of the “shopping basket” of goods and services of a typical South African family. This basket has around 1500 items in it.

STATS SA is responsible for:

- Selecting the goods and services to be included in the basket
- Weighting the goods and services selected for inclusion in the basket
- Deciding on the base year for calculating the CPI
- Deciding on the formula for calculating the CPI
- Collecting prices each month for the goods and services in the basket.



Changes in purchasing power

The base period of the South African CPI is 2012. In other words, the CPI value for 2012 is 100.

In 2005 the CPI was 63.4 and in 2013 the CPI was 103, 4. The increase in CPI was thus **63.1 %** → HOW?

$$\frac{103,4 - 63,4}{63,4}$$

This means that the same basket of goods and services purchased by the average consumer cost 63.1 % more in 2013 than it did in 2005. Another way of expressing this is to say that the purchasing power of a given amount of Rand has declined.

That same basket of goods and services cost R100, in 2005, it would cost R163,10 in 2013. As a result, the R100 that was enough to buy one basket in 2005, could only buy a fraction of a basket in 2013. This fraction is given by the ratio between price levels in 2005 and 2013, that is:

$$\frac{63,4}{103,4} = 0.61$$

Between 2005 and 2013 the purchasing power of the consumer's Rand thus fell from R1,00 to R0.61 (or 61 cents). Simply put, a rand cannot buy as much as it did before.

Measuring the links with the rest of the world: the BOP

To be able to achieve the **macroeconomic objective of balance of payments stability**, economists make use of the Balance of Payments to monitor the transactions a country makes with the rest of the world.

The balance of payments consists of five sections. Two important sections are:

1. The Current account
2. The Financial account

The **current account** is comprised of the import and export of goods and services, as well as the primary income receipts and payments.

The **financial account** tracks the funds flowing into, and out of, the country for the purchase of assets, such as bonds and shares.

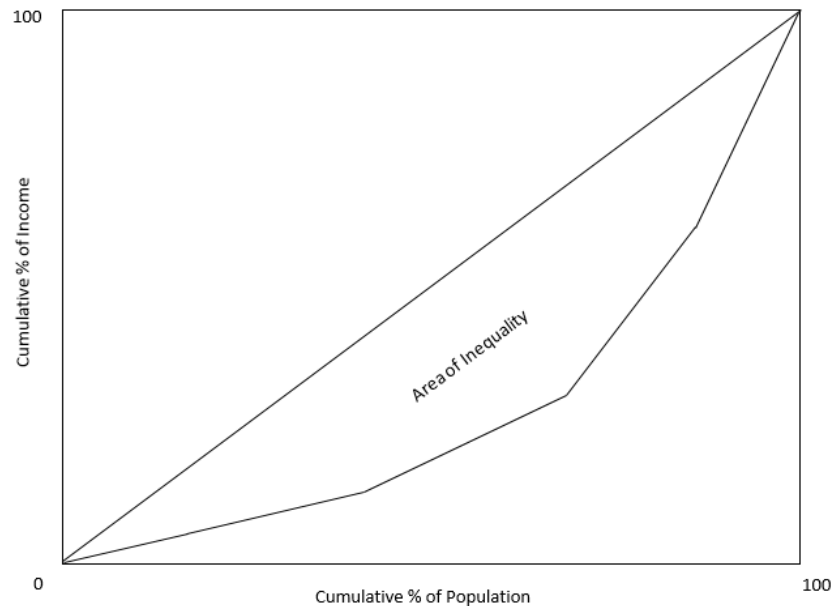
A **surplus** on the current account translates to the value of exports as being greater than the value of imports. A deficit indicates that the value of imports exceeded the value of exports.

A **surplus** on the financial account translates to the value of capital inflows being greater than the value of capital outflows. A deficit indicates that the value of capital outflows exceeded the value of capital inflows.



Measuring Inequality: Distribution of Income

The final macroeconomic objective refers to an **equitable distribution of income** across the participants of the economy. There are, in essence, three measures that an economist can use to determine the level of inequality in an economy.



The **Lorenz Curve** – The Lorenz Curve highlights the difference between the line of perfect equality and the actual distribution in the economy.

The **Gini Coefficient** – Uses the Lorenz curve and calculates the ratio of the area created by the Lorenz curve and the line of perfect equality relative to the entire right-angle triangle.

The **Quantile Ratio** – This is the ratio of income received by the highest X% of the population relative to the income received by the lowest Y% of the population.



Unit 6: Aggregate Income in a Simple Keynesian Macroeconomic Model

Production, Income and Spending

There are three economic flows – total production, total income and total spending. In the national accounts, total spending during a certain period is always equal to total production and income during that same period. The only way to increase total income in the economy is to increase total production. Changes in inventories are seen as capital formation - investment spending.

According to the three economic flows, if all income earned from production is not spent, there are three possible outcomes:

Spending may equal production and income – no tendency for change, at equilibrium.

Spending is greater than production and income – no equilibrium; in this case income and production will tend to increase.

Spending is less than production and income – no equilibrium; in this case production and income will tend to fall.

How can spending be greater than income for a given period?

2 reasons:

1. Households & firms draw on savings.
2. Goods & services are purchased on credit.

The symbols used in macroeconomics:

“Y” is used to denote total income, total production and output.

“A” is used to denote total or aggregate spending.

The relationship between A and Y can be any one of the following:

$A = Y$ (Equilibrium level)

$A > Y$ (Disequilibrium in terms of which production and income will increase).

$A < Y$ (Disequilibrium in terms of which production and income will decrease).

Some economists believed that total spending (A) would equal total production or output (Y) at the point of full employment (Y_f) for the economy. These economists believed that there was only one point of equilibrium – Y_f and this was based on the belief that **supply creates its own demand** – **Say's Law**.

The Great Depression of 1929 to 1933 made it clear that this law was not realistic. As a result, John Maynard **Keynes** developed a theory called “The General Theory of Employment, Interest and Money”. He said **that the level of income (Y) is determined by the level of aggregate spending or demand (A)**. He also offered several reasons as to why spending might be insufficient to achieve full employment.



The different approaches to studying the flows can be summed up as follows:

Say's Law – “Y” creates “A”

Keynes – “A” creates “Y”

The rest of this discussion is based on the assumption that the level of economic activity (Y) is determined by aggregate spending or demand (A), hence the name – the Keynesian model.

The Basic Assumptions of the Model

| ASSUMPTION | IMPLICATION |
|---|--|
| The economy consists of households and firms only. | Spending = C + I |
| There is no government | Cannot be used to analyse G or |
| There is no foreign sector | No Exports or Imports |
| Prices are given | Cannot use it to study inflation |
| Wages are given | Cannot use it to study the labour market |
| The money stock and interest rates are given | Cannot use it to study Monetary policy |
| Spending (demand) is the driving force that determines the level of economic activity | Supply adjusts to demand |

These assumptions are restrictive, but as we develop the model we relax the assumptions and develop a more realistic model.

When we say that prices, wages, the money supply and interest rates are given, it means that their values are **determined outside** the model. Variables determined outside the model are called exogenous variables.

Only two types of spending are considered in an economy with households and firms, namely: **consumption spending** (C) by the households, and **investment spending** (I) by the firms.

The economy is, therefore, in equilibrium when $Y = C + I$. Before we can fully understand “Y” we need to understand those factors that make up “Y”, that is to say “C” and “I”.

An Important Point

Macroeconomics deals with plans and intentions (future based), not with things that have already taken place. The national accounts deal with what actually happened in the economy.

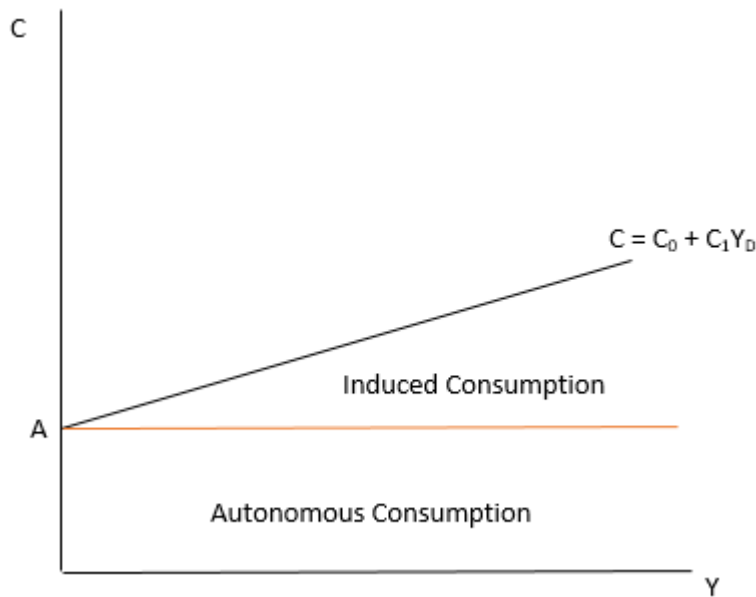


Consumption Spending (C)

The relationship between a household's consumption and income is called the consumption function. The consumption function has three important characteristics:

1. Consumption rises as income rises – **positive relationship**
2. Consumption is positive, even if income is zero – even if you are not earning an income you will still consume, financed out of savings or borrowing.
3. When income increases, consumption increases, but the increase in consumption is less than the increase in income – part of the extra income is saved.

The Consumption Function:



From the graph above it is clear that total consumption spending is made up of two parts:

Autonomous consumption spending – shown by the y-axis intercept (A) of the consumption function. It is the entire space under the red line. This part of consumption will take place even if income is zero.

Induced consumption spending – spending that is induced or encouraged by income. This is the triangle area above the red line and under the consumption function.

The **slope** of the consumption function illustrates the **marginal propensity to consume**. the **marginal propensity to consume** tells us what portion of each additional Rand a consumer earns (in income) will be spent on consumption. From the graph above we can see that as we move along the X-axis (income increases) and there is also an increase in consumption. The increase in consumption is by a lesser amount than the increase in income. The marginal propensity to consume is given as “c”.

Thus: $MPC = c = \Delta C / \Delta Y$



The MPC is always a value between 0 and 1. We multiply the change in income by the MPC to determine how much consumption will change by. We cannot increase consumption by more than the increase in income so therefore the MPC cannot be greater than 1.

Position of the Consumption Function

The position (Y-axis intercept) of the consumption function is determined by the level or amount of autonomous consumption. This position depends on non-income factors that affect a consumer's spending and therefore, the consumer's level of consumption.

The non-income factors include:

- Interest rates – the higher the interest rate, the less borrowing and therefore spending
- Expectations – When do you expect to get a job again? 1 month or 1 year?
- Wealth – how much wealth have you accumulated to spend while not earning an income

The Equation for the Consumption Function

The consumption function is made up of an autonomous component and an induced component. The consumption function has a slope and a y-intercept. The value of consumption depends on:

Marginal propensity to consume (MPC, or just c)
Level of income (Y)

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

Where: \bar{C} = the autonomous component of the consumption function.
 c = the marginal propensity to consume
 Y = the level of income

The bar ($\bar{\quad}$) above C indicates the portion of consumption that is fixed and is not dependent on the level of income. Thus, the value of C is always greater than zero. The value of " c " is between 0 and 1.

The mere existence of the consumption function implies the existence of a savings function. The savings function can be explained as follows:

Y (income) can be Spent or Saved
Savings can be defined as **not** spending
This translates to the MPS
MPS and MPC must equal 1
Therefore: $S + C = 1$



The savings function can be summarized as follows:

$$S = -\bar{C} + (1 - c)Y$$

or

$$S = \bar{S} + (1 - c)Y, \text{ where } \bar{S} = -\bar{C}$$

For example, if $\bar{C} = 50$ and $c = \frac{3}{4}$ then

$$S = -50 + (1 - \frac{3}{4})Y$$
$$= -50 + \frac{1}{4}Y$$

If $\frac{3}{4}$ of each Rand is spent which accounts to $75c$, it follows that a $\frac{1}{4}$ or $25c$ is saved. Therefore:

$$C = \frac{3}{4} \text{ or } 75c$$

$$S = \frac{1}{4} \text{ or } 25c$$

Consumption will affect savings, as an example anything that increases the MPC or c will decrease savings and vice versa.

Similarly, anything that changes \bar{C} **will change $-\bar{C}$ (i.e. the intercept of the savings function) also shown as \bar{S} .**

Investment Spending

In our simple model there are two types of spending – consumption spending by the households (C) and investment spending by the firms (I).

Investment spending is the most “**volatile**” of all the components of aggregate demand or aggregate spending.

Investment is in actual fact the process of capital formation.

If investment does not respond to changes in income, the relationship between the two (income and investment) can be shown by use of a horizontal line. The fact that investment spending is determined independently of the level of income tells us that the level of **investment is autonomous**.

Note: Investment spending is a determinant of income, but income is **not** a determinant of investment spending. So, what does affect the level of investment at a macroeconomic level?

The Investment Decision

Firms invest to make a profit. The greater the anticipated profit, the greater the level of investment will be. Thus, there are three basic considerations:

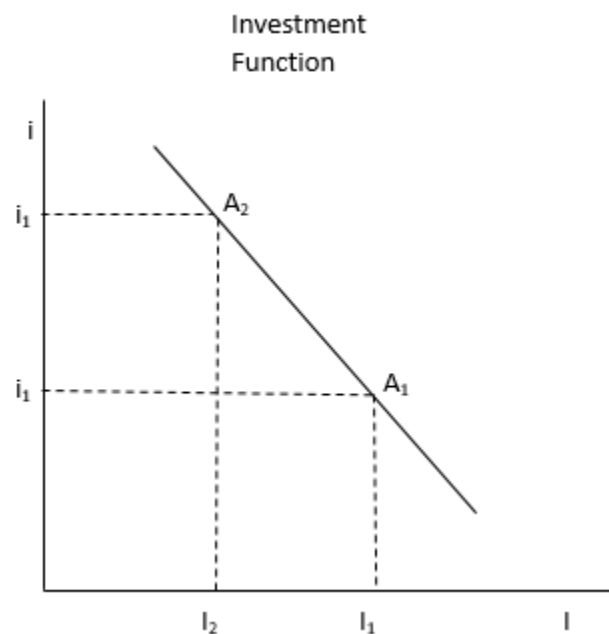
1. Cost of capital acquisition (investment)
2. Expected revenue that will result from investment (profit)
3. Rate of interest – the vast majority of investment is financed by borrowing, so the level of interest is an important consideration.



There is an **inverse or negative** relationship between the interest rate and the expected returns on investment – ceteris paribus. In other words, if interest rate rises investment declines – due to the fact that the cost of borrowing those funds is increasing.

- a. Shows the inverse relationship between the interest rate and investment (the investment function);
- b. the relationship between investment spending and income

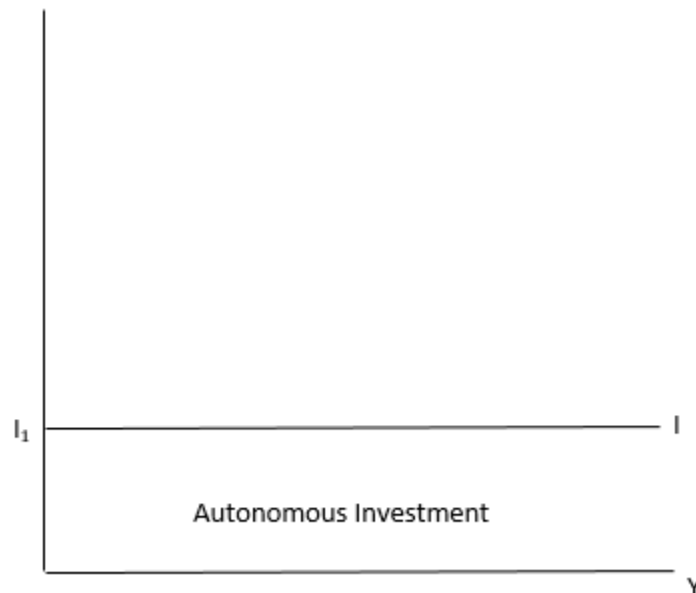
The investment function



We can see from the above the negative relationship between interest rates and investment. When interest rates rise, Investment falls.



Investment and the level of income



Note: $I = \bar{I}$ means that Investment is autonomous, it is not determined by the level of income and output. We can see this by the horizontal curve, as Y increases, I stays at its original level.

The Simple Keynesian Model of a Closed Economy Without a Government

We can now construct the simple Keynesian model.

Total Spending (Aggregate Demand)

We know that consumption spending (C) is a function of income (Y) and we know that investment spending (I) is not a function of income (Y).

The aggregate spending function (Combining consumption and investment)

- The aggregate spending function is shown as A (where $A = C + I$)
- This is obtained by adding consumption C and investment I at each level of income.
- The A function is parallel to the C function. The vertical difference between the two is the autonomous level of investment \bar{I} .

The 45-Degree Line

The 45-degree line is needed to work out when an economy is in equilibrium. Equilibrium is where:

$$A = Y$$

$$A = C + I$$



If you draw a set of axes with a perfect 90-degree angle and then construct a straight line that bisects the 90-degree angle (in other words cuts the 90-degree angle in half) you will have a 45-degree line.

The unique fact about the 45-degree line is that ALL points along the 45-degree line represent points where the value on the horizontal axis (total production, income) is equal to the value on the vertical axis (aggregate spending or demand). Thus, at any point along the 45-degree line $A = Y$.

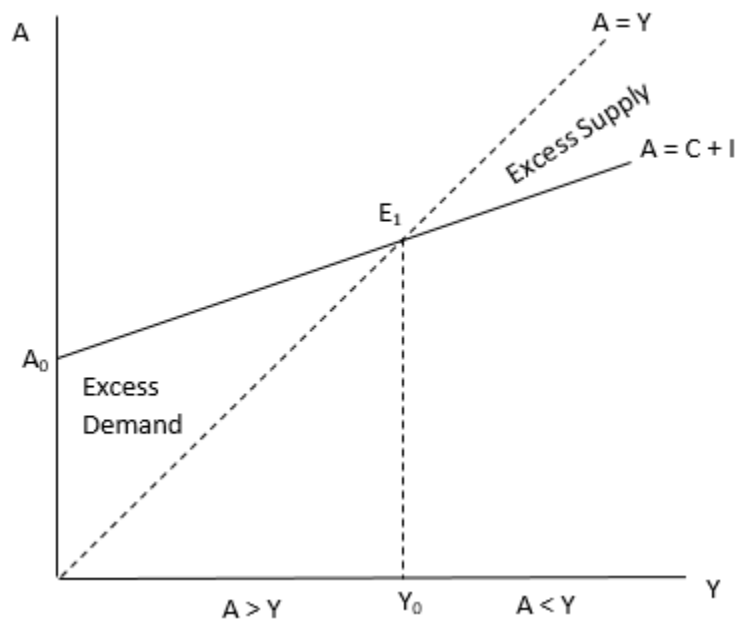
When $A > Y$, then there is excess demand.

When $A < Y$, then there is excess supply.

We now combine the aggregate demand function and the 45-degree line.

The only point of equilibrium will be the point where the aggregate demand curve ($A = C + I$) cuts the 45-degree line.

The equilibrium level of income

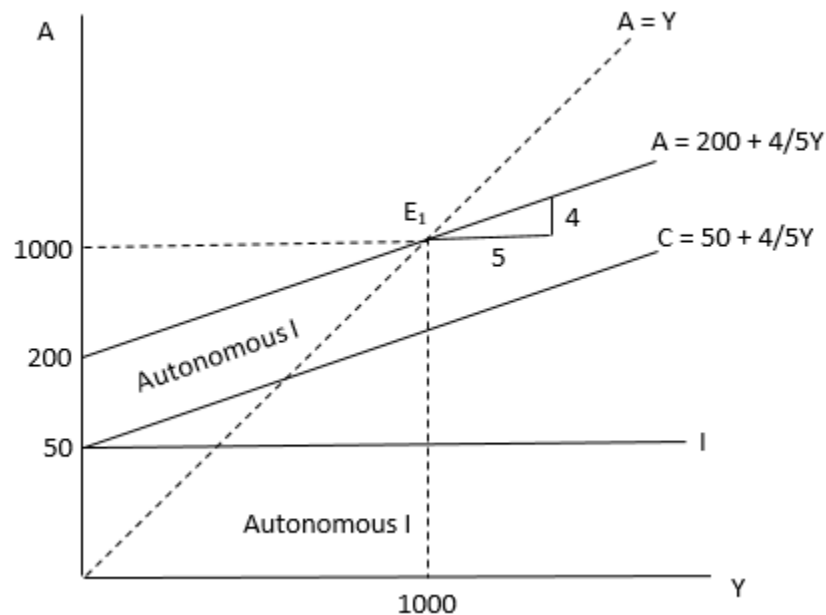


The Equilibrium Level of Income

The goods market is at equilibrium when income (Y) is equal to the level of aggregate spending (A). When “ A ” is greater than “ Y ”, stock levels decrease and when “ Y ” is greater than “ A ”, stock levels increase.



The equilibrium level of income in a simple two-sector economy:



$$\text{Multiplier} = 1/(1 - c)$$

$$\text{Multiplier} = 1/(1 - 0.8)$$

$$\text{Multiplier} = 1/(0.2)$$

$$\text{Multiplier} = 5$$

$$\text{MPC} = c = 0.8$$

$$Y = 1/(1 - c)(C + I)$$

$$Y = 1/(1 - (4/5))(50 + 150)$$

$$Y = 1/(1 - 0.8)(200)$$

$$Y = 1/(0.2)(200)$$

$$Y = 5(200)$$

$$Y = 1000$$

$$C = C + cY$$

$$C = 50 + 0.8(1000)$$

$$C = 50 + 800$$

$$C = 850$$

The Algebraic Version of the Simple Keynesian Model

The consumption function: $C = \bar{C} + cY$

The investment spending function: $I = \bar{I}$

The equilibrium condition: $Y = A$

BUT, Total spending: $A = C + I$ Thus: $Y = C + I$ (since $A = C + I$)



Substitute C and I with their respective functions:

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

$$Y - cY = C + I$$

$$(1 - c)Y = C + I$$

$$Y = 1/(1 - c)(C + I)$$

Now solve for Y:

$$Y = \frac{1}{(1-c)} \times (\bar{C} + \bar{I}) \quad \text{or} \quad Y = \frac{1}{(1-c)} \times (\bar{A}) \quad \text{where } \bar{A} = \bar{C} + \bar{I}$$

The Impact of a Change in Investment Spending: the multiplier

What will happen if the equilibrium is disturbed? What will be the impact on the economy if aggregate spending changes? Let's assume for example that a company invests an additional R1 billion in South Africa to build a new factory. The **ratio between the eventual or ultimate change in income and output will be higher than the initial investment. This is called the multiplier.** The size of the multiplier depends on the fraction of the additional income generated in each round that is spent in the next round – that is the marginal propensity to consume.

The multiplier process:

- Assume Autonomous Consumption expenditure of R4m, and marginal propensity to consume of 0,6. Investment increases by R12m.
- We now trace the process whereby the initial increase in investment of R12m raises the equilibrium level of income by R30m (R10m to R40m).
- The increased investment expenditure immediately causes a shift from E1 to point z. At this point total expenditure = R22m and there is excess demand for goods.
- Over the next period, production will expand to the level of R22m to meet the increased demand. (Moving towards point Y in the figure).
- At point y income has also increased by R12m (z to y), which means that consumption expenditure will (a.r.o MPC) increase by R7,2 m ($c \Delta Y = 0,6 \times 12 = 7,2$) and we move to point x.
- The increased demand (from y to x) encourages manufacturers once more to increase production by the same amount (R7,2m) to point w.
- The process repeats itself with diminishing increments of expenditure & income until the new equilibrium point E2 is reached.

The **multiplier** is the mechanism identified as being responsible for an increase in national income that is **greater** than the initial increase in investment spending.



The value of the multiplier is given by:

$$\frac{1}{(1 - c)}$$

Therefore, the change in national income (ΔY) in this example is given by:

$$\Delta Y = \frac{1}{(1-c)} \times (\Delta \bar{I})$$

$$\Delta Y = \frac{1}{(1-0.6)} \times (\text{R12 million})$$

$$\Delta Y = \text{R30 million.}$$

Note: The following symbol is used to denote the multiplier (*Greek letter alpha*):

$$\alpha = \frac{1}{(1-c)}$$

where c is the marginal propensity to consume.

$$\Delta Y = \alpha (\Delta \bar{A})$$



Unit 7: Keynesian Model Including the Government and Foreign Sectors

In this unit, we introduce the government and foreign sectors to the goods market model.

We therefore need to look at:

Government spending (G) and Taxation (T) Exports (X) and Imports (Z)

Introducing the Government into our Model

What will the effect of government spending (G) and taxes (T) be on the following:

The level of aggregate spending (A)

The multiplier (α)

Equilibrium level of national income (Y)

This analysis will help to understand how government spending and taxation (**fiscal policy**) may be used to influence the economy through the equilibrium level of national income

Government Spending (G)

What determines the amount of money government will spend over any given period?

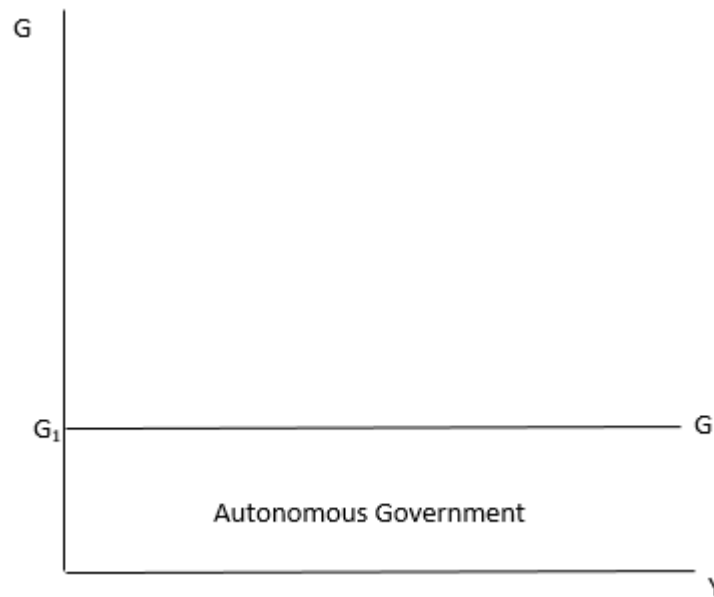
Government spending is in fact a political issue meaning is that government spending is related to political objectives, rather than the prevailing level of income in the economy. There is no systematic relationship between G and Y in other words **G is autonomous**.

Therefore:

$$G = \bar{G}$$



Government spending in the Goods Market:

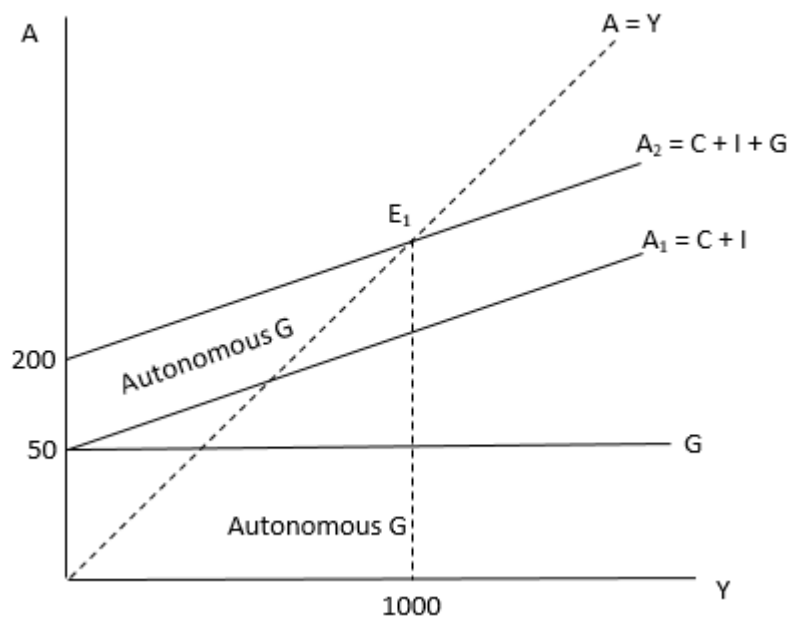


What effect does the inclusion of government spending have on aggregate spending or aggregate demand?

$$A = C + I + G$$

The addition of G works the same as when we included I . We simply shift the aggregate demand curve up by the value of the autonomous government spending. Since all you are doing is adding a constant value (G) to C and I . The intercept would change but not the slope.

Aggregate spending in an economy with a Government sector



To obtain the level of aggregate spending A, we simply add G, which is independent of Y, to C + I at each level of Y. The intercept increases by G, from 50 to 200 and the whole curve shifts upwards by the same distance. The new aggregate spending curve is C + I + G.

Use the equation:

$$Y = A$$

$$A = (C + \bar{I} + \bar{G})$$

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

$$\text{Thus } Y = (C + \bar{I} + \bar{G})$$

$$\text{Then } Y = (\bar{C} + cY) + \bar{I} + \bar{G}$$

Solve for Y:

$$Y_0 = \frac{1}{(1-c)} \times (\bar{C} + \bar{I} + \bar{G})$$

which can be shortened to:

$$Y = \alpha (\bar{A})$$

where:

Y_0 is the equilibrium level of income

α is the multiplier

\bar{A} is autonomous spending ($\bar{C} + \bar{I} + \bar{G}$)

So, we can summarise the effect of government spending as follows:

- It increases the level of aggregate spending or demand (A).
- It leaves the multiplier unchanged.
- It raises the equilibrium level of income

We can therefore see that by raising the level of government spending, it is possible to lift the level of production and income in the economy. This explains why governments use expansionary fiscal policy during times of recession.

Taxes

How does government finance their spending? Through taxes. Government spending is an injection into the circular flow and the taxes that need to be raised in order to finance government spending are a leakage or withdrawal from the circular flow.

Taxes have the opposite effect on aggregate output and income than government expenditure. Government spending however, has a direct impact on the economy while tax has a more subtle or indirect effect. Tax reduces households' disposable income. By lowering the level of disposable income, taxes reduce the consumption spending of households.

How will tax effect:

The level of aggregate spending (A)

The size of the multiplier (α)

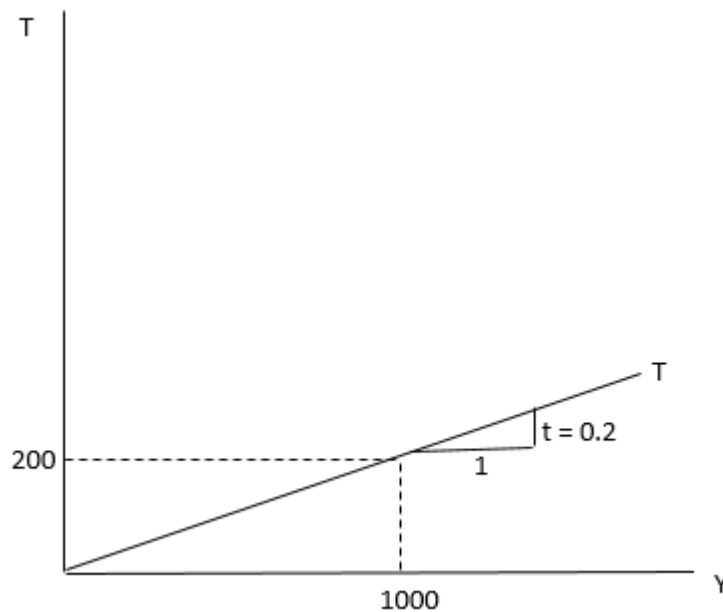
The equilibrium level of income (Y)



There is a clear link between the taxes paid and the income earned in the economy. As consumers earn more income, so they pay more income tax. As consumers spend more, so they pay more VAT. Taxes are clearly NOT autonomous of income. Indeed, we assume that **taxes are a portion of income**. This proportion is called the **tax rate**.

$$T = tY$$

Taxation as a function of income



Taxes are a certain proportion t of income Y . This proportion is called the tax rate.

In the figure $t = 0,2$. When $Y = 0$, then T is also equal to zero.

When $Y = 1000$, then $T = 0,2 Y = 0,2(1000) = 200$.

The slope of the curve is given by t , the slope is $0,2$.

The following represents the effects of taxes on Y :

$$Y_d = Y - T, \text{ but since } T = tY$$

$$Y_d = Y - tY, \text{ or by taking out a common factor,}$$

$$Y_d = (1-t) Y$$

Thus, a consumer's disposable income is a fraction (t) of his total income (Y). If the tax rate (t) was 20%, then the consumer would have 80% to spend on personal consumption and the remaining 20% would be paid to the government in settlement of the consumer's tax burden. Given the difference between total income (Y) and disposable income (Y_d), we have to adjust our original consumption function.

$$C = C + cY_d$$



The introduction of taxes reduces the consumption spending at each positive level of income. If we were to plot the “new” consumption function it would be flatter than before.

$$C = C + c(1 - t)Y$$

The slope of the curve is now given by $c(1-t)$ which is clearly smaller than c . Since taxes are a **leakage**, the introduction of such taxes will lead to a smaller portion of any additional aggregate spending being available to be passed on to the next round. Therefore, the introduction of taxes reduces the value of the multiplier.

Without taxes the multiplier = $\frac{1}{(1-c)}$

With taxes the multiplier = $\frac{1}{1-c(1-t)}$

The impact of the introduction of taxes on the consumption function.

The original function is given by $C = \bar{C} + cY$

With the introduction of a proportional tax, households cannot spend all their income. They first have to pay the tax.

The difference between income earned and tax paid is disposable income Y_d .

The new consumption function is lower than the previous one, except at an income of zero, where tax is also zero.

The consumption function therefore becomes flatter, as indicated by

$$C = \bar{C} + c(1-t)Y$$

It is clear that the slope of the consumption function is flatter when taxation is included. The introduction of a tax has the following effects:

1. Leaves autonomous spending (A) unchanged
2. Reduces the multiplier
3. Reduces equilibrium level of income

The Equilibrium Level of Income in an Economy with a Government Sector

We are now ready to determine the equilibrium level of national income in an economy with a government sector. Government spending (G) in an economy is an injection, BUT taxation (T) is a leakage.

The figure below shows the effect of introducing government into the simple Keynesian model.

The impact of government spending and a proportional income tax on the equilibrium level of income



- The original aggregate spending curve before the introduction of government is shown as A1. The equilibrium level of income is Y1.
- With the introduction of government spending the aggregate spending curve shifts parallel to A2
- With the introduction of a proportional income tax, the aggregate spending curve becomes flatter, as indicated by A3.
- Equilibrium income level changes to Y3.

Algebraically we now have the following model:

$$Y = 1/(1 - c(1 - t)) \times (C + I + G)$$

Where:

Y = equilibrium level of income

$1/(1 - c(1 - t))$ = the multiplier

(C + I + G) = Autonomous spending

Briefly: $Y = \alpha (\bar{A})$

Take note:

The autonomous component of the equation now includes G.

The multiplier is reduced by the inclusion of taxes, thus lowering induced consumption.

Fiscal Policy

If the government wants to raise the equilibrium level of national income. It can achieve this through 2 ways:

1. Increase government expenditure (G) – which will have a direct impact on the economy
2. Decrease taxation (T) – which will have an indirect effect on the economy

If government wants to decrease the equilibrium level of national income they can do the opposite.

To keep things simple, we only consider a change in government spending (G). Suppose the equilibrium level of national income (Y_0) falls below the level that is required to reach full employment (Y_f) in the economy. If the government wishes to close this gap, they can increase their spending and the multiplier will be set in motion. The increase in government spending must be less than the required change to national income, since the multiplier will take over and make up the difference. In fact, the increase in (G) must be equal to the size of the income gap (which the government wishes to close) divided by the multiplier.

$$\Delta Y = \alpha \Delta G$$

$$\text{Therefore, } \Delta G = \frac{\Delta Y}{\alpha}$$



Fiscal policy in the simple Keynesian model

- The original equilibrium level of national income is at Y_0 , which is lower than the full-employment level of income Y_f .
- Government can close the gap between Y_0 and Y_f (i.e. ΔY) by raising government spending (thus raising aggregate spending from ... \bar{A}_0 to \bar{A}_1)
- As a result, the equilibrium level of national income rises from Y_0 to Y_f .
- Note that the objective has been achieved, but that the change in national income is far greater than the initial change in government spending - this is the effect of the multiplier.

Introducing the Foreign Sector: the open economy

We now consider the foreign sector which includes imports and exports.

Exports:

Part of domestic production is exported. Exports are an injection into the economy because as we sell goods and services to foreigners, we bring money into the country in return.

Imports:

Part of domestic expenditure is on imported goods and services. Imports are a leakage because we are paying money out of the country (economy) for the imports.

How will exports and imports affect:

Level of aggregate spending (A)?

The multiplier (α)?

Equilibrium level of national income (Y)?

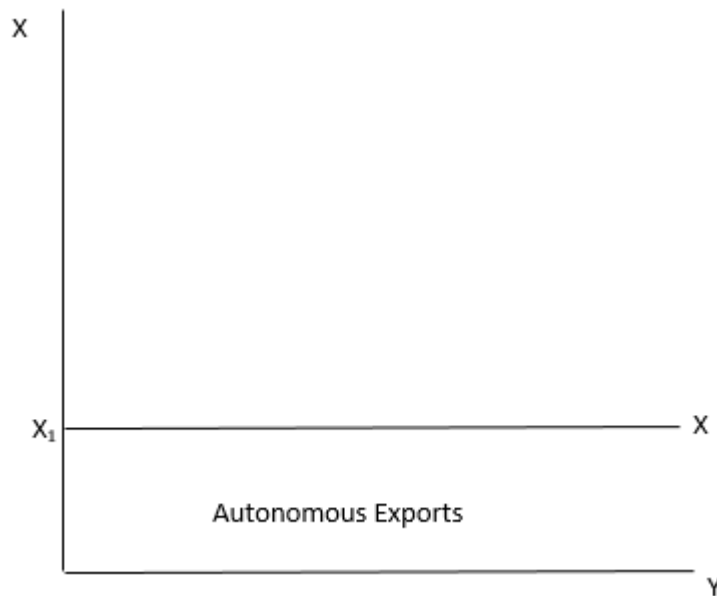
Exports (X)

Exports depend on the economic conditions in the rest of the world, international competitiveness, and exchange rates. Therefore, export levels are determined independently of national income levels within South Africa. **Exports are autonomous.**

$$X = \bar{X}$$



Exports



There is an autonomous relationship between income and exports. **Exports are subject to the multiplier but they do not affect the size of it.** Thus, an increase in exports will raise aggregate spending.

The multiplier will be set in motion and the ultimate effect will be a change in the equilibrium level of national income that is greater than the initial change in exports.

Imports (Z)

Imports are determined by the level of national income. There is a positive relationship between domestic economic activity and imports and it is one of the strongest relationships in the South African Economy. This means that imports should be considered in the context of an induced variable as they are dependent on national income. Seeing that imports are a leakage from the circular flow of income and spending, it is subtracted from total expenditure. The size of the multiplier is however not affected.

Autonomous Imports

Imports are a leakage from the circular flow of income and spending.

Thus:

$$A = C + I + G + X - Z.$$

Since exports (X) and imports (Z) are both linked to the country's trade with the rest of the world, they are often given in brackets.

Thus:

$$A = C + I + G + (X - Z)$$



This may well result in only one figure being given – called the **net exports (NX)** value. If we assume imports are autonomous we can write:

$$Z = \bar{Z}$$

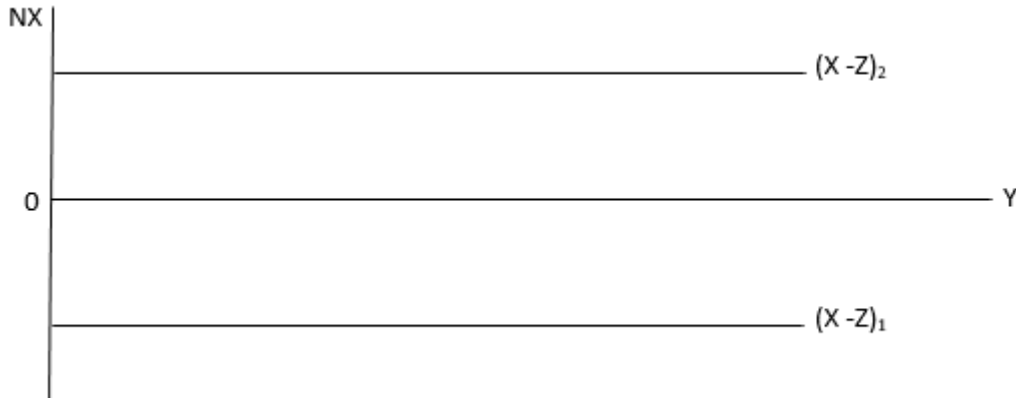
Net exports are therefore also autonomous and the aggregate spending function becomes:

$$A = C + \bar{I} + \bar{G} + (\bar{X} - \bar{Z})$$

If exports are greater than imports, net exports will be a positive number and the level of aggregate spending (A) will be greater at each level of income (Y) compared to before the inclusion of the foreign sector.

If exports are less than imports, net exports will be a negative number and the level of aggregate spending (A) will be lower at each level of income (Y) compared to before the inclusion of the foreign sector.

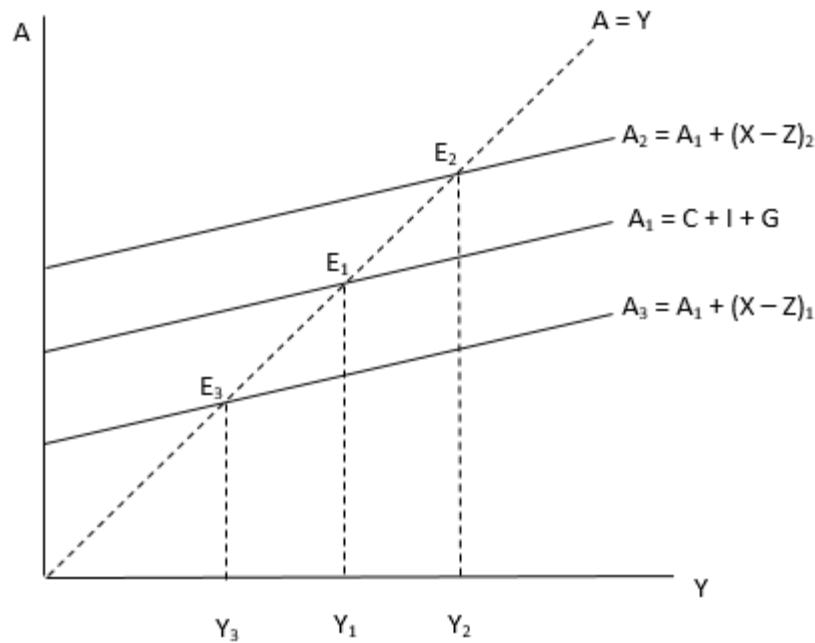
The impact of autonomous net exports



The net exports curve runs into the negative as there is a chance that autonomous imports are greater than exports.

If we add Net Exports to the demand curve it can either shift it upwards or downwards depending if it is positive or negative.





When Net Exports are positive, we shift the curve upwards to A_2 when they are negative, we shift to A_3 .

Induced Imports: Imports as a function of income

When the level of income in the domestic economy increases, it leads to an increase in imports. Though the algebraic treatment of induced imports looks complicated, it is not the case. It is treated in the same way as we treated private consumption function. That is, it consists of an autonomous component \bar{Z} and an induced component, mY . The import function can therefore be written as:

$$Z = \bar{Z} + mY$$

The extent to which imports increase for a given increase in income depends on the **marginal propensity to import, m** . As imports increase, a smaller portion of any increase in income is spent locally and the size of the multiplier decreases as a result.

Note: Except if it is otherwise stated, we **treat imports as a function of income** in this module, i.e. all questions in the assignments and examination refer to induced imports (including the impact of the marginal propensity to import on the multiplier.)



Algebraically, the model for the inclusion of induced imports looks as follows:

$$Y = A \rightarrow (\text{EQU CONDITION})$$

$$A = C + \bar{I} + \bar{G} + (\bar{X} - Z)$$

$$\text{Where: } C = C + c(1-t)Y$$

$$\text{and } Z = \bar{Z} + mY$$

Therefore:

Then solving for Y, we are left with:

$$Y = \frac{1}{1 - c(1-t) + m} \times (\bar{C} + \bar{I} + \bar{G} + \bar{X} - \bar{Z})$$

$$\text{But } Y = \alpha (\bar{A})$$

$$\text{Where: } \frac{1}{1 - c(1-t) + m} = \text{the multiplier } (\alpha)$$

$$(\bar{C} + \bar{I} + \bar{G} + \bar{X} - \bar{Z}) = \text{autonomous aggregate spending } (\bar{A})$$

Note that the equilibrium level of income is always equal to the multiplier multiplied by the autonomous components of aggregate spending, that is

$$Y_0 = \alpha (\bar{A})$$

The multiplier now includes a new term **m**, the **marginal propensity to import**. Since it is included in the denominator of the equation, **the greater m is, the smaller the multiplier becomes**. The greater imports are, the greater the proportion of income that leaks from the flow of spending and income to the rest of the world in each round. Autonomous spending A consists of the same components as before.



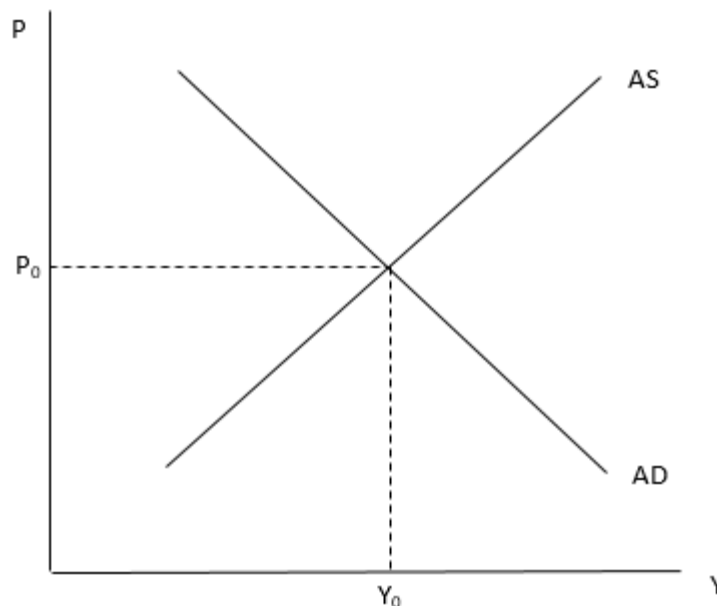
Unit 8: Aggregate demand and supply curves

The Aggregate Demand-Aggregate Supply Model (AD-AS)

We now relax the remaining assumptions of the original Keynesian model and adjust the model to allow for variable prices, wages and interest rates.

The aggregate demand (AD) and aggregate supply (AS) model is the most commonly used model in macroeconomics.

Aggregate demand and aggregate supply



Note the following:

1. The AD-AS model relates to demand and supply of goods and services in general.
2. On the vertical axis is the general price level in the economy.
3. On the horizontal axis is the level of total production and income of the economy.
4. AD is the aggregate demand curve which shows the relationship between the total real expenditure on goods and services and the price level.
5. AS is the aggregate supply curve which shows the relationship between real production or output and the price level.
6. The equilibrium price level is P_0 and the equilibrium output level Y_0 .



The AD-AS model differs from the Keynesian model in two main ways:

1. It allows for supply conditions – in the Keynesian model we simply assumed AS would adjust passively to aggregate spending.
2. It incorporates a variable price – in the Keynesian model these were assumed constant.

The assumptions of the simple Keynesian and AD-AS models.

| Assumptions in Keynesian models | Assumptions in AD-AS model | Implications for AD-AS model |
|--|---|---|
| Prices are given | Prices are variable | The model can be used to study inflation |
| Wages are given | Wages are variable | Aggregate supply can change independently from aggregate demand; the impact of changes in the general level of wages on production, income, employment and inflation can be analysed. |
| The money supply and interest rates are given | Interest rates are variable and the money supply can change | The model can be used to study the impact of changes in the monetary sector, including monetary policy. |
| Spending (demand) is the driving force that determines the level of economic activity – supply adjusts passively to demand | The level of economic activity is determined by the interaction of aggregate supply and aggregate demand. | Changes can originate on both the supply and the demand side of the economy and the interaction between the two always has to be taken into account. |

The Aggregate Demand Curve

The AD curve is determined by everything that affects total spending (A) in the economy.

1. Expansionary fiscal policy – rightward shift in the AD curve
2. Contractionary fiscal policy – leftward shift in the AD curve
3. Expansionary monetary policy - rightward shift in the AD curve
4. Contractionary monetary policy - leftward shift in the AD curve



Impact of key changes on the aggregate demand curve

| Change | Impact on AD curve |
|--|--------------------------|
| Price level P increases | Move Upwards and along |
| Price level P decreases | Move Downwards and along |
| Autonomous consumption \bar{C} increases | Shift Right |
| Investment spending I increases | Shift Right |
| Government spending G increases | Shift Right |
| Taxes T decrease | Shift Right |
| Net exports (X-Z) increase | Shift Right |
| Interest rate (i) decreases | Shift Right |
| Autonomous consumption \bar{C} decreases | Shift Left |
| Investment spending I decreases | Shift Left |
| Government spending G decreases | Shift Left |
| Taxes T increase | Shift Left |
| Net exports (X-Z) decrease | Shift Left |
| Interest rate (i) increases | Shift Left |

Aggregate Supply Curve

The aggregate supply curve (AS) is governed by **costs of production** it is concerned with the cost of producing the **total output of goods and services** (e.g. the GDP).

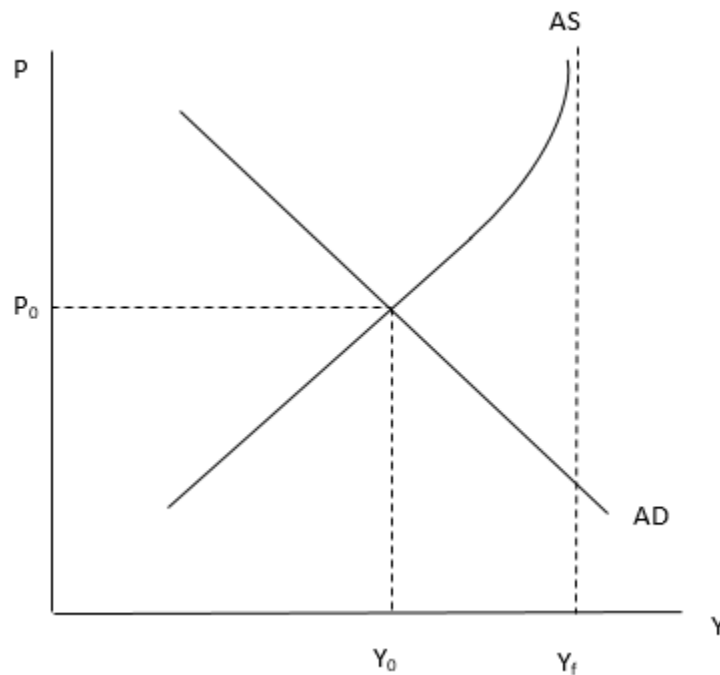


Impact of key changes on the aggregate supply curve.

| Change | Impact on AS curve |
|---|--------------------------|
| Price level P increases | Move Upwards and along |
| Price level P decreases | Move Downwards and along |
| Prices of factors of production (eg: wages) increase | Shift Left |
| Prices of imported capital and Intermediate goods (e.g. crude oil) Increase | Shift Left |
| Productivity decreases | Shift Left |
| Weather conditions deteriorate | Shift Left |
| Prices of factors of production (e.g. wages) decrease | Shift Right |
| Prices of imported capital and Intermediate goods (eg: oil) decrease | Shift Right |
| Productivity increases | Shift Right |
| Weather conditions improve | Shift Right |

We distinguish between the short-run AS curve and a long-run AS curve (labelled LRAS). In the short run the AS is positive sloping from left to right but in the long run the LRAS is vertical.

The long-run AS curve

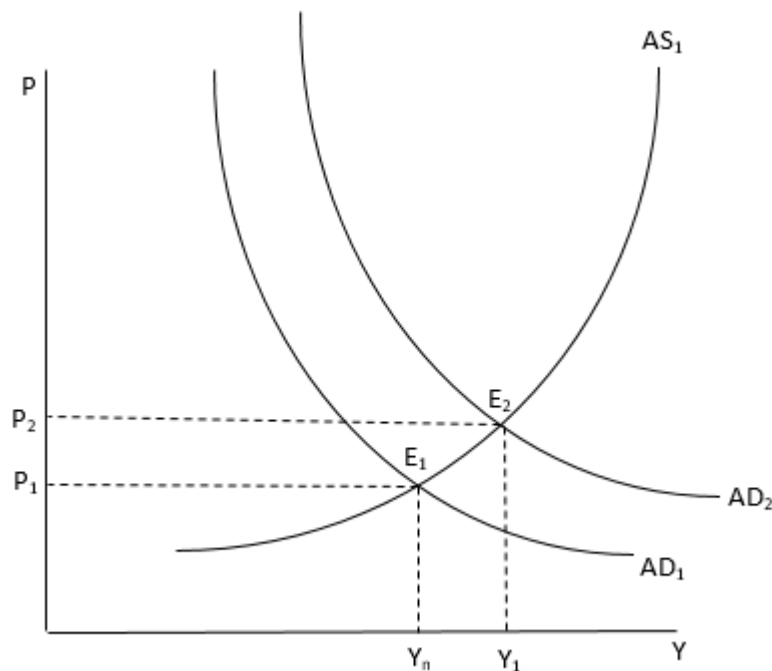


The AS curve is a **positively-sloped straight line** but becomes vertical as it approaches Y_f . This is due to the fact that production becomes more expensive as we approach full employment. The long-run level of output is known as **potential output, full employment output** or the **natural rate of output**. Improvements in productivity of factors of production will shift the LRAS right while a deterioration in productivity of factors of production will shift the LRAS left.

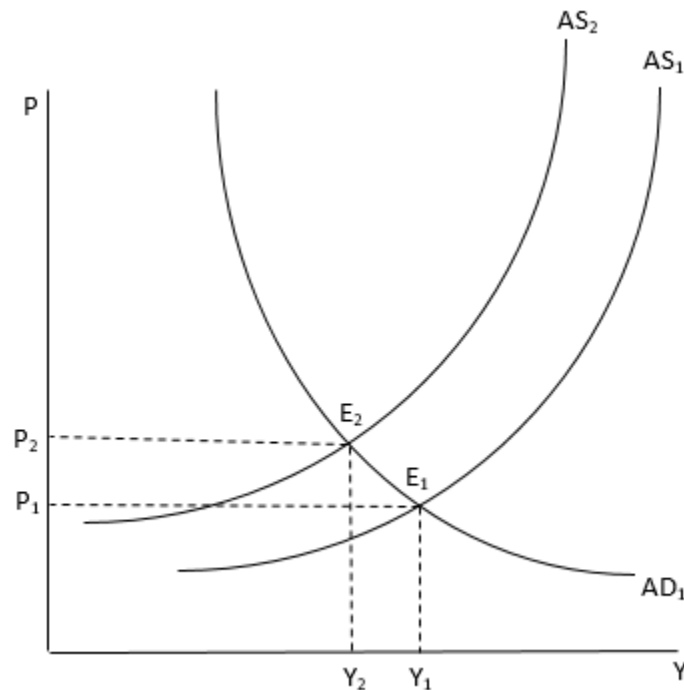
Changes in AD and Changes in short run AS

Draw and explain the following graphs:

1. Expansionary monetary and fiscal policy in the AD-AS framework



An increase in the price of imported oil in the AD-AS framework



The monetary transmission mechanism

Up to now it was assumed that the **money supply and the interest rate are fixed**. By assuming a fixed money supply and a fixed interest rate we eliminated the monetary policy. We drop these assumptions in the AD-AS model and allowed for the impact of a variable interest rate on aggregate demand. Remember, a **fall in the interest rate will increase aggregate demand and that an increase in the interest rate will reduce aggregate demand**. The way in which changes in the monetary sector are transmitted to the real side of the economy is called the **monetary transmission mechanism**.

The **money supply is not exogenous** but endogenous (in the sense of being determined by the interaction between the interest rate and the demand for money).

The monetary transmission mechanism starts with a **change in interest rates**, not a change in the money supply.

The links between interest rates, investment spending and the rest of the economy:

When the Monetary Policy Committee (MPC) of the SARB adjusts the **repo rate**, interest rates (eg: prime rates) change in the same direction (we use a single interest rate to represent all these rates).

A key element of the transmission mechanism is the relationship between the interest rate (*i*) and investment spending (*I*), which is an important component of aggregate spending (*A*) and aggregate demand (*D*).



The monetary transmission mechanism

The **transmission mechanism** is based on the assumption that **prices and wages are fixed**. With the AD-AS model the first part of the transmission mechanism is exactly the same – the only difference is that, since prices are no longer fixed, an increase in aggregate spending (A), which causes an increase in aggregate demand (AD), now results in **increases in the price level (P)** as well as in total (real) production and income (Y).

An increase in investment spending is illustrated by a **rightward shift of the AD curve**, from AD_1 to AD_2 . This results in an increase in the price level, from P_1 to P_2 , as well as an increase in total production and income, from Y_1 to Y_2 .

Since the full impact of the increase in investment spending does not fall on production and income (because prices can increase), **the introduction of variable prices and wages reduces the size of the multiplier**.

The **monetary transmission mechanism** with variable prices and wages can be summarized as follows:

$$\Delta i \rightarrow \Delta I \rightarrow \Delta A \rightarrow \Delta AD \rightarrow \Delta Y \text{ and } \Delta P$$

Note the important links in the monetary transmission mechanism:

Interest rate and investment spending

If changes in the interest rate do not affect investment spending, the above chain breaks down. In other words, if investment demand is completely interest inelastic (illustrated by a vertical investment demand curve) a change in the interest rate will not have any impact on investment spending.

Aggregate demand, and the price level and total production or income

When aggregate demand (AD) changes, the relative impact on the price level (P) and the level of total production or income (Y) will depend on aggregate supply conditions.

To summarise: *The smaller the interest elasticity of investment demand, and also the steeper the AS curve, the less effective an expansionary monetary policy will be as a means of stimulating the economy.* However, the steeper the AS curve, the more effective a contractionary monetary policy will be as a means of combating inflation.

Monetary and fiscal policy in the AD-AS framework

Expansionary and contractionary monetary and fiscal policies

Monetary and fiscal policies are what we call demand management policies. An **expansionary monetary policy** is implemented when the SARB reduces the interest rate at which it provides credit to the banks called the “repo rate”. Monetary policy is contractionary when the SARB raises the interest rate.



An **expansionary fiscal policy** is applied when the government increases government spending (G) and/or reduces taxes (T). Fiscal policy is contractionary when government spending is reduced and/or taxes are increased.

Monetary and fiscal policy lags:

A lag is the time between a monetary or fiscal policy change and its effect on the economy.

The recognition lag

This is the lag between changes in economic activity and the recognition or realization that changes have occurred.

The decision lag

Once it has been established what is happening, the authorities have to decide how to react.

The implementation lag

Once the decisions have been taken, it takes time to implement them. In the case of fiscal policy, plans have to be drawn up and Parliamentary approval usually has to be obtained before the plan can be put into action.

The impact lag

When the policy measures are introduced, a further period elapses before they actually affect economic behaviour. In the case of fiscal policy, an increase in taxes will, for example, not have its full impact on the economy immediately. In the case of monetary policy, the impact lag is estimated to be between 12 and 18 months.

The relative effects of monetary and fiscal policy

Fiscal policy is usually more successful in stimulating a depressed economy, while monetary policy is more effective in dampening an overheated economy suffering from severe inflationary pressures.

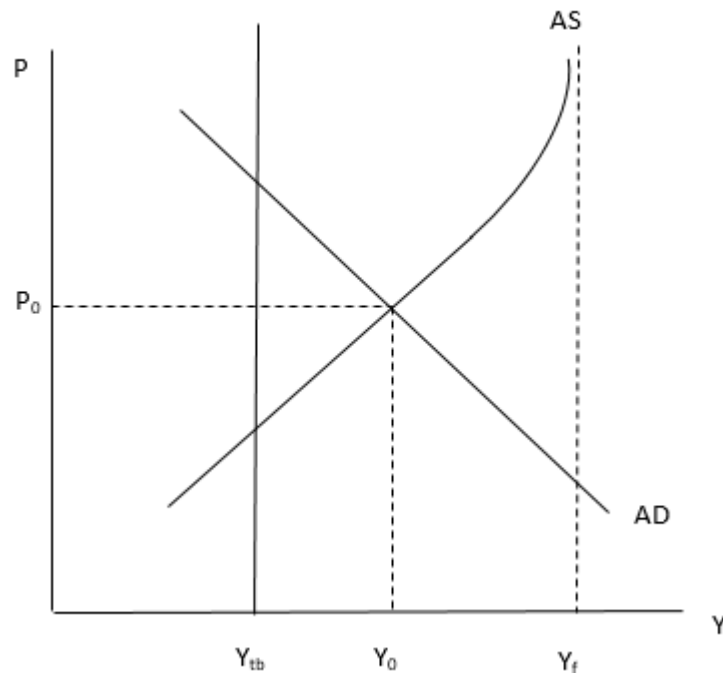
The policy dilemma in an open economy

Policymakers are often confronted with a dilemma. Steps taken to increase production, income and employment will also raise the general price level, while steps taken to lower the price level may result in lower production and income and increased unemployment. A further dimension to this policy dilemma concerns the balance of payments.



Once exports and imports are taken into account, macroeconomic policy becomes even more complicated, particularly where economic growth requires the importation of capital goods. This additional complication is often referred to as the **balance of payments constraint**. Authorities want to stimulate production and income to reduce unemployment, but balance of payments considerations can prevent such a strategy.

A policy dilemma



The equilibrium level of income Y_0 and price P_0 is determined by aggregate demand AD and aggregate supply AS.

Y_{tb} indicates the level of income at which exports X equal imports Z . Y_f indicates the full-employment level of income.

At Y_0 there is unemployment and a deficit on the current account of the balance of payments. Measures to reduce the deficit will increase unemployment, while measures to reduce unemployment will increase the deficit.



Unit 9: Inflation

NB: Inflation is the continuous and considerable increase in the general price level.

Note: the definition makes it clear that the **increase** in prices must be **continuous or ongoing**. A once off-price rise does not constitute inflation. The rise in prices must be of a significant amount. A rise in the price of a specific good (while all other goods and services remain at a constant price) does not constitute inflation, the increase in prices must be for goods and services in general.

The Measurement of Inflation

The Consumer Price Index (CPI)

The most frequently used measurement or indicator of inflation is the CPI. The CPI is an index of the prices of a representative “basket” of consumer goods and services bought by a typical or average South African household. In constructing the CPI, Stats SA

1. selects the goods and services to be included in the basket
2. assigns a weight to each good or service to indicate its relative importance
3. decides on a base year for calculating the CPI
4. decides on a formula for calculating the CPI
5. collects price each month to calculate the value of the CPI for that month

Inflation is calculated as the rate of (percentage) change of the CPI from one period (usually a year) to the next. CPI is measured and expressed on a monthly basis, therefore in any given year you will have twelve values – one for each month.

Month on the Same Month during the Previous Year

The most common practice in South Africa is to compare the CPI for one month in the current year with the same month of the previous year.

$$\text{Inflation} = ((\text{new} - \text{old}) / \text{old}) \times 100$$

New = latest value of CPI

Old = previous value of CPI

Annual Average on Annual Average – we calculate the average CPI value for the current year and compare this to the average of CPI for the previous year. Substitute these values into the equation above to get the annual average inflation rate.



Core inflation

The main objective of estimating core inflation is to capture the underlying inflationary pressures in the economy.

Core inflation is estimated by excluding highly volatile priced items from the CPI basket. These products are usually subject to temporary influences or affected by government intervention or policy. The following items are excluded from the CPI basket to obtain the basket which is used to calculate the core inflation rate (with reasons):

1. Fresh and frozen meat and fish (prices may be highly volatile)
2. Fresh and frozen vegetables and fresh fruit and nuts (prices may be highly volatile)
3. Interest rates on mortgage bonds and overdrafts/personal loans (excluded to eliminate the effects of changes in monetary policy.)
4. Value-added tax (VAT) (to eliminate the distorting effects of changes in VAT)
5. Assessment rates (because they are determined by local government)

The production price index (PPI)

Whereas the CPI measures the cost of a representative basket of goods and services to the consumer, the PPI measures prices at the level of the first significant commercial transaction. For example, the prices of imported goods are measured at the point where they enter the country and not where they are sold to consumers. Manufactured goods are priced when they leave the factory, not when they are sold to consumers.

Another important feature of the PPI is that it includes capital and intermediate goods, but excludes services (which account for 45% of the CPI basket). The PPI is therefore based on a completely different basket of items than the CPI. Where certain items overlap, their weights also differ significantly between the PPI and the CPI.

The PPI measures the cost of production rather than the cost of living.

The PPI is used as a leading indicator for the CPI. I.e: changes in the PPI are usually followed by changes in the CPI in the same direction some months later.

The implicit GDP deflator

Stats SA and the SARB transform the GDP at current prices (or nominal GDP) to GDP at constant prices (or real GDP). This is done to eliminate the effects of inflation. Real GDP measures GDP in terms of the prices ruling in a certain base year (constant prices). This provides a basis for calculating economic growth. The difference between nominal GDP and real GDP indicates what happened to prices. There is another index that can be used to calculate an inflation rate called the **implicit GDP deflator**. It is an implicit index since it is a side effect of the calculation of economic growth.



| Year | GDP at current prices (R millions) | GDP at constant 1995 prices (Rmillions) | GDP deflator (1995 = 100) | Inflation rate (%) |
|------|------------------------------------|---|---------------------------|--------------------|
| A | B | C | D | E |
| 1999 | 813 683 | 885 365 | 91,9 | |
| 2000 | 922 148 | 922 148 | 100,0 | 8,8 |
| 2001 | 1 020 007 | 947 373 | 107.67 | 7.67 |
| 2002 | 1 168 699 | 982 121 | 119 | 10.52 |

GDP deflator for 2000 = 100,0

GDP deflator for 1999 = 91,9

Calculating GDP deflator for a particular year = $B/C \times 100$

Inflation rate for 2000 = $[(100,0 - 91,9) / 91,9] \times 100 = 8,8\%$

The Effects of Inflation

The overall effects of inflation may be divided into three categories:

1. Distribution Effects
2. Economic Effects
3. Social and Political Effects

Distribution effects – Inflation affects the distribution of income and wealth among the participants in the economy.

A significant effect is in terms of debtors and creditors. The general rule states that inflation **benefits debtors** at the **expense of creditors**. Keep in mind that the real value of money (the buying power) decreases as prices rise. In addition, if the interest the debtor is paying to the creditor for the use of the money is less than the prevailing inflation rate, then the creditor will receive less real interest (less real value for the money). **In fact, if the nominal interest rate is less than the rate of inflation, then the real interest rate is negative.**

Inflation also **redistributes income** and wealth from the elderly to the young. The reasoning behind this is that younger people tend to be net borrowers, while the elderly have relatively fixed nominal incomes.

Inflation can also **redistribute from the private sector to the government**. The government is ALWAYS a debtor.



The government can also gain through the tax system. South Africa has a progressive income tax system. In other words, the more you earn the more you pay. N times of inflation, taxpayer's nominal income rises – even when their real incomes remain unchanged or even decline. **Taxes are calculated on nominal income (not real income)** which means that as nominal income increases, so do the income tax payments. Consumers are forced to pay higher taxes while being no better off than before. This is known as **bracket creep**.

Economic Effects - Inflation can have serious consequences for the modern economy, including higher unemployment and lower levels of economic growth.

In times of inflation, efforts of entrepreneurs may be directed away from innovating and production, to simply buying and selling.

Inflation can also lead to **speculative** practices. In terms of these practices people try to achieve better returns by speculating in shares, property, art, antiques – to name a few. The argument that they offer is that these products have a better chance of retaining their value in times of high inflation. This speculation often takes place at the expense of productive investment in the economy.

Inflation also **reduces savings**. Consumers feel that there is no real benefit for saving because their savings lose real value. As a result, they choose to spend their money rather than save it.

The final (and most serious) consequence of inflation in terms of the economy is the **effect that inflation has on the balance of payments**. Inflation means that the domestic price is rising relative to the prices in the rest of the world. As a result, **exports become less attractive** to foreign buyers, and imports more attractive to domestic consumers. This, in turn, results in more money leaving the country than entering, and as a result, the BOP will become less favourable.

An increase in inflation leads people to think inflation will rise further in the future. As a result, they try to be compensated for the expected future rise in general prices. This means workers will try negotiate higher wages now (when inflation is lower) because they believe that it will rise in the future. If they are successful, then the result will be rising prices: a kind of self-fulfilling prophecy.

The Causes of Inflation

Demand-Pull Inflation

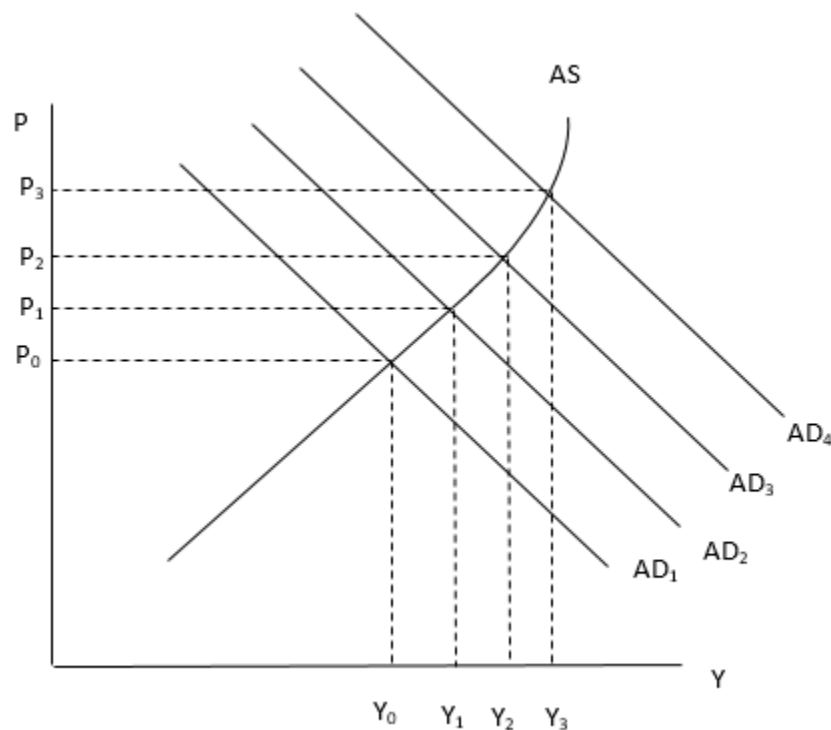
This form of inflation occurs when aggregate demand in the economy rises and is not met by an appropriate increase in aggregate supply. As a direct result of AD rising and AS remaining unchanged, **prices start to rise** – the excess demand “pulls up” the prices. The increase in AD can be the result of a number of individual factors or any combination of factors:



1. A rise in consumption spending by the households.
2. A rise in investment spending by the firms.
3. A rise in government spending.
4. An increase in exports to the foreign market.

All of these rises mean that there is an **increase in the demand for money** and, as a result, an **increase in the supply of money** – since the supply of money is demand determined.

Demand-pull inflation



The AD curve shifts by the same amount each time, but price increases by a greater amount than the aggregate output as we move up the AS curve.

Demand-pull inflation is shown as a rightward shift of the AD curve. An increase in AD leads to a rise in prices (while AS remains constant) as well as an increase in production and income (Y). Therefore, **demand-pull inflation has a positive effect on the level of income, production and employment** – that is, of course, if we assume that there are idle resources in the economy. What if the economy is operating at full employment? In this case, there are no benefits to be achieved in terms of income, production and employment. In fact, the only result is increasing prices. This is shown in the figure where AS becomes vertical at Y_f .



Measures that may be taken to prevent demand-pull inflation:

Restrictive monetary policy: raising interest rates and limiting the increase in the money supply. This raises the cost of credit and also reduces the availability of credit to the various sectors of the economy. People will borrow less and spend less money.

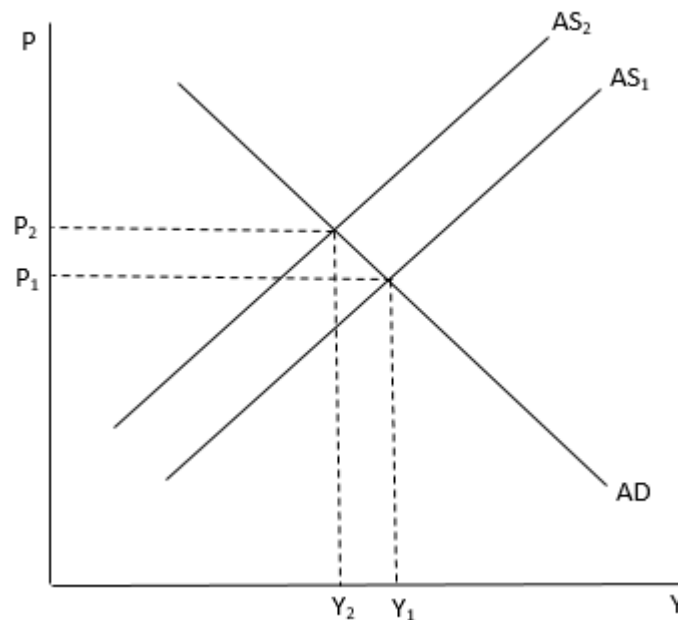
Restrictive fiscal policy entails a reduction in government spending and /or increased taxation.

It is important to note that the fight against demand-pull inflation results in a **trade-off between inflation and unemployment**. Restrictive monetary or fiscal policy will lead to a reduction in the general price level (in reality, a slowing of the inflation rate), but lower levels of output will result in greater levels of unemployment.

Cost-Push Inflation

This inflation is caused by an increase in the costs of production. The rising costs of manufacturing “push-up” the price level. There are generally five main causes of cost-push inflation:

1. Increase in wages and salaries.
2. The cost of imported goods and services.
3. Increase in profit margins.
4. Decreased productivity.
5. Natural disasters.



Cost-push inflation

Cost-push is shown as a shift to the left in the AS curve. An increase in the costs of production results in an increase in the price and decrease in income, production and employment.

How cost-push inflation may be combatted:

Measures must be taken to avoid increases in the costs of production such as keeping increases in wages and salaries and profits under control (incomes policy). Another way to keep cost of production lower is to increase productivity.



Unit 10: Unemployment and The Phillips Curve

The Unemployment Pool

The rate of unemployment is a stock concept as it is measured at a point in time. It is calculated as the number of unemployed persons as a percentage of the total labour force. The movement of people into, and out of, the unemployment pool is a flow concept as it is measured over a period of time.

The following are some of the reasons why people may **enter the unemployment pool**:

1. A new entrant into the job market – looking for the first time. A returning person to the labour market – not having worked for some time.
2. A person may leave his current employment so as to look for another job – he is unemployed while searching.
3. Person may be retrenched, fired or made redundant.

Reasons why people may **leave the unemployment pool**:

1. A person finds a job and is hired.
2. Someone laid off may be re-called.
3. An unemployed person may become discouraged and stop looking, and, therefore, by definition, leave the labour market.

Measuring Unemployment

South Africa has what we call a **strict definition** and an **expanded definition** of unemployment. The strict definition is considerably **lower** than the expanded definition, but the expanded definition is by far the more accurate and truly representative figure of unemployment in South Africa.

Definition of unemployment:

According to the strict definition, unemployed persons are those persons who, being 15 years and older,

- a. Are not in paid employment or self-employment,
- b. Were available for paid employment or self-employment during the seven days preceding the interview, and
- c. Took specific steps to during the four weeks preceding the interview to find paid employment or self-employment.



The expanded definition omits requirement (c). In other words, the expanded definition requires only a desire to find employment.

The Costs of Unemployment

Individual costs – those suffered by the unemployed person. These include loss of income, hunger, cold, ill health and even death. In developed countries the impact of unemployment on the individual has been significantly reduced, owing to the existence of unemployment benefits and other social welfare spending programmes.

Costs to development – unemployment also means a loss of experience and human development. Human development that is not carried out through training and development of personnel is lost forever.

Unemployment is a loss to society - unlike other FOPs, labour is not a resource that can be saved and used later. If it is not used now, it is wasted and lost forever.

Unemployment can cause social and political unrest and even violence, and most likely an increase in crime.

Types of Unemployment

Voluntary and **involuntary** – this is the most basic distinction made by economists. Naturally it is open to considerable debate. Strictly speaking ALL unemployment should be seen as involuntary.

Frictional – arises because it takes time to find another job after you have left your previous employer. The composition of frictional employment is constantly changing (as new people enter and others find a new job and leave). This kind of unemployment is unavoidable, due in part, to imperfect knowledge.

Seasonal – certain jobs/industries only need workers for part of the year. Consider the fruit picking industry.

Cyclical – unemployment is triggered by the natural cycle of modern economies. As the economy enters a downturn, so production dips and jobs are lost and unemployment rises. In theory this is a temporary problem since the economy will pick up again and when it does, the process will reverse itself.

Structural – this form of unemployment arises when there is a mismatch between worker qualifications and job requirements. In other words, it is unemployment that arises due to certain skills development and additional training being required to equip the candidate with the ability to do the job advertised.



Unemployment in the Keynesian and AD-AS models

An aggregate production function

The production function shows the link between the level of real production Y and the level of employment N .

Full employment in the labour market is indicated by N_f and the corresponding full-employment level of production or income by Y_f .

The changes in AD and AS show that there is a **clear relationship between changes in price and changes in employment**. If AD increases, so production rises, prices rise, and unemployment falls. Thus, there is an inverse relationship between inflation and unemployment – as inflation rises, so unemployment falls and as inflation falls, so unemployment rises.

Unemployment and Inflation: the Phillips Curve

The changes in AD and AS show that there is a clear relationship between changes in price and changes in employment.

Aggregate demand, production, prices and unemployment

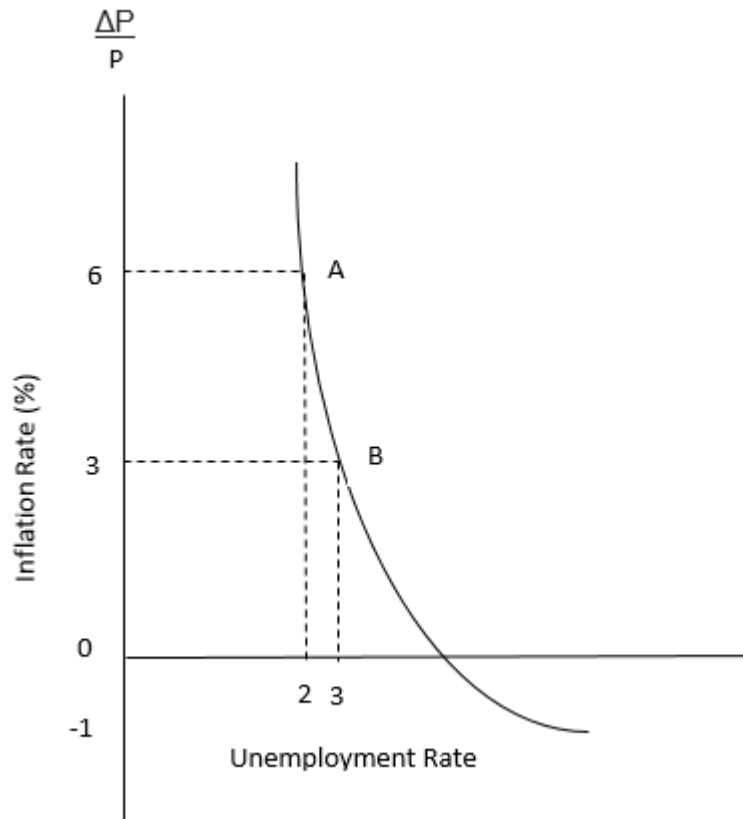
| Change in aggregate demand | Impact on | | |
|-------------------------------|-------------------|--------------------|---------------------|
| | Production Y | Price Level P | Unemployment U |
| AD Increase | Increase | Increase | Decrease |
| Decrease | Decrease | Decrease | Increase |

From the table, you can see that if AD increases, so production rises, prices rise, and unemployment falls. Thus, there is an inverse relationship between inflation and unemployment – as inflation rises, so unemployment falls and as inflation falls, so unemployment rises.

We use what we call the **Phillips curve** to illustrate the above relationship. In the figure below, it is easy to see that as inflation (on the vertical axis) increases so the unemployment rate (on the horizontal axis) falls. As inflation increases from 3% to 6% so the unemployment rate falls from 3% to 2%.



The Phillips curve



The Trade-off Principle

It is clear that the two variables can, in fact, be traded off against each other. If you wish to achieve a reduction in the level of unemployment, all you need to do is be prepared to accept a rise in the general price level. This theory found significant support shortly after it was published and many papers were written substantiating or justifying the conclusions. It was particularly popular in the 1960s when both inflation and unemployment were low.

In the 1970s **both inflation and unemployment increased simultaneously** – a phenomenon known as **stagflation**. This phenomenon is most commonly associated with a supply shock that causes AS to shift to the left or cost push inflation. In terms of the Phillips curve, stagflation is shown by a rightward shift of the curve.



A simultaneous increase in inflation and unemployment



Stagflation is a problem that is not easily solved. If expansionary monetary and fiscal policy are used, AD will be increased and, as a result, unemployment will be lowered. However, inflation will rise further. Similarly, if contractionary monetary and fiscal policies are used to dampen AD and thus lower the rate of inflation, unemployment will increase. The appropriate policy is, therefore, a combination that will lower both inflation and unemployment.

Policies to combat unemployment

To combat unemployment, steps need to be taken to limit the supply of labour and to stimulate the demand for labour.

Supply side steps:

1. Steps should be taken to limit population growth (long-term strategy).
2. Stricter immigration control (controversial)
3. Reduce oversupply of unskilled and semi-skilled labour by improving the quality of labour through education and training.

Demand side steps:

1. Additional employment opportunities can be created by raising the aggregate demand for goods and services and increasing the labour intensity of production.
2. Increased government spending (expansionary fiscal policy)



3. Stimulate consumption and investment spending by lowering taxes or interest rates.
4. Raise the demand for domestically produced goods and services by increasing the demand for exports
5. Promoting labour intensive industries and labour-intensive production methods.
6. Special employment programmes such as building dams, sports stadiums, etc.
7. Promoting small businesses and the informal sector.
8. Offering tax incentives or subsidies to firms to stimulate employment.



Unit 11: Economic Growth

The Definition and Measurement of Economic Growth

Economic growth is defined as the **year on year increase in total production or income**.

Alternatively, it is defined as “the annual rate of increase in real gross domestic product (real GDP).” Note we use a **real value** meaning inflation has been removed. Remember that inflation is a very misleading value and can distort true values substantially. The value must also be adjusted for population growth – **per capita**. Positive economic growth, therefore, occurs **ONLY** when real production grows faster than population growth. In reality, economic growth is simply measured as the real growth in production, with no regard to rate of population growth.

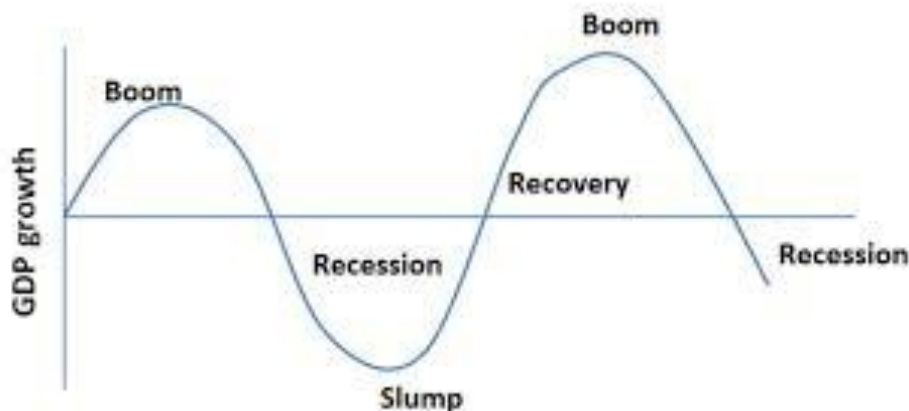
The most common measure of economic growth is change in GDP.

What are the **problems** with using GDP?

1. Goods and services not sold in the market are not counted in GDP – Non-market production.
2. Some activities or transactions in the economy are never recorded in the informal sector such as illegal activities.
3. Data is not always accurate. Values are often revised and adjusted.
4. GDP has no indicator of economic welfare. This means that R100 million spent on military goods and hardware is measured in the same way that R100 million would be measured when spent on education. But who actually benefits from the increase?

Despite all these issues, GDP is still the best alternative that we have to measure economic activity. Economic growth is usually calculated on an annual basis.

The business cycle:



This is the pattern of upswings (expansion) and downswings (contraction) that all modern economies are faced with over a number of years. One complete business cycle has four phases: a trough, an upswing or expansion (a “boom”), a peak and a downswing or contraction (“recession”).

A complete business cycle is between 2 of the same points eg: from one trough to the next trough. The cycle describes a pattern of fluctuation around the long-term trend. After the trough there is an upswing, until the peak is reached, followed by a downswing and trough.

Sources of Economic Growth

The sources of growth are grouped into **supply factors** and **demand factors**.

Supply Factors

These factors relate to the factors of production (FOPs). Supply factors are those factors which cause an expansion in productive capacity or potential output of an economy.

Natural resources – in the narrow sense a country’s natural resources are fixed. But what of finding new reserves of minerals? What of fishing a certain area more efficiently? It is, therefore, ALWAYS possible to increase the exploitation of the available natural resources.

Labour – quality and quantity. The quantity is dependent on the physical growth of the population. Quality, on the other hand, depends on education and training. The impact of HIV/AIDS is an important consideration for the South African economy over the next decade. Another important factor is the net migration rate: skilled individuals are leaving and being replaced by semi and un- skilled migrant workers.

Capital – quantity and quality. Economic growth needs both a greater quantity and quality of capital. An increase in capital stock can either be in the form of capital widening or deepening. *Capital widening* means that the growth in capital is at the same rate as the growth in the labour force. *Capital deepening* means that the growth in capital is greater than the growth in the labour force.

Entrepreneurship – the most important factor. Without entrepreneurial spirit, an economy is doomed to fail. It is the entrepreneur that groups the other FOP together with the objective of making a good or service, in order to realise a profit. If the entrepreneurial spirit is lacking, government will frequently try to take this role upon themselves, often with disastrous consequences.

Demand Factors

In addition to the above factors of production, there needs to be a corresponding and adequate or growing demand for the goods and services being produced by the economy.



The various components of AD can be used to distinguish between the three demand factors:

Domestic demand: consists of consumption (C), investment (I) and government spending (G).

Export demand: international trade is an important factor in economic growth and so should be encouraged.

Import substitution: another growth strategy is that of substituting imported goods with locally manufactured goods.

