ECONOMICS FOR SENIOR FIVE

UNIT 1 MARKET STRUCTURES.

A market is any arrangement that brings buyers and sellers into close contact to transact business with an aim of making profits

Market structure is a range of unique features or characteristics which influence the behaviour, conduct and performance of firms which operate in a particular market.

Categories of market structures

Market structures are categorized into two:

1. **Perfect markets**. These are markets where buyers and sellers are numerous and price cannot be manipulated. These include perfect competition
2. **Imperfect markets**. These are markets where individual buyers and sellers can influence prices and production. These includes monopoly, oligopoly, monopolistic competition etc.

   Characteristics of market structures

   Market structures differ in the following ways:
   - The number of firms in the market; either one, few or many.
   - Nature of the product dealt with; whether homogeneous or differentiated or heterogeneous.
   - Entry and exit restrictions; either free entry, limited or highly restricted.
   - Cost conditions.
   - Degree of consumers' knowledge of market conditions; perfect knowledge or no knowledge at all.
   - Firm's ability to influence demand through advertising.
   - Degree of government interference

Forms of market structures

1. Perfect competition

Perfect competition is a market structure where there are several buyers and sellers (firms) dealing in a homogeneous commodity and possessing perfect knowledge of market conditions at that particular time.

Pure competition is a market structure where there are several buyers and sellers (firms) dealing in a homogeneous commodity but consumers and sellers do not possess perfect knowledge of market conditions and there is no perfect mobility of factors of production.

Features of perfect competition

- There are many buyers and sellers in the market

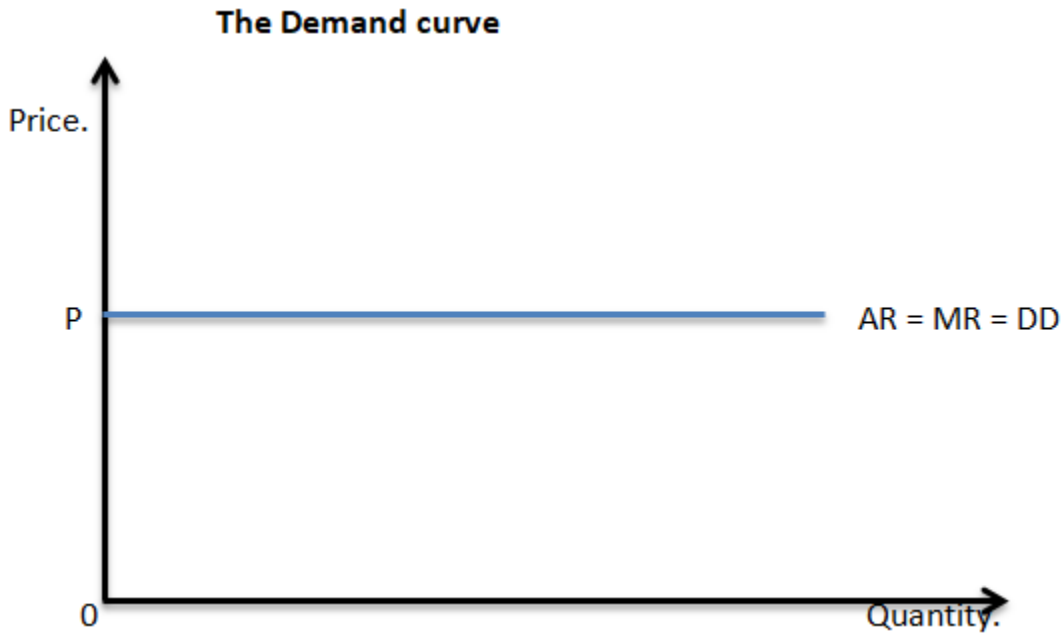
- There is product homogeneity i.e. all the commodities supplied in the market are identical (the same).
- There is free entry and exit in the industry
- There is no government intervention in form of fixing prices
- There is stiff competition among firms such that less efficient firms will be kicked out of the business.
- The major aim of firms is profit maximization.
- The firms under perfect competition do not incur transport costs
- There is perfect mobility of factors of production from one production unit to another
- Buyers and sellers have perfect (complete) knowledge about the market conditions
- There is no persuasive advertising since firms are producing homogeneous products and the consumers have perfect knowledge about the market conditions
- The demand curve of a perfect competitive firm is perfectly elastic

Examples of perfect competition;

- **Foreign exchange markets**. Here currency is all homogeneous and traders will have access to many buyers and sellers and there will be good information about relative prices.
- **Agricultural markets**. In some cases, there are several farmers selling identical products to the market e.g. potatoes, cassava, pineapples, Irish potatoes, tomatoes, maize, bananas etc and many buyers.
- **Internet related industries**. It is easy to compare prices quickly and efficiently and entry barriers are lower.

The demand curve for a firm under perfect competition

Each firm in a perfectly competitive market faces a perfectly elastic demand curve because variations in the firm's output have no noticeable effect on price.

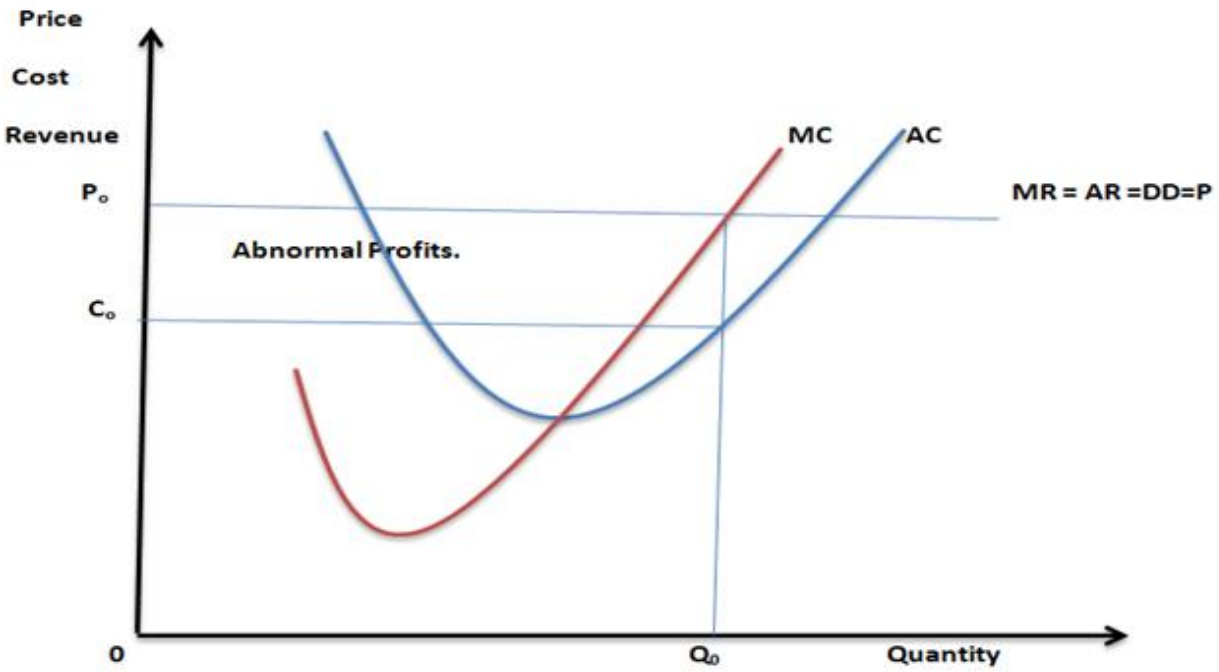


As shown in the figure above, the demand curve is equal to the average revenue curve and equal to marginal revenue curve. (AR=MR=D) The AR curve is the same as MR curve under perfect competition. This is because selling an extra unit of output adds the same amount to the total revenue since price is constant.

Equilibrium position of the firm under Perfect competition.

Equilibrium can be defined as **a state of balance when variables under consideration have no tendencies to change. A firm is in equilibrium when it has no tendency to change its level of output.** It needs neither expansion nor contraction. It wants to earn maximum profits by equating its MC with its MR. i.e. **MC=MR.**

Short run profit maximisation under perfect competition in the short run



Output: The output that the firm produces is determined at the **equilibrium point** where **MC=MR** at the biggest level of output. Thus output 0qo is the equilibrium output.

Cost: The average cost of producing each unit of output 0qo is determined at a point where the output line meets the AC curve. Thus 0co is the average cost of producing each unit of output 0qo.

Price: The price at which the firm sells its output is determined at a point where the output line meets the AR. Thus price 0po is the equilibrium price.

Profit: Along the equilibrium, **AR is greater than AC** and therefore the firm earns **Abnormal profits** in the short run.

Example:

The marginal cost of paper bag making industry in Kayonza is given by,

MC = 20+2Q (which is always rising), where Q=100 paper bags.

Find the cost-maximizing quantity if P=30 or P=40

Answer:

P=D=AR=MR=MC

PC=MC, P-30

30=20+2Q

30-20=2Q

10=2Q

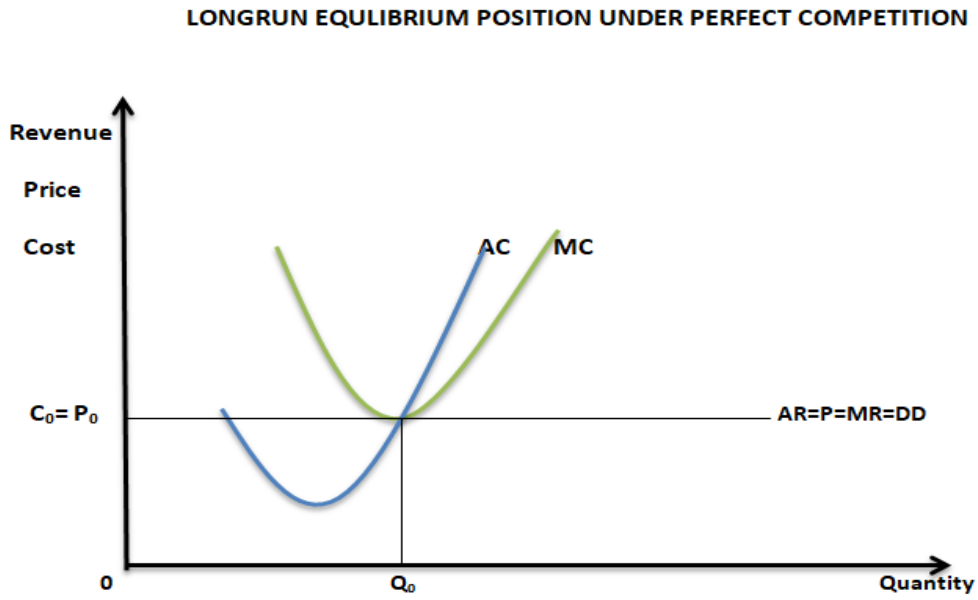
5=Q

P=MC, 40

40=20+2Q

10=Q

Long run profit maximization under perfect competition in the long run.



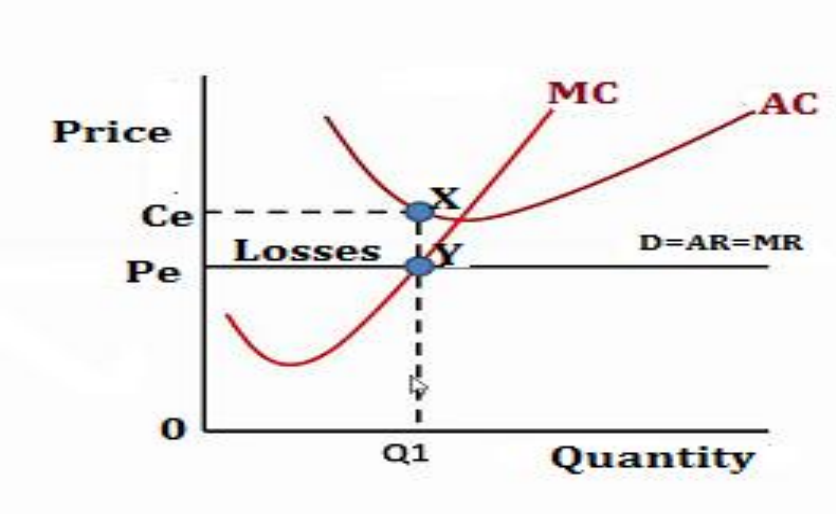
Output: The output that the firm produces is determined at the **equilibrium point** where **MC=MR** at the biggest level of output. Thus output 0qo is the equilibrium output.

Cost: The average cost of producing each unit of output 0qo is determined at a point where the output line meets the AC curve. Thus 0co is the average cost of producing each unit of output 0qo.

Price: The price at which the firm sells its output is determined at a point where the output line meets the AR. Thus price 0po is the equilibrium price.

Profit: Along the equilibrium, **AR is equal to AC** and therefore the firm earns **Normal profits** in the long run.

Loss making under perfect completion.



As shown in the figure above, the firm produces output 0Q1 at Total cost **0CeXQ1** and sales it at price 0Pe getting Total Revenue **0PeYQ1** hence making losses **PeCeXY** because the AC is greater than the AR.

Losses = TR- TC. Thus from the above curve, losses= 0PeYQ1- 0CeXQ1 = PeCeXY.

Example

Given the firm's total cost function as TC = 100+20Q+Q^2 .

a) **Calculate the firm's supply curve**
b) **If firm's market price is 25Frw, calculate firm's production.**
c) **Calculate firm's profit/loss if P=25**

Answer

TVC= 20Q+Q^2

AVC= 20+Q

MC= 20 + 2Q

(a) **Therefore,**

P = MC

P = 20+2Q

q^s = ½P - 10

(b) If P=25, therefore,

$q^s = ½P - 10$

$q^s = ½(25) – 10$

$q^s = 2.5$

(c) Profit/loss

$q^s = 2.5$

π= TR-TC

$\pi = PQ-(100 + 20q + q^2)$

$\pi = (25)2.5-(100 + 20(2.5) + (2.5)^2)$

$\pi = 62.5-(100 + 50 + 6.25)$

$\underline{\pi=-93.75Frw}$

In long run, firms push their profit to zero and sometimes, they start making losses.

Breakeven and Shutdown points of a firm.

Breakeven point is a point where the firm is neither earning profits nor making losses. I.e. it is earning normal profits where the **average revenue is equal to average cost (AR =AC)**. The firm can only cover the costs of production without earning any profit.

Example

Assume an industry producing 1000 kg (Q) of biscuits daily, and selling at price 50Frw per kg. Calculate the profit of the firm, and interpret what will happen to the firm.

P= 50, Q = 1000

TR = P x Q

TR 50x1000= 50000

TC = ATC x Q

ATC=50,

Q=100TC = 50 X 1000 = 50000

Profit = TR - TC = 50000 – 50000 = 0

Therefore the industry is at breakeven point where AC=AR and the industry is making 0 profits.

When normal profits are earned, no more firms will be attracted to the industry and the existing firms will have no desire to leave.

Shut down point is a point below which a firm cannot continue to operate because it cannot cover variable costs At shut down point **AR =AVC.**

Example

Given that the firm is producing 7500 kg(Q) of maize floor, and selling at price 300Frw per kg, given also that the ATC=50. Calculate the profit of the firm, and interprete what will happen to the firm.

P = 30,

Q = 7500

TR = P x Q

TR = 30x7500 = 22500

Given, ATC = 50

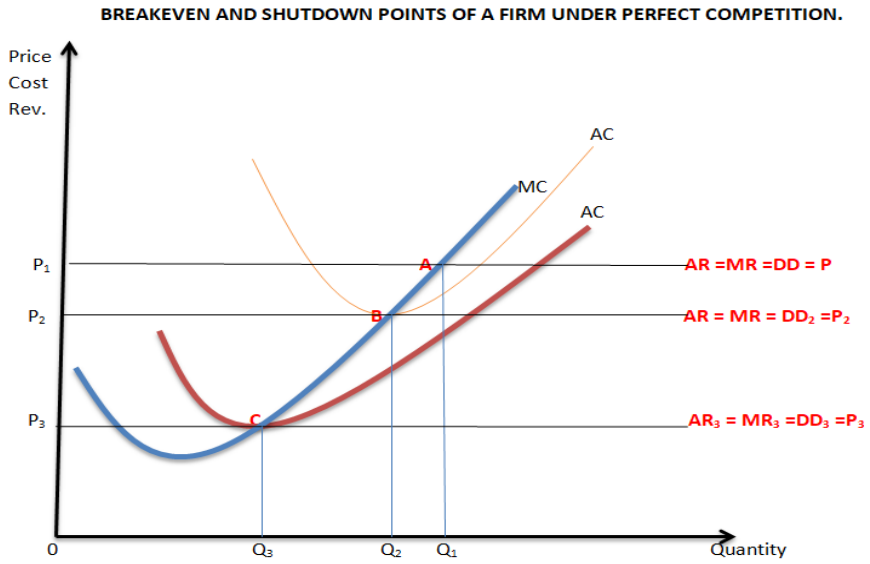
So,

TC = ATC x Q

50 x 7500 = 375000

Profit = TR - TC = 225000 - 375000 = -150000

A firm will be at shutdown point since it will be making loss at AVC point.



Point B is the **breakeven point** where the firm earns normal profits and **AR=AC.**

Other firms will still join the business up to when the firm is not able to cover all the costs of production but only covers variable costs as shown by the AVC curve. **(Point C in the above figure)**

Point C is the **shutdown** point where the firm only covers variable costs. Below this point, the firm cannot continue operation.

Example

Fill in the missing cells. Assume the firm operates in a perfectly competitive environment in

both the input and output markets. Calculate the profit (loss) when the firm receives 0.40Frw for the product.

Q	Q	P	TFC	TVC	TC	MC	ATC	AVC	AFC
2	40	5	110						
	65					.4			
	80							.375	
	90				150				

Answers

Q	Q	P	TFC	TVC	TC	MC	ATC	AVC	AFC

2	**40**	**5**	**110**	**10**	**120**	**--**	**3.00**	**0.25**	**2.75**
4	**65**	**5**	**110**	**20**	**130**	**.4**	**2.00**	**0.307**	**1.692**
6	**80**	**5**	**110**	**30**	**140**	**.4**	**1.75**	**0.375**	**1.375**
8	**90**	**5**	**110**	**40**	**150**	**1**	**1.666**	**0.404**	**1.222**

TVC = P(L) x L

P(L) = 5, in perfect competition P(L) must be same

MC = $\frac{\Delta TC}{\Delta Q}$

$$\text{MC} = \frac{130 - 120}{65 - 40} = \frac{10}{25} = 0.4$$

AVC = TVC TVC = AVC x Q = (.375)(80) = 30

$$\text{MC} = \frac{150 - 140}{90 - 80} = \frac{10}{10} = 1$$

Suppose P = 0.40 = MR

When MR = MC, firm maximizes profit

So, firm either produces Q = 65 or Q = 80

When Q = 65, TC = 130 When Q = 80, TC = 140

TR = (0.4)(65) = 26 TR = (0.4)(80) = 32

Profit = TR - TC = -104 Profit = TR - TC = -108

Firm products Q = 65 at a loss of 104

Why firms may continue to operate even when it is not covering all the costs

- Some firms do not want to **lose their established markets/ customers** as a solution to the problems sought.
- Firms continue to operate because they **fear to lose their suppliers of raw materials** for their industry.

- Some firms fear **to lose their skilled man power** which it would have trained at a high cost, which labour may be necessary in the near future thus they continue to operate.
- Firms may be expecting **to get loans** in future from the financial institutions to boost its business.
- Some **firms fear to be taken over by the state** through nationalization.
- The firm may be **a beginner firm**, thus is still in its infancy and it expects to make profits in the long run.
- When the firm holds **highly specific capital** which it cannot leave lying idle.
- Some firms keep operating when they **hope to change or restructure management**, if it believes current losses are due to poor management
- A loss making firm may be **a branch of a bigger firm** (subsidiary firm) which is making profits and the losses can be shared by the other firms so as to cover the costs.
- Some firms are **not meant to be making profits but to give services** like welfare improvement, in case of government organizations.
- Some firms may be set **up for research/ experimental purposes so they operate even if they are making losses.**
- If a firm **had earned abnormal profits before** and is still surviving on them.
- Difficulties might be short run and therefore **hope to make improvements** in the long run.
- Some firms keep operating when they fear **to lose their reputation** or good name in society.
- If the firm has **invested in various assets** it may feel reluctant to sell them and therefore keep on operating hoping to make improvements.

Under certain conditions, a firm may decide to close business because of;

- Appearance of new and strong firm thus out competed.
- Exhaustion of raw materials.
- Persistent labour unrest or inadequate labour supply.
- Absence of spare parts or failure to get them.
- New government regulations e.g. total ban of production of a given commodity.
- Change in fashion and design hence demand shifts to fashionable goods.
- Lack of raw materials e.g. during war times and economic decline.

Advantages of perfect competition

- Encourages **optimum use of resources** because factors of production can freely move from one place to another
- Production of **better quality** goods because of competition within the industry
- **No wastage of resources** because of no advertisement costs incurred. This reduces prices for final commodities.
- There is **no consumer exploitation** because prices are determined by the forces of demand and supply.
- There is **a lot of output** because of many suppliers and buyers.
- Producers are able to **expand their firms** and use modern technology because of **the**

abnormal profits in the short run.

- **Eliminates income inequality** because in the long run all firms earn normal profits. On the other hand, everyone with capacity if free to join production.
- The plant is **used to full capacity** in the long run. This is mainly because firms operate at the least average cost and so there is no resource wastage.
- There is **price stability** due to homogeneous products.

Disadvantages or shortcomings of perfect competitive firms:

- **No variety** of commodities since they are homogeneous.
- The existence of perfect knowledge doesn't motivate firms to incur expenses **on research** and development.
- **Unemployment** is likely to occur because of the **inefficient firms** leaving the production.
- Consumers have **little or no choice** because the goods produced are the same.
- There are no abnormal profits in the long run so **expansion of the firm is hard**.
- **Research is difficult** because of little of no profits in the long run.
- Firms aim at profit, maximization and this **discourages the production of public utilities** like water supply which are vital for society but are non-profit making
- Profits are reduced because the seller is supposed to sale at the same price as others.
- Perfect competition **cannot exist in reality** and so cannot be relied upon for development.
- Sellers **cannot carryout price discrimination** since demand is perfectly elastic and prices tend to be constant.

2. MONOPOLY

Monopoly is a market situation where there is one producer or supplier of a product, which has no close substitutes and entry into the market is highly restricted.

Examples of monopoly firms include;

- Water and Sanitation Company Limited (WASAC)
- Rwanda Energy Group (REG)
- National bank of Rwanda (BNR)

Forms/ types of monopoly

- **Pure /absolute monopoly:** This is a market situation where there is single seller or producer of a commodity that has no substitutes at all. In practice, there is no pure monopoly because people can always forge substitutes for that commodity.
- **Monopsony:** This is market situation where there is only one buyer of a commodity or a factor of production. E.g. one employer.
- **Bilateral monopoly**: This is a market situation consisting of a single seller and a single buyer of a commodity.
- **Imperfect/ simple monopoly**: this is a market situation where there is a single firm

which produces a commodity that can be substituted to some extent though they are not perfect substitutes.

- **Discriminatory monopoly**: this is a type of monopoly where the seller has the ability to charge different prices from different customers for basically the same commodity.
- **Collective monopoly:** this is a market situation where a few firms producing similar products decide to come together so as to determine price and output.
- **Natural monopoly:** this is a market situation where a firm exclusively owns and controls a source of raw material and it is impossible for other firms to produce similar commodities that require similar raw materials. i.e. such firms become monopolies because other firms cannot enter the industry.
- **Statutory monopoly:** this refers to a type of monopoly which is set up by an act of the parliament to provide a certain economic product/service and such a service or product cannot be duplicated to form monopolies.
- **Spatial/local monopoly:** This is a type of monopoly which arises from distance between the producers of a given product.

Characteristics/ Features/Assumptions of monopoly markets

- There is only one single seller/ producer and many buyers.
- The commodity produced has no close substitutes.
- Entry of new firms in the market is restricted/ highly blocked.
- There is no persuasive advertising instead there can be informative advertising.
- The firm aims at profit maximization.
- Firms are price makers. I.e. they determine the price at which to sale their products
- The demand curve of a monopolist is inelastic to indicate that its products have no close substitutes.

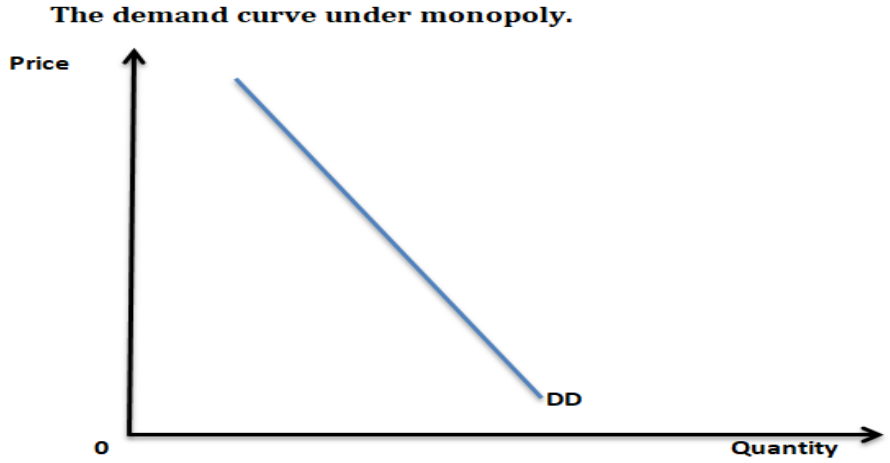
<u>Sources/origin/Basis of monopoly power</u>

- **Patent rights:** this is where a firm/ producer has exclusive knowledge of a given production technique and the law forbids other firms/ producers to deal in the same commodity. e.g. authors, artists, inventors etc. copy rights and patent rights prevent other firms or producers from imitating the products of others which leads to temporary monopolies.
- **Strategic ownership or control of a source of raw materials** which makes it impossible for other firms or producers to produce similar product that require similar raw materials. Thus such firms become monopolies because other firms cannot enter the industry leading to **natural monopoly.**
- Long distance among producers where each producer monopolizes the market in his/her locality. This leads to spatial **monopoly.**
- Advantages of **large-scale production** which do not allow small firms to compete successfully with large firms.
- **Protectionism:** This is where trade barriers are imposed on the product to exclude

foreign competitors. In such cases, the home producer may become a monopolist.

- **Take over and mergers**: Take-over' is when one firm takes over the assets and organization of another whereas mergers are formed when firms combine their assets and organizations into one to achieve strong market position. Both situations may result into a monopolist firm.
- **Collective monopoly or collusive e monopoly**: This is where firms come together in a formal or informal agreement **(cartel)** to achieve monopoly power. Such firms can fix **quotas** (maximum output each may put on the market). They may also set the price very low with the objective of preventing new entry of other firms. This is called **limit pricing.**
- **Small market:** where the market demand is small or limited, a single seller or supplier is most appropriate**.**
- **Long-time of training/acquiring skills:** where entry into business or profession is restricted by long time of training, it means that a person who joins the profession will remain the sole supplier for some time e.g. doctors, judges etc.
- **Talent:** Individuals with talent tend to develop peculiar products or services hence development of monopoly in marketing of such commodities. E.g. designers, musicians etc.

The demand curve of a firm under monopoly

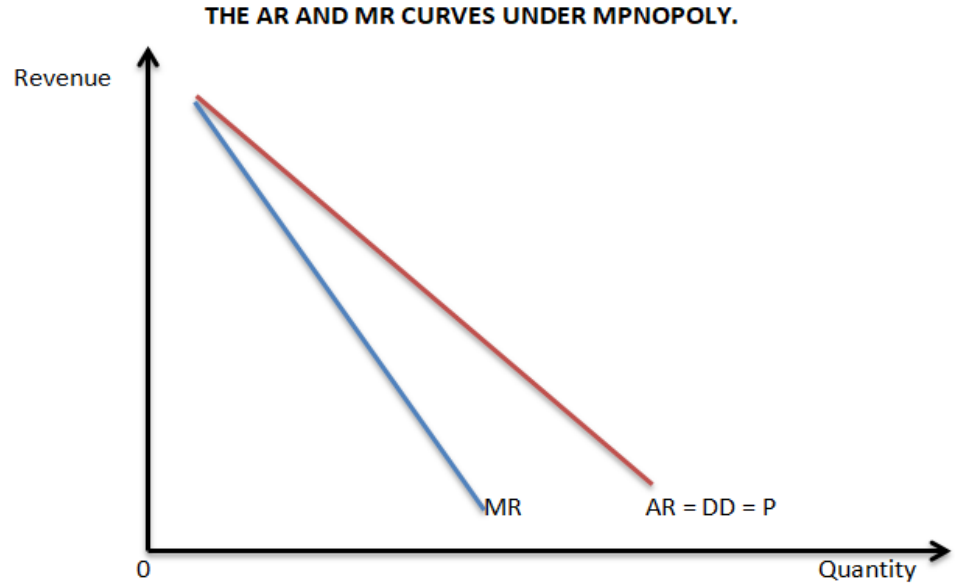


Under monopoly,

- The firm produces at **excess capacity** both in the short run and long run because it must restrict output to charge a high price especially when it a private monopoly that aims at maximising profits. State monopolies created to provide strategic services to the population may optimally utilise their resources to provide more services.
- There **is no supply curve under monopoly** because the producer bases his production plans on the demand curve which is fixed and known to him/her.
- There is **no difference between a firm and an industry**.
- The firm is in equilibrium when the marginal cost curve is equal to the marginal revenue curve**. (MC=MR)**

The AR and MR curves under monopoly curves.

The AR and MR curves under monopoly are downward sloping from left to right. Marginal revenue curve is below the Average revenue curve because for monopoly firm to increase revenue, it has to lower the price



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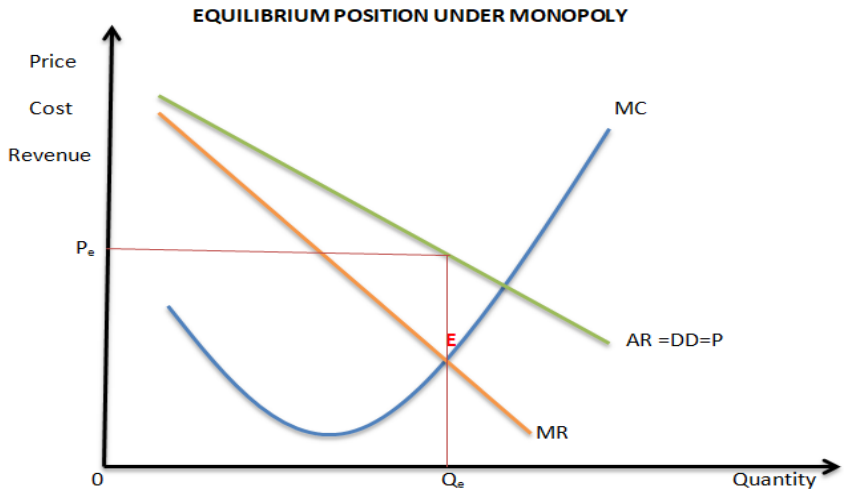
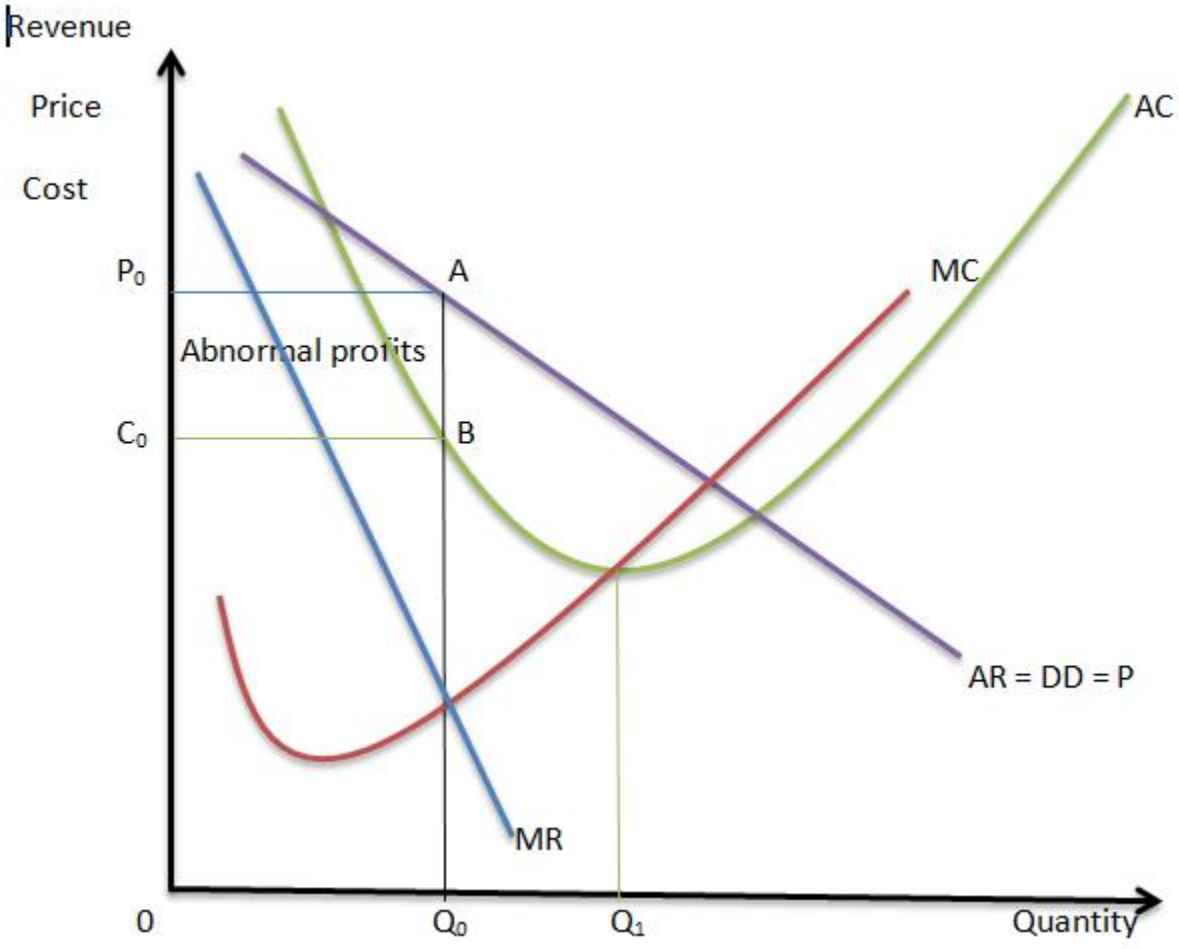


At point E, MR =MC and there that is the equilibrium point.

Profit maximization under monopoly

In the short run period, if the demand for the product is high, a monopolist increases the price and quantity of output. He can increase output by increasing labour, using more raw materials, increasing working hours etc. In case demand falls, he can reduce the use of variable inputs.

A monopolist is **a price maker**; therefore the firm can set a price which earns profits i.e a price greater than AC.



Output: The output that the firm produces is determined at the **equilibrium point** where **MC=MR** at the biggest level of output. Thus output 0qo is the equilibrium output that the firm produces.

Cost: The average cost of producing each unit of output 0qo is determined at a point where the **output line meets the AC curve (point B)**. Thus 0co is the average cost of producing each unit of output 0qo.

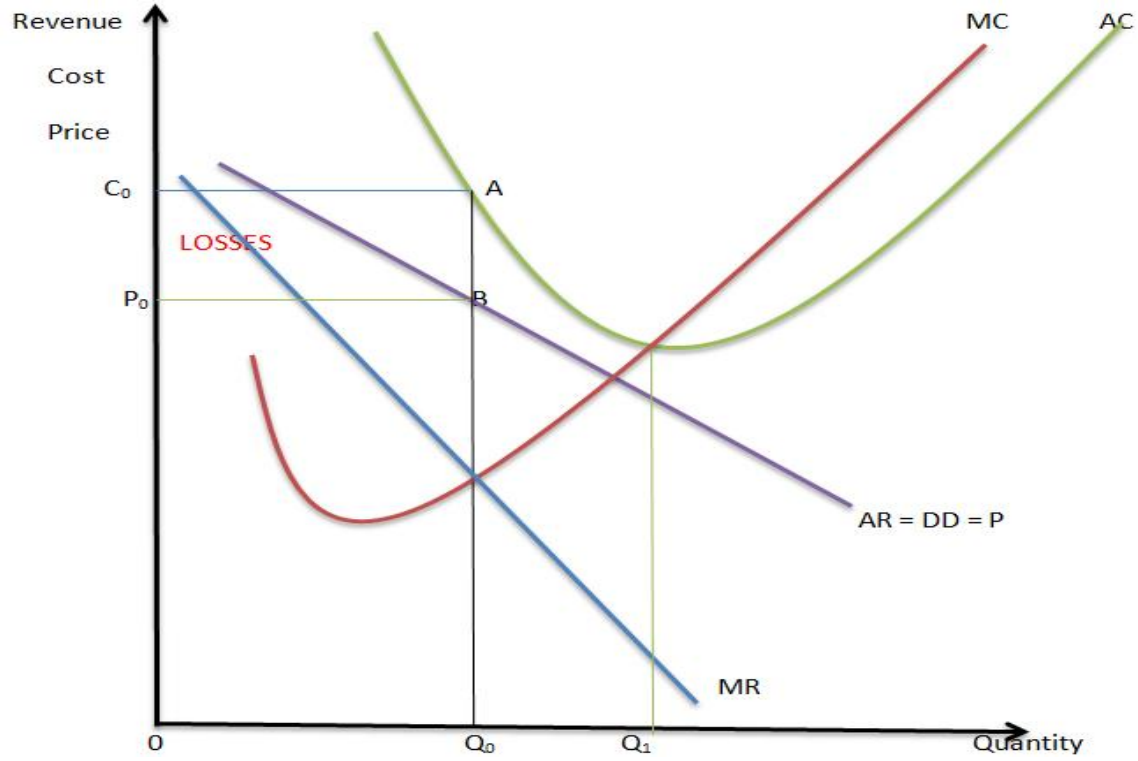
Price: The price at which the firm sells its output is determined at a point where the output line

meets the AR (point A). Thus price 0po is the equilibrium price.

Profit: Along the equilibrium, **AR is greater than AC** and therefore the firm earns **Abnormal profits** in the short run represented by area **C_0P_0AB.**

Losses making firm under monopoly

A monopolist can also make losses in the short run, provided the variable costs of the firm are fully covered. The loss minimizing condition in the short run can happen under the following conditions;



Advantages of monopoly.

- There is **no duplication of services and this saves resources** e.g. if there is one energy firm providing power, there may not be the need to set up another one in the same area
- **Economies of scale can be enjoyed** by the firm because it is capable of expanding using the abnormal profits earned.
- **There is a possibility of price discrimination**. (Parallel pricing). This refers to the selling of the same commodity at different prices to different customers which benefits the low-income earners.
- **Research can easily be carried out using the abnormal profits.**
- **There is no wastage of resources in persuasive advertising** which may increase leads the prices.
- **Public utilities like roads, telephones, etc, are easily controlled by the government** as a

monopolist

- **Infant industries can grow up when they are monopolies** and are protected from foreign competition.
- It encourages **innovations by protecting copyright and patent owners**.

Disadvantages of monopoly.

- Because there is no competition, the firm can **become inefficient and produce low quality products.**
- Monopoly firms produce at **excess capacity** i.e. they underutilize their plants so as to produce less output and sell at a high price.
- Monopoly firms may **charge higher price** than firms in perfect competition.
- In case a monopolist stops operating, there would be **shortage of the commodity.**
- Monopoly firms tend to **exert pressure on the government** and sometimes they can influence decision making because they are the controllers of production.
- **Discrimination of consumers**. This may be based on political or religious affiliation other than the factors respected by economics
- Leads to **income inequality**. The monopolies who over charge earn more compared to others
- **Restriction of choices**. A monopolist normally produces one type of commodity thus consumers are denied a chance to choose among alternatives
-

Measures to control monopoly.

- The government can **fix prices** of commodities through price legislation.
- **Anti-monopoly** (antitrust) Legislation i.e. laws imposed to control monopolies. Such laws can prohibit monopolization, and collusion among firms to raise prices or inhibit competition.
- **Nationalization** of monopoly firms by the government so as to lower the prices.
- **Subsidization of new firms**. This can help them to compete with the already established firms favorably.
- **Resale price maintenance** where by the producers set prices at which sellers should sale the goods to avoid charging high prices
- **Encouraging imports** to compete with the commodities of monopoly firms in the country.
- Setting up **government owned firms** to compete with the monopoly firms.
- **Removal of deliberate monopoly bases** like protectionism and taxation to encourage competition among the firms.
- **Taxation**. The government can impose taxes to reduce the profits of the monopolists. Such taxes may include
    - ✓ **Sur tax.** This is an incentive tax that provokes monopolists to increase their scale of production
    - ✓ **Advalerem tax.** This is a tax levied on the value of the commodity
    - ✓ **Specific tax. This is a** tax charged per unit of output and will therefore vary as output varies. It will increase the cost of production of additional

unit (MC) and AC of every unit.

Product discrimination

Price discrimination is where the producer sells a commodity to **different customers at different prices** irrespective of the costs of production. It can also be referred to as **parallel pricing**.

Degrees of price discrimination

- **First degree discrimination** where a producer is able to charge each customer the maximum price he/ she is prepared to pay for the good or service depending on consumers' demand.
- **Second degree of price discrimination** where a firm sells off excess output or supply that could be remaining at a lower price than normal price.
- **Third degree price discrimination** where the producer sells / separates markets according to elasticity of demand and charge a high price where there is inelastic demand and a low price where there is elastic demand.

Forms of price discrimination.

- **Discrimination according to personal income.** For example, income differentiation among buyers, e.g. doctors charging low prices on the poor and high prices on the rich for the same services.
- **Discrimination according to age:** e.g. charging low prices on the young people than old people on tickets to watch football or for a film show.
- **Discrimination according to sex:** where different prices are charged to females and males e.g. for discotheques where for ladies' nights, ladies enter for free and males are made to pay.
- **It may be geographical** e.g. dumping where commodities are sold cheaply in other countries to dispose-off surplus.
- **Discrimination according to the time of service** e.g. tickets for video shows charged high prices in afternoons when there are many people than in morning hours when there are few people.
- **Discrimination according to nature of the product e**.g. a soft cover book may be cheaper than a hard cover book.
- **Discrimination according to the number of uses of the product e**.g. electricity used for industrial purposes is cheaper to electricity for domestic use.
- **Discrimination by differentiation of commodities** e.g. high prices on travellers in first class in the train and low charges of other classes like the economy class.

Conditions for Price Discrimination to be successful.

- The commodity must be **sold by a Monopolist** so that even when the price is increased,

the buyer has nowhere else to go

- **Elasticity of demand should be different** in different markets. A higher price should be charged in the market where elasticity of demand is low than where elasticity of demand is high.
- **The cost of dividing the markets should be very low** e.g. in case of dumping costs of transport should be low.
- **Buyers should not know how much is charged on others**. This is possible especially where goods are sold on orders with no advertising.
- **It should be impossible for buyers to transfer the commodity from** where the price is low to where the price is high. This is possible especially with services of doctors, teachers, etc.

Advantages of price discrimination

- It enables the **poor to get essential services** at low prices e.g. cheap houses to civil servants and doctors charging low prices on poor patients.
- To the sellers, **it increases total revenue** because output sold increases.
- It is one way in which **the rich subsidize the poor** thus a method of income distribution. The rich are charged highly on commodities while the poor are subsidized on the same commodities
- It **increases sales and consumption** e.g. for air time, the first units, may be charged higher price than other extra units. Therefore, the more units of air time you use, the less the charges you pay for any extra units.
- It helps **producers to dispose-off surplus** and poorly manufactured commodities e.g. dumping.
- **Increased efficiency**. The increased profits from the higher charges make the firms efficient and such profits are reinvested

Disadvantages of price Discrimination

- It may encourage consumption of some commodities in undesirable excessive amounts. For example, when children are charged less for entrance in film halls, they may spend more time watching films than on studies or leisure.
- It can lead to low quantity of products/services for example in some airlines, travellers in the economy class (where fares are lower) are sometimes not well treated like those in the first class (where fares are higher) by airline staff.
- Discrimination in form of dumping discourages local industries.
- It increases monopoly powers of firms by limiting entrance of other firms in the market. One firm serves all categories of customers irrespective of their incomes, ages or sex.
- Poor quality output normally arises; such output is sold to the less privileged who yearn for the less prices
- Misallocation of resources. Price discrimination may bring about divergence of resources from their socially optimal uses to produce for those who can reward highly.

3. MONOPOLISTIC COMPETITION

Monopolistic competition market structure has characteristics similar to that of perfect competition except that the commodity dealt with in monopolistic competition is **not homogeneous. It is a market structure in which a large number of firms sell differentiated products that are close substitutes.**

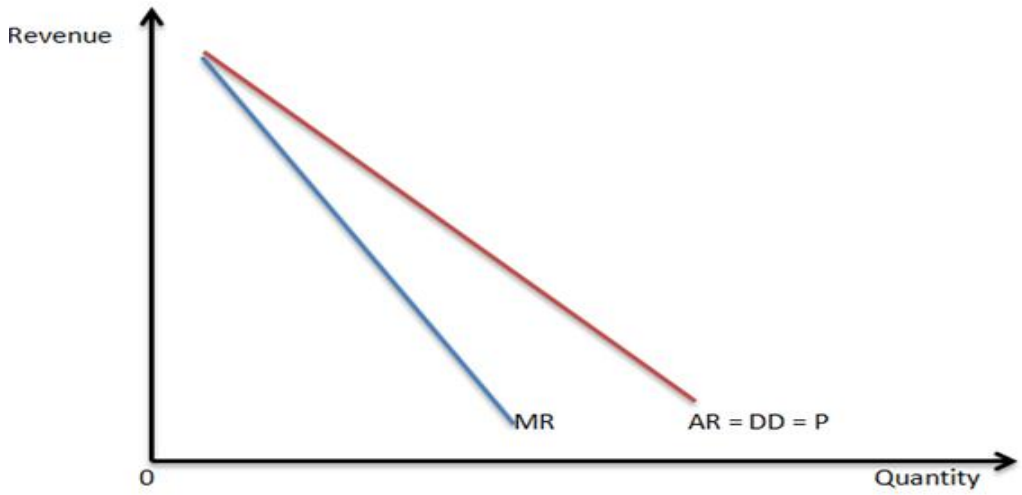
Examples of monopolistic competitive firms:

- Soap industry.
- Bread industry
- Hotel industry
- Hair salons
- Restaurants etc.

Characteristics of firms under monopolistic competition

- There are **many firms** in the industry.
- Firms deal in **differentiated products** though they remain close substitutes.
- There is **freedom of entry and exit** of new firms into and out of the industry.
- There is **stiff competition** due to production of close substitutes.
- There is a lot of intensive **persuasive and informative advertising.**
- The firms exercise a lot of **non-price competition** due to the stiff competition.
- There is production at **excess capacity**.ie production less than the required output so as to charge at a high price.
- The firms in the industry **are large but none of them dominates the market**.
- The major aim is to **maximize profits** and this done at a point where marginal revenue is equal to marginal cost **(MR=MC)**
- There **exists brand loyalty**/ fidelity ie consumers exercise a lot of loyalty/fidelity by sticking on a particular commodity believing that a particular brand is superior.
- The demand curve is **fairly elastic** in nature because of the presence of many substitutes.
- The **AR curve is greater than the MR curve**, i.e. the MR curve is below the AR curve.

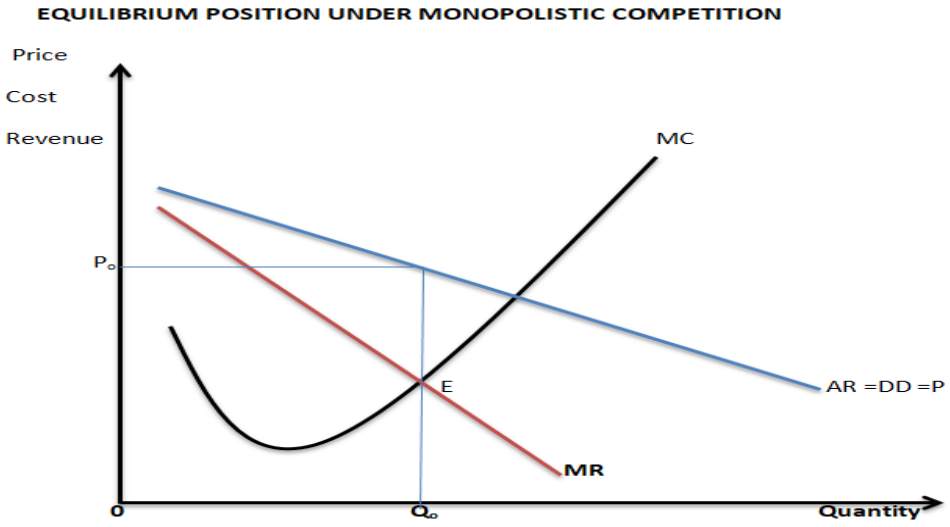
The demand curve, AR and MR curve under monopolistic competition.



The demand curve under monopolistic competition is elastic because of competition. MR is below the AR

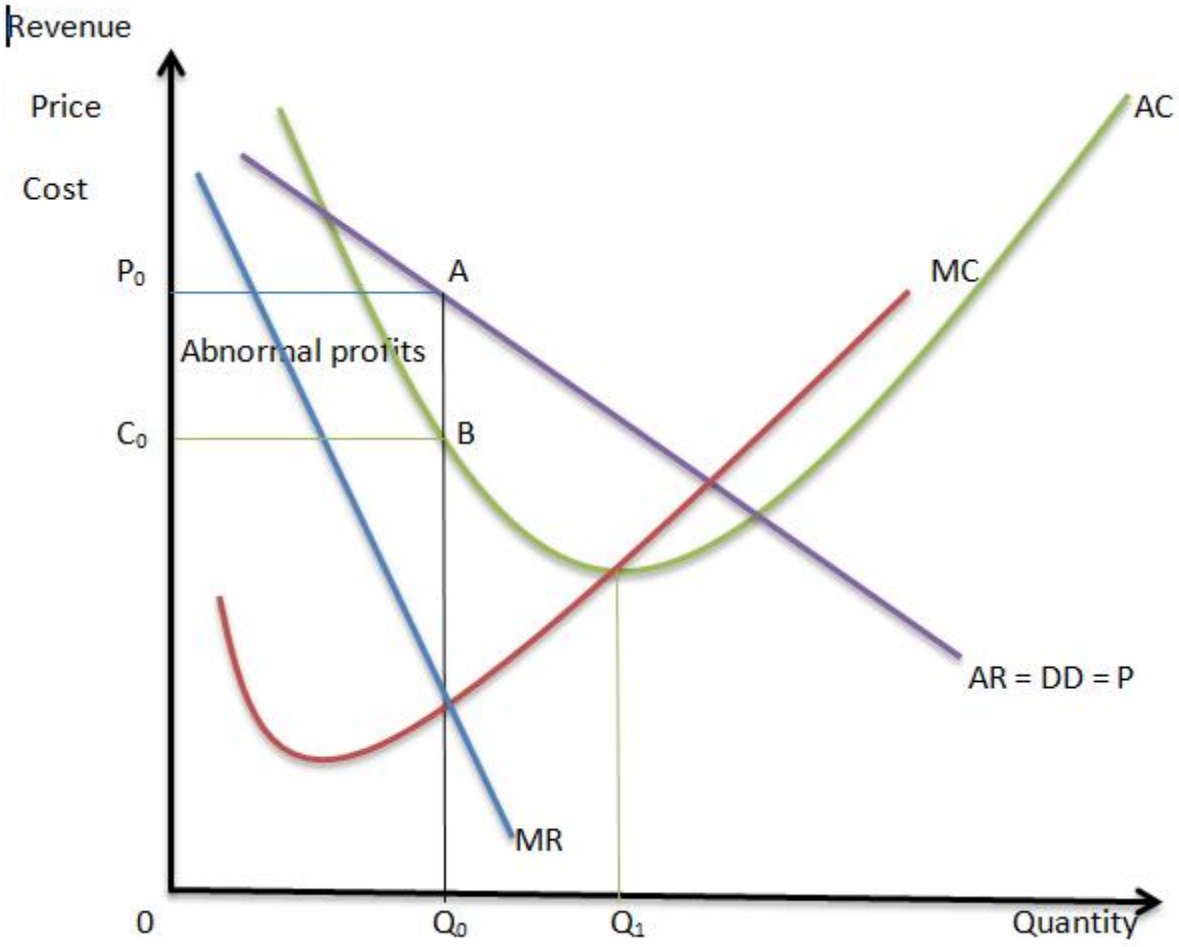
Equilibrium position of a firm under monopolistic competition

The firm under monopolistic competition is in equilibrium where **MC=MR** and in the short run the firm will either make abnormal profits or losses. The supernormal profits will exist in the short-run because new firms cannot enter the industry. In the short run, the firms may attempt to maximize their profits by changing the quality and the nature of the product and by increasing advertisement expenditure.



Point E in the figure above shows the equilibrium point where MC

Abnormal profits of a firm under monopolistic competition in the short run.



Output: The output that the firm produces is determined at the **equilibrium point** where **MC=MR** at the biggest level of output. Thus output 0qo is the equilibrium output.

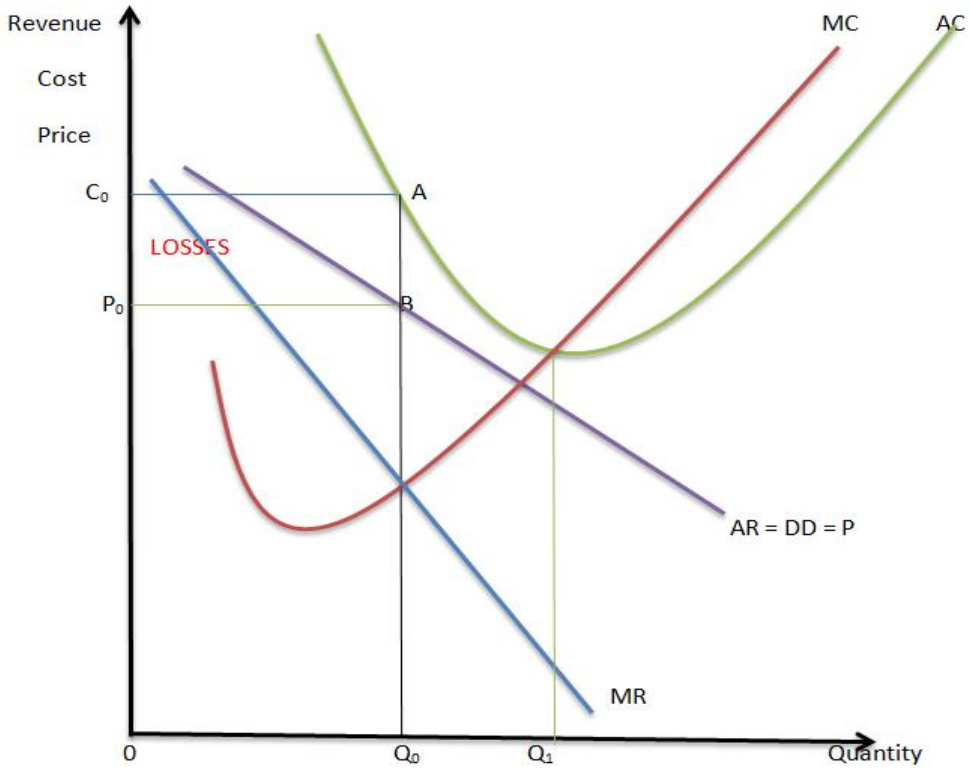
Cost: The average cost of producing each unit of output 0qo is determined at a point where the **output line meets the AC curve (Point B).** Thus 0co is the average cost of producing each unit of output 0qo.

Price: The price at which the firm sells its output is determined at a point where the **output line meets the AR (Point A).** Thus price 0po is the equilibrium price.

Profit: Along the equilibrium, **AR is greater than AC** and therefore the firm earns **Abnormal profits** in the short run represented by area **C_0P_0AB**.

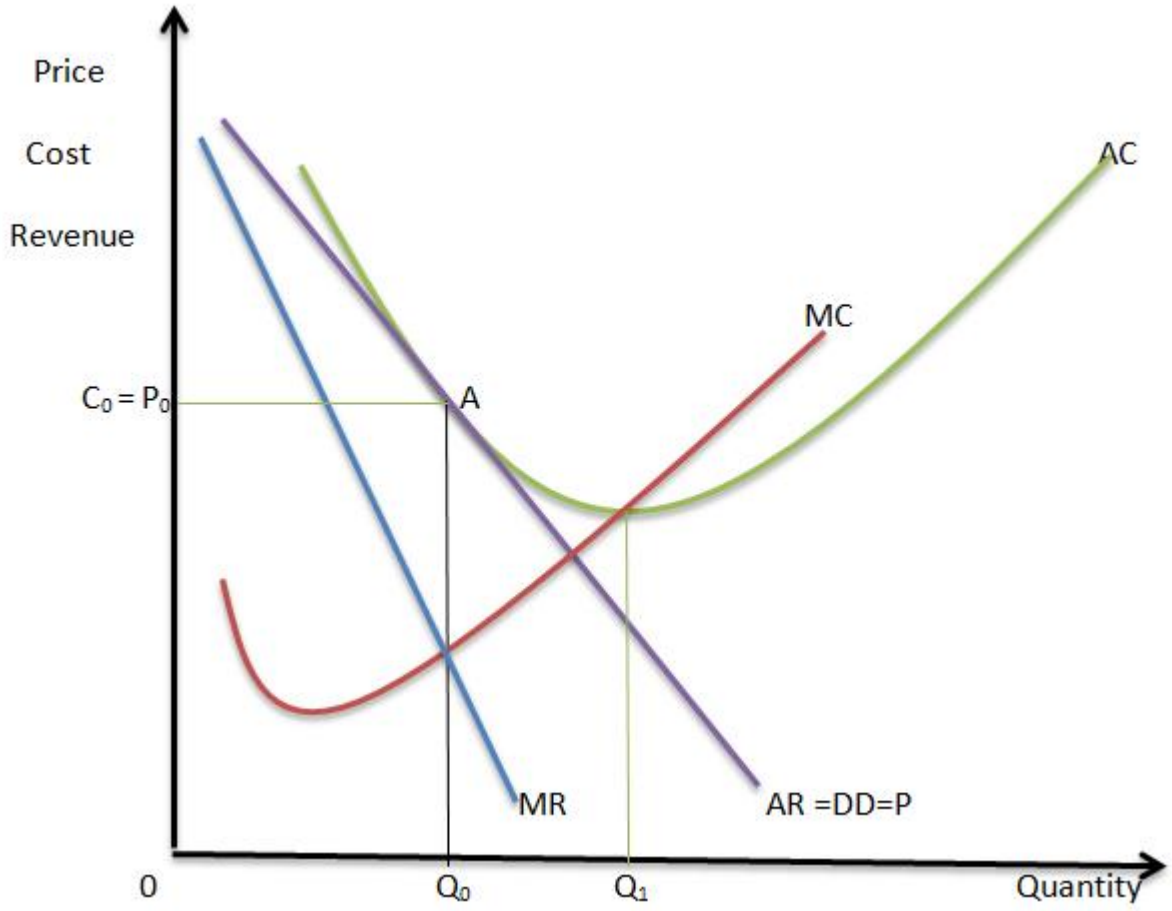
NOTE: **Firms under monopolistic competition produce at excess capacity/below their optimum point i.e equilibrium output oq_0 is less than optimum output oq_1**

Losses of a firm under monopolistic competition.



From the figure above, the firm produces output $0Q_0$ at cost $0C_0$ and sells it at lower price $0P_0$ getting total revenue $0P_0BQ_0$. Hence the firm makes losses P_0C0AB because total cost (AC) is greater than Total revenue (AR)

Normal profits of a firm under monopolistic competition in the long run:



Output: The output that the firm produces is determined at the **equilibrium point** where **MC=MR** at the biggest level of output. Thus output 0qo is the equilibrium output.

Cost: The average cost of producing each unit of output 0qo is determined at a point where the **output line meets the AC curve.** Thus 0co is the average cost of producing each unit of output 0qo.

Price: The price at which the firm sells its output is determined at a point where the **output line meets the AR.** Thus price 0po is the equilibrium price.

Profit: Along the equilibrium, **AR is equal to AC** and therefore the firm earns **Normal profits** in the long run.

Advantages of monopolistic competition.

- Product differentiation enables consumers to get a **variety of products** to choose from.
- Due to existence of many sellers in the market as a result of free entry of new firms, there are **high quantities in the market**. This makes prices lower than monopoly.
- Due to high level of competition, firms produce **better quality output** which improves people's welfare.
- In case one firm collapses, **substitutes are available for the consumers**.
- Consumers buy at **a lower price** because of the presence of close substitutes which makes it difficult for sellers to charge very high prices.
- The freedom of entry gives a chance to any willing entrepreneur to enter the industry which **creates employment opportunities** in the country.
- Individual firms **gain a lot of popularity** due to specialization in their own brands.
- In the short run **abnormal profits earned** are used to improve on the quality of products, undertake research and expand the size of the firm.

Disadvantages of monopolistic competition

- Advertising may **mislead the public into paying higher price for the commodity** when there is no improvement on the quality of the product.
- Firms produce at excess capacity in the short run and long run as they operate at less than optimum. **Thus there is resource underutilization**.
- **In the long run, there is no profit to make improvements**. So the firm may not expand to enjoy economies of scale.
- The wide variety of commodities in the market often **confuses consumers who may not make right choices in the end.**
- The price charged on buyers is **higher than in perfect competition**
- In the long run, there are **no profits to invest in research** since the firm earns normal (zero) profits.
- To maintain the market share, the seller has **to persuasively advertise and this may increase costs and the price.**
- There are **limited employment opportunities** as firms operate at excess capacity
- The output produced is **less than that in perfect competition**

Product differentiation under monopolistic competition

Product differentiation is a situation where a firm is in position to make its products appear

different from other products of other firms. It may take the following forms.

Packaging, Design/shape, Branding, Colour, Scent, Labelling,

Salesmanship, Size, Quality, Advertising, Blending, Giving credit etc.

It is intended to win market for a firm by trying to make its commodities superior than those of rival firms. Therefore, there is need for persuasive advertising in monopolistic competition.

OLIGOPOLY

It is a market structure that is dominated by few, unequal and interdependent firms producing either a homogeneous product or a differentiated product.

Forms of oligopoly:

1. . **Perfect oligopoly** occurs where there are few, unequal and interdependent firms in the industry producing a **homogeneous product** for instance Petroleum firms in the sale of petrol.
2. **Imperfect oligopoly** occurs when there are few, unequal and interdependent firms in the industry producing **differentiated products** for instance soft drinks firms.
3. **Duopoly**. This is an extreme form of oligopoly where there are only two firms in the market. For example in the telecommunication industry in Rwanda where Airtel and MTN are the only companies.
4. **Duopsony**. This is a form of oligopoly where there are two buyers in the market.
5. **Oligopsony**. This is a form of oligopoly where there are a few buyers in the market.

Examples of firms under oligopoly.

- Mobile telephone companies: like **MTN, Airtel**.
- Petroleum companies like **Kobil, SP, Mount Meru, Hass etc.**
- Firms in the banking sector**. KCB, GT Bank, Eco Bank, BP Atlas Mara, etc.**
- Soft drink companies like **Bralirwa Ltd, Azam Bakhresa Group etc.**
- Newspaper firms. **TAALIFA RWANDA, DOVE MAGAZINE LIMITED, Igihe Ltd., Rwanda Printing and publishing company, Nonaha Ltd, Inyarwanda Ltd, The Kigali Today group, Mucuruzi** Online Market**, Muhabura Ltd, The New Times Publications, Umuseke Ltd, Digital Focus Limited.**

Features/ characteristics of oligopoly.

- There are **few, unequal**, competing firms. Each firm, though faced with competition

from other firms, has enough market power and therefore cannot be a price taker.

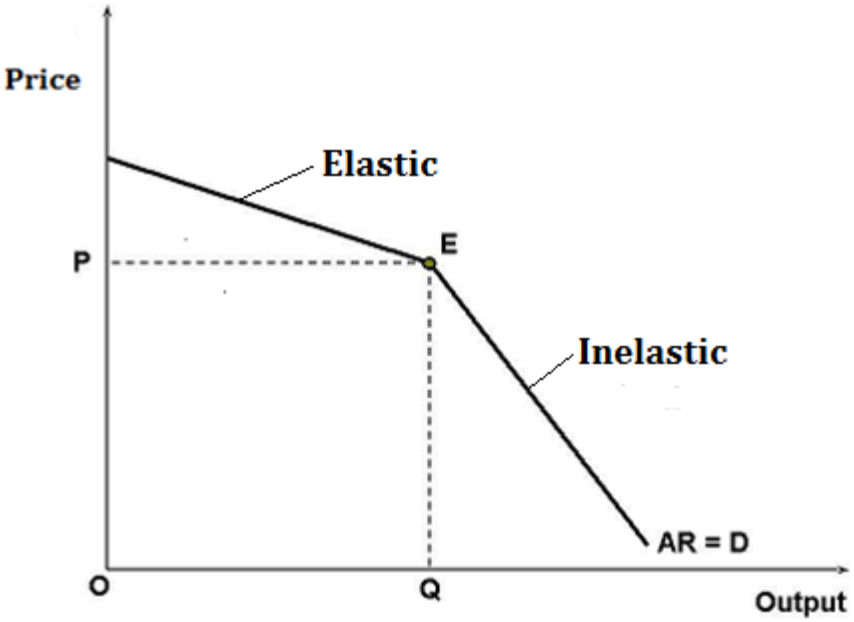
- There is **non-price competition** such as advertising, quality of services etc. if one firm reduces the price, others would do the same and all firms would end up losing.
- There is **interdependence** among firms. Each firm is concerned with the activities of other firms so as to act accordingly, e.g. it can reduce the price when others reduce the price.
- In most cases there is **product differentiation**
- Presence of monopoly power. There are very few oligopoly firms and this makes it easy for collusion as a form of price determination leading to monopoly.
- **Uncertainty**. There is a lot of uncertainty in oligopoly industry, as one firm takes a decision say to increase the price, it cannot be certain of the reaction of other firms
- There is **limited entry** into the production process
- There is **price rigidity**. I e prices tend to be stable for a long period of time.
- There are **price wars** i.e. when one firm reduces the price other firms reduce theirs even lower.
- The demand curve under oligopoly is **kinked**. i.e. a curve that has a bend (kink) and it is elastic above the kink and inelastic below the kink.

The demand curve of an oligopoly firm

The demand curve is **kinked** because the demand for their products largely depends on the behaviors of other rival firms. This brings in uncertainties in the industry because no single firm can predict reaction of another firm in case they take their own decision. The kinked demand curve is elastic above the kink and inelastic below it.

It is drawn on the assumption that there is an administered price, asymmetry in the behavior of oligopoly firms such that if one firm reduces its price, other firms will reduce their prices even further and if one raises its price others will not follow. Therefore, above the administered price, demand is fairly elastic while below the administered price demand is fairly inelastic. That is why demand curve has two parts joined together at the administered price (at the kink) i.e. one fairly elastic and another fairly inelastic. This is shown below.

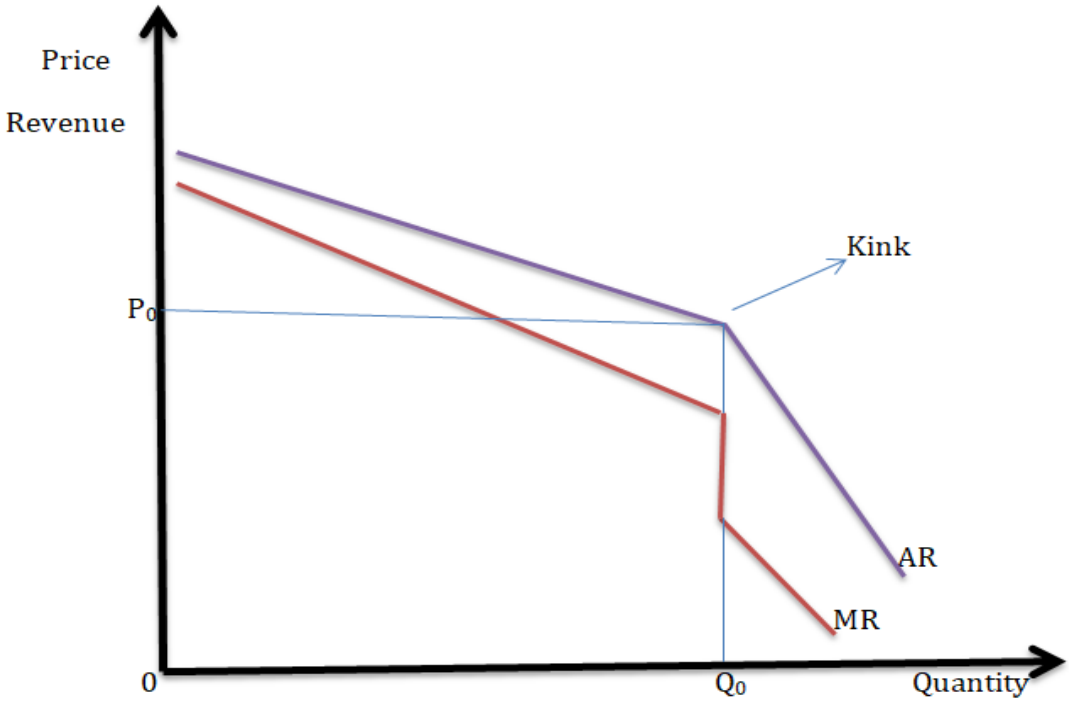
The demand curve of an oligopoly firm



From the curve above**, P** is the **market price or administered price**. Should any firm increase its price above that price, it would lose its customers to other firms. If a firm decides to set price below P, other firms will react by reducing their price even further or lower to win more customers hence increase in quantity sold will be lower than the reduction in price. Hence the demand curve has **a kink** meaning that the prices will **remain rigid/ stable** for a long period of time.

The MR curve under oligopoly

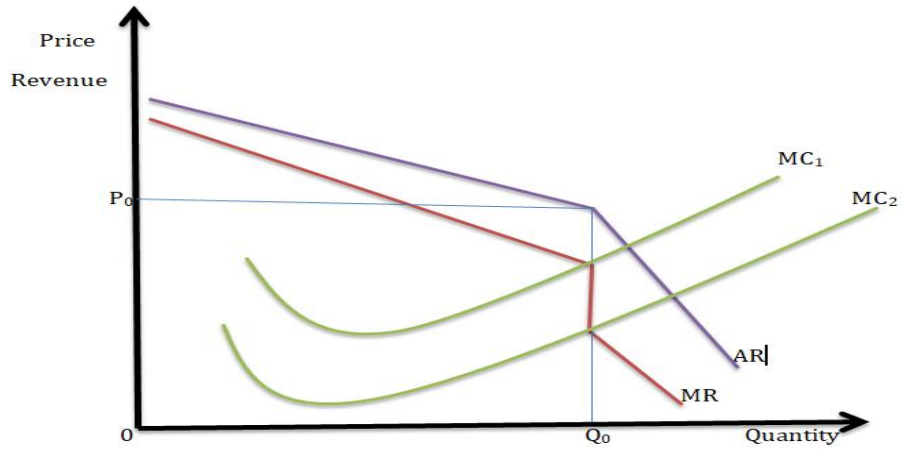
The MR curve will also have a kink with 3 parts. It will be **fairly elastic** before the kink and **inelastic** after the kink. Below the kink, MR curve is discontinuous and straight indicating that MR is falling although the price is constant. When the price remains rigid for a long time, there will be other changes in the market that may lead to changes in costs of production.



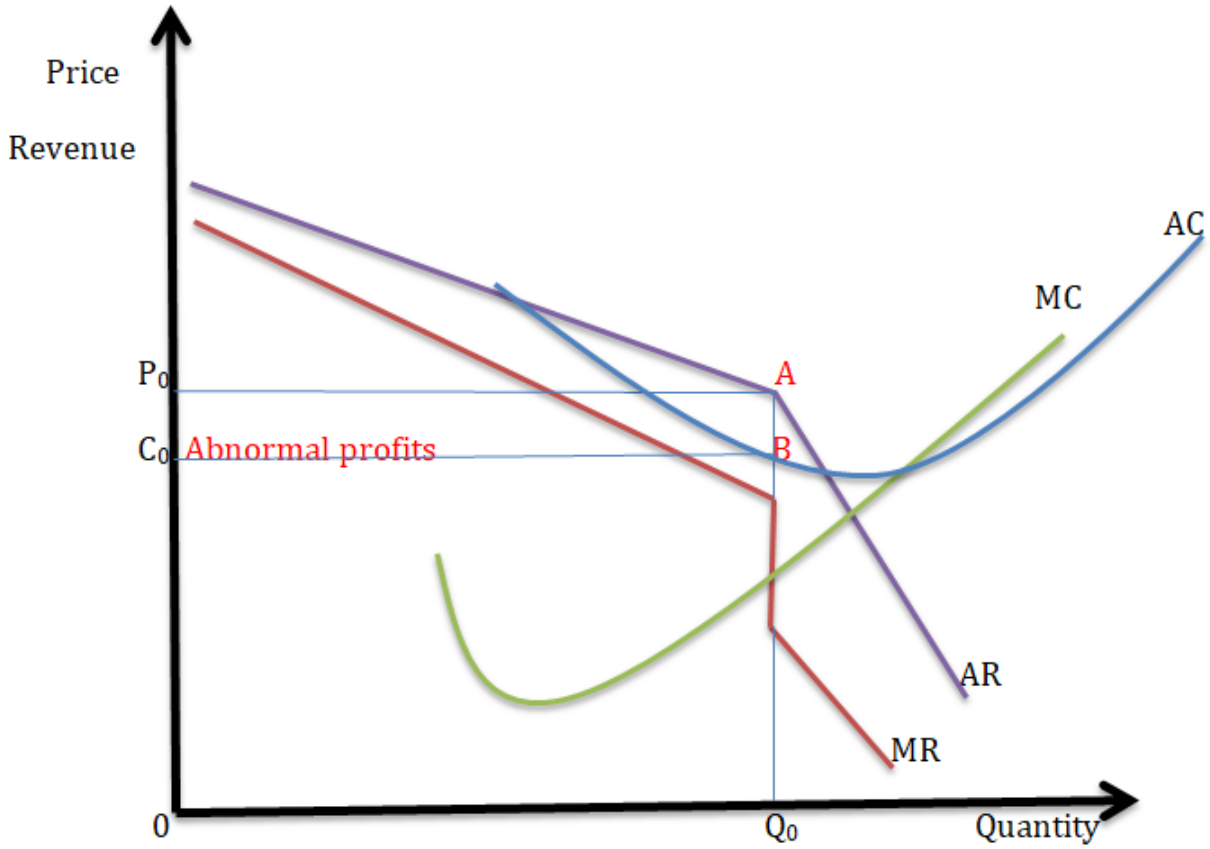
The figure above shows the MR curve which has three parts i.e. a part which **is fairly elastic** when **AR is fairly elastic**, a part that is **discontinuous at the kink** and a part that is **fairly inelastic** when **AR is fairly inelastic**.

Equilibrium position under monopolistic competition

The equilibrium under oligopoly occurs at a point where **MR = MC**. The MC cuts the MR in the vertical section of the MR. the position of the MC does not affect the equilibrium output as long as the MC passes through the vertical section of MR as illustrated below.



Profit maximization under Oligopoly



Output: The output that the firm produces is determined at the **equilibrium point** where **MC=MR** at the biggest level of output. Thus output 0qo is the equilibrium output.

Cost: The average cost of producing each unit of output 0qo is determined at a point where the output line meets the AC curve. Thus 0co is the average cost of producing each unit of output 0qo.

Price: The price at which the firm sells its output is determined at a point where the output line meets the AR. Thus price 0po is the equilibrium price.

Profit: Along the equilibrium, **AR is greater than AC** and therefore the firm earns **Abnormal profits** in the short run and the long run.

Advantages of oligopoly.

- **Stable prices** are charged due to presence of price rigidity.
- The high level of competition leads **to better quality commodities**.
- There **are low prices** to the consumers due to existence of intensive competition

and fear of other firm's reaction.

- **Eases consumer budgeting** due to due to price stability.
- Most oligopoly firms operate on large scale which enables the firm to **enjoy economies of scale.** This together with stiff competition reduces price in the market.
- **Widens consumer choice** due to production of a variety especially with imperfect oligopoly due to branding and product differentiation.
- **Increase innovation and inventions in the economy** due to competition and use on non-price competition measures to win market share.
- **Provision of gifts by different competitive firms** to customers improves people's welfare.
- There **is increased output** due to production on large scale.
- **Consumer awareness of the commodity** is high due to extensive advertising.
- A lot of **abnormal profits** earned are spent on research and development which leads to technological advancement and a high standard of living in the country.
- **Branding and product differentiation** gives the consumer a wide variety of commodities to choose from.

Demerits of oligopoly firms:

- Consumers are **denied a variety to choose from** in case of perfect oligopoly.
- Consumer exploitation through **over charging due to collusion**.
- **Profits are limited due to price rigidity** and this may affect further expansion.
- There is a **lot of duplication of commodities due to stiff competition** hence wastage of resources and losses.
- **Collapse of small firms when they are out competed** due to stiff competition leading to unemployment.
- There is **under exploitation of resources** due to production at excess capacity which reduces the chances of firms to enjoy economies of scale.
- Industries with large firms **exert pressure on government** due to their large capital base and large market share.
- **Distorts consumer choices** due to excessive advertisements thus may end up consuming unwanted commodities.
- **Worsens income inequality** due to limited entry of other firms.
- Some firms at times engage **in price wars** where each firm keeps on reducing on prices of its products to outcompete rival firms which results into losses
- Firms incur **high costs on advertising** which increases on the price of the commodity.
- The market structure is **characterized by uncertainties about the reactions and activities of other firms** which limit the ability of an individual firm to make independent decision.
- **Due to limited entry of firms**, there may be **lack of competition** leading to inefficient and poor-quality products.

Non price competition under oligopoly.

Non price competition is where firms in the industry compete using other means other than price. The price is kept constant but firms use other means of attracting customers**.**

Forms of non-price competition

- Provision of credit facilities.
- Persuasive advertising.
- Offering after sales services.
- Opening up many branches.
- Organizing trade fairs and exhibitions.
- Offering gifts.
- Organizing raffle draws and consumer games.
- Sponsoring social events.
- Improving quality.
- Free distribution of samples.

Advantages of non-price competition.

1. It ensures quality products on the market.
2. It increases total sales
3. It encourages producers to reduce costs through innovations
4. Perception and branding creates market for the commodity
5. Competition by product differentiation helps to widen market

Disadvantages of non-price competition

1. Competing by **improving quality requires more time** and resources.
2. It may be **difficult to compete through maintaining brand loyalty**
3. Competing through product differentiation can **result in significantly higher overhead** costs for production.

UNIT 2: NATIONAL INCOME

National income is the total monetary value of goods and services arising from productive/economic activities of a country in a given period of time, usually a year.

Concepts used in national income

Gross Domestic Product (GDP)

This is the monetary value of goods and services produced in the country by both nationals (residents) and non-nationals (foreigners). Foreigners include foreign investors and expatriates. GDP can be calculated by considering various sector net changed values during a time period.

$$GDP=C+I+G+ (x-m)$$

Where;

- **C** = All private consumption/ consumer spending in the economy. It includes durable goods, non-durable goods, and services.
- **I** = All of a country's investment on capital equipment, housing etc.
- **G** = All of the country's government spending. It includes the salaries of a government employee, construction, maintenance etc.
- **X-M**= Net country export – Net country import

Gross National Product (GNP)
This is the monetary value of goods and services produced by the nationals within the country and those nationals that live outside the country (abroad). It excludes the incomes earned by foreigners living in the country.

GNP = GDP + Net Factor Income from Abroad (x-m)

Net National Product (NNP)
This is the monetary value of goods and services produced by nationals of a country in a given period of time less depreciation costs.

NNP= GNP-Depreciation

Net Domestic Product (NDP)
This is the monetary value of goods and services produced in the boundaries of a country by both nationals and nonnationals less depreciation.

NDP = GDP-Depreciation

Income per capita
This is income earned per person in a given period of time.

$$\text{Per capita income} = \frac{National\ income}{Total\ Population}$$

Personal income
This is the total income received by an individual from both productive and unproductive activities.

Disposable income
This is a fraction of income that remains for spending after deducting the taxes.

Nominal income
This refers to incomes expressed in monetary units such as dollars, francs, shillings, etc.

Real income
This refers to the amount of goods and services that nominal income can buy.

Net factor (Property)
This is the difference between income earned by nationals abroad and income earned by foreigners in the country. Such earnings may be in form of salaries, rent from properties, dividends, profit, royalties, etc.

National income at market price (NNP mp)
This is the monetary value of goods and services valued at market prices. When the goods are in the market, we add indirect taxes but we subtract subsidies.

$$NNP_{mp} = NNP_{fc} + \text{indirect taxes} - \text{subsidies}$$

National income at factor cost (NNPfc)
This is the monetary value of goods and services produced in a country at a given period of time valued at factor cost.

$$NNP_{fc} = NNP_{mp} + \text{subsidies} - \text{indirect taxes}$$

(i) Product /Output/value added method/approach

The product/output/value added method/approach is the total summation of the gross value of the final goods and services in different sectors of the economy like industry, service, agriculture, etc.

The value obtained is the gross domestic product. Thus, we can calculate GDP according to this method:

$$GDP = \text{Total product of (industry + service + agriculture) sector}$$

Symbolically,

$$GDP = \sum (P \times Q)$$

Where,

P= Market price of goods and services

Q= Total volume of Output

In using this method/approach to determine the national income, it is important to note that sometimes goods produced by one sector are further processed by another sector. These goods are termed as **intermediate goods** and are already included while determining the value of final goods.

So, in order to avoid the problem of **double counting** of value of goods, the product method is further categorized into two approaches:

a) The Final Goods Approach

In this method, only the value of final goods and services are computed while estimating GDP, regardless of any intermediate goods and their processing. This method takes into account only those goods and services that purchased and consumed by the final consumers in the economy.

b) The Value Added Method

In the value added method of measuring national income, the value of materials added by producers at each stage of production to produce the final good is considered. The difference between the value of output and inputs at each stage of production is the value added.

Thus,

Value added= Value of output – Cost of intermediate goods

Example 1

Given a farmer in Burera district producing wheat and sells the wheat to the miller in musanze at 100 frw per kg, where the miller produces floor and sells at 150 frw per kg and sells the floor to the baker in Kigali for making breads, where one kg of wheat is used to make one bread and bread is sold at 200 frw. If the differences are added up for all production sectors in the economy, the value of GDP is computed and the table below clearly explains this method:

Producer	Stage of production	Selling price (frw)	Cost price (frw)	Value added (frw)

Farmer(Burera)	Wheat	100	0	100
Miller(Musanze)	Floor	150	100	50
Baker(Kigali)	Bread	200	150	50
Total		**450**	**250**	**200**

Table 1: Estimation of National Income by Value Added Method

In this example, GDP using product/output/value added method/approach is 200 frw where

GDP= wheat (100)+floor(50)+bread(50)

= 200 frw

Example 2

Stage 1: Masera a farmer in Byumba grows cotton and sells it to a ginnery at 10,000 FRW. This represents an income of 10,000 FRW to Masera. The value added is 10,000 FRW.

Stage 2: The ginnery sorts out the good cotton from the poor cotton and sells it to a spinner at 15,000 FRW meaning that the value added on the cotton is equal to 5,000 FRW.

Stage 3: The spinner uses the good quality cotton to make threads that it sells to Utexrwa, a cloth-making industry, at 25,000 FRW, meaning the value added to the cotton to make threads is 10,000 FRW.

Stage 4: Utexrwa turns the threads into a dress and sells it to Umutoni at 40,000 FRW meaning the value added onto the threads is now 15,000 FRW.

The total value added on to the cotton up to the time of its sale is: **10,000+ 5,000+ 10,000+ 15,000= 40,000** which is equal to the value of the final dress. This can further be illustrated in the table below:

Table: calculating national income using value added

Industry	**Cost (Frw)**	**Value added (Frw)**
Cotton	10,000	10,000
Ginner	15,000	5,000

Spinner	25,000	10,000
Textile	40,000	15,000

National income=10,000+5,000+10,000+15,000=40,000 Frw

(ii) Income Method/appraoach

Income method sometimes termed as factor income method or factor share method is used to determine national income by measuring as the total sum of the factor payments received during a certain time period.

The factors of production include land, labor, capital, and entrepreneurship. Individuals who provide these factor services get payment in the form of **rent, wages/salaries, interest, and profit** respectively. The total sum of income received by these individuals comprises the national income for a given period of time.

Thus, according to this method,

GDP= RI+W+I+Up+D+Dt+D…

Where;

RI= Rent (Rental incomes on agricultural and non-agricultural properties)

W=Wages/Salaries (Wages and salaries earned by employees including supplements

I= Interest (Net interest earned by individuals other than governmental bodies)

Up=Undistributed Profit (Profits earned by businesses before payment of corporate taxes and liabilities)

D=Dividends

Dt=Direct taxes

D=Depreciation

(iii) Expenditure Method/approach

The expenditure method measures the national income as the sum total expenditures made by individuals on personal consumption, firms on private investments, and government authorities on government purchases.

Since incomes from production are earned as a result of expenditure made by other entities on the produced goods and services within the economy, the result of expenditure method should be same total as the product method. However, with an exception of avoiding intermediate expenditure in order to avoid the problem of double counting, national income under expenditure method can be expressed as

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

Where,

C= Consumption Expenditure (Expenditure on durable goods such as furniture, cars, and non-durable goods such as food);

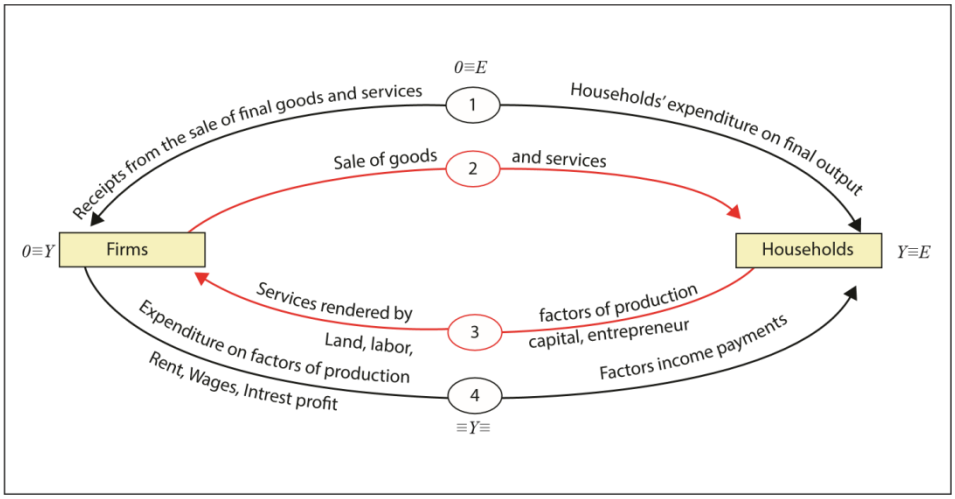
I= Investment Expenditure (Private investment in capital goods or producer goods such as buildings, machinery, etc.);

G= Government Expenditure (Government expenses for maintaining law and order, developing pre-requisites of development, etc.);

(X-M)= Net Export (Difference between import and export)

Identical results of the approaches to national income

Figure 4: Identical results of the approaches to national income



From Figure 4 above:

- The expenditure on goods and services in the market is paid out to the factors of production as rewards for their contribution to the production of goods and services in form of wages, interests, rent, profits, and, therefore, the income approach is equivalent to the expenditure approach, i.e. ***Y≡E.***

- The money value of goods and services produced by the firms is reflected in the prices paid for them in the market and, therefore, the output approach is equivalent to the expenditure approach,
  i.e. ***O≡E.***
- The value of goods and services produced by firms is also reflected in the incomes received by the different factors of production, therefore, the output approach is equivalent to the income approach, i.e. ***O≡Y.***

Since *Y≡ E, O≡ E, O≡ Y,* therefore, *O≡ Y≡ E*

Example, given the table below, we can calculate GDP by use of 3 approaches and you will notice that all the 3 approaches give the same results.

Item	**Amount (000'Frw)**
Transfer Payment	54
Interest	150
Depreciation	36
Wages	67
Gross interest (I)	124
Business Profits	200
Indirect Business Taxes	74
Rental income	75
Net exports (X-M)	18
Foreign factor income	12
Government expenditure (G)	156
Household consumption (C)	304

As you can see, the table contains variety of data, so you have to select which data fits into the approach you want to use. In this sense, by **expenditure approach;**

$$GDP = C + I + I + (X - M)$$

Where C = 304
G = 156
I = 124
X-M = 18

Therefore $\boldsymbol{GDP = 304 + 156 + 124 + 18 = 602' Frw}$

By using income approach, we can get:

$$\boldsymbol{NI = W + R + I + PR}$$

Where W = 67

R = 75

I = 150

PR = 200

$$\boldsymbol{NI = 67 + 75 + 150 + 200 = 492' Frw}$$

Recall, determining GDP using income approach:

$$\boldsymbol{GDP = NI + Indirect\ business\ taxes + depreciation}$$

$$\boldsymbol{GDP = 492 + 74 + 36 = 602' Frw}$$

As you can see, in this example, both approaches to calculate GDP will give the same result/estimate. However, this is not always what happens and some times GDP will differ slightly when different approaches used.

The circular flow of income

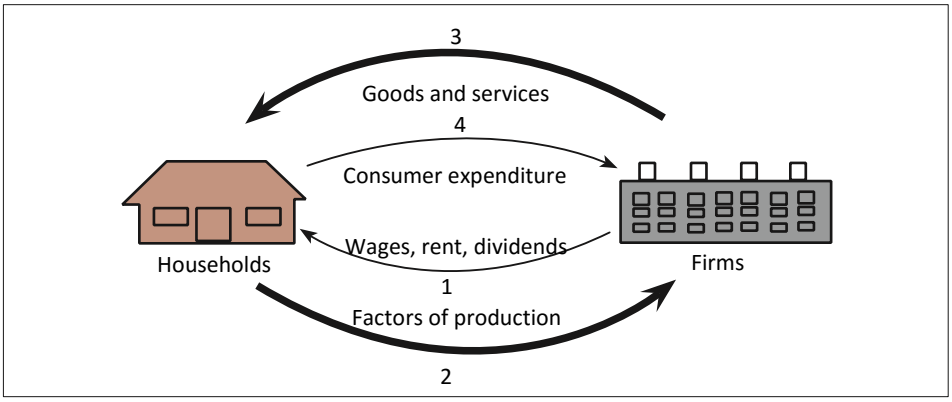
This is a system that illustrates the flow of resources and commodities and the flow of expenditure and incomes between households and firms. The flow of resources and commodities is known as **real flow** while the flow of receipts and incomes is called **money flow.** Therefore, the circular flow of income involves both real and money flows.

Circular flow of income in a closed economy

In a closed economy, (where there is no foreign trade); assuming there is no government intervention, the circular flow of income would appear as

follows:

Figure 5: Circular flow of income in a closed economy



From Figure 5 above, we note the following:

- Firms buy factors of production from households (2) and pay for these factors of production (1). Firms use the factors of production to produce goods and services which they sell to households (3). In turn, households pay for these goods and services (4).
- Arrow (2) and arrow (3) **show real flows,** i.e. the flow of factors of production and commodities, respectively.
- Arrow (1) and arrow (4) show **monetary/financial flows**, i.e. flow of income and expenditure, respectively.
- The value of goods and services (output approach) is equal to households' expenditure on them (expenditure approach), **O=E**.

  Receipts received by firms from sale of goods and services (expenditure approach) are spent on buying factors of production (income approach), ***E=Y***. The value of the goods and services is also reflected in the incomes received by the factors of production, ***O=Y***. Therefore, the three approaches should give equivalent results if there are no errors, i.e. $\boldsymbol{O \equiv Y \equiv E}$.

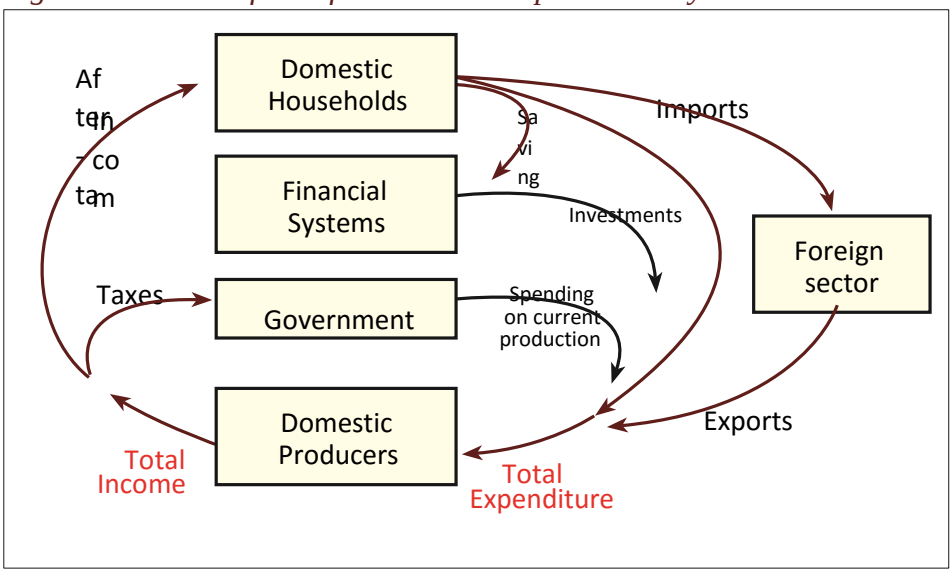
Circular flow of income in an open economy

An open economy is that economy that has economic relationship with outside countries, i.e. there is international trade, so as to protect infant industries, check on profit repatriation by foreigninvestors and save the volume of foreign savings injected into the domestic economy. It tends to utilise other sources apart from the household to provide capital, which is injected into the circular flow of income.

The sources could be foreign investment and the government. In an open economy, both domestic and foreign firms interact, thus it involves domestic households, domestic producers,

government interference and the foreign sector as well. Thus, showing how the economic agents interact, i.e.
C+ I+ G + (X-M).

Figure 6: Circular flow of income in an open economy



From Figure 6 above, it is noted that:

- The household owns all factors of production and hires them to the domestic producers. In turn, they receive income in form of rent, salaries, interest and profits from the business sector (domestic producers) which is used to pay for goods and services from the producers. The remaining income after consumption is used to make savings through financial system which lend to the business firms.

- Firms buy factors of production from domestic households and use them to provide goods and services which are consumed locally and at times exported to the foreign sector. When they run short of funds for paying for factor services and investment, they have to borrow from the financial institutions in order to raise capital to produce.

- Taxes are paid to the government by firms' profits.

- The state spends the tax revenue received to provide social services to the people.

- The foreign sector provides market, i.e. for domestic exports and providing imports to the domestic households.

- The financial sectors stand between savers (households) and borrowers (investors) by receiving savings from households on which it pays interest. It provides business loans for firms for investment on which it charges interest which is higher than that paid to depositors. The difference is the surplus for this sector.

Factors determining the level of national income

1. **Stock of natural resources:** These include resources such as land, minerals, soils, etc. When such resources are available and exploited, national income will be high but if they are scarce and not exploited, national income will be low.
2. **Availability of capital:** When capital in form of machines and money is available, national income will be high compared to when capital is scarce.
3. **Technological progress:** Once technology is advanced, output will increase and national income will be his/her than when technology is outdated.
4. **Human resource:** If the country's labour force is highly productive with good entrepreneur skills, national income will be high compared to when the quality of labour is low.
5. **Political situation:** Political stability will lead to increase in productivity and high national income while instability will cause low production and national income.
6. **Level of market:** A big market for goods and services will lead to high productivity and national income; while a small market will discourage production, hence low income.
7. **Level of infrastructure development:** Once infrastructure such as roads and communication, among others, are well developed, it will encourage investment, hence increasing national income. But when they are under developed, national income will be low.
8. **Government policy of taxation and subsidisation:** Once the government overtaxes the people, it will discourage investment and national income will be low but once the government subsidises the people, investment and national income will increase.
9. **Organisation of factors of production:** Once factor inputs such as land, labour and capital are well coordinated and organised, national income will be higher than when these factors are poorly coordinated.
10. **Institutional factors** such as culture, religion and people's attitude towards work. If people's attitudes towards work are high, national income will be high but low attitude will lead to low national income.

Importance of national income statistics

1. **National policy analysis:** For example, policies on employment can be based on the level of output, investment, etc;

2. **Research:** Both economy and social research **c**an be carried out in respect of incomes, savings, investments, consumption patterns, etc. Data on these indicators can be got from the statistics of national income;
3. Per capita income (national income divided by total population) is a good indicator of improvement or decline in the **standard of living**;
4. National income statistics show the **distribution of income** among the various factors of production and sectors of the economy, namely: the household, business and the government sectors. This is important in planning for taxes and governments expenditure;
5. They are important in estimating the level of **international transactions** and the degree to which an economy depends on other economies. This can be estimated from the figures of imports and exports;
6. They show the **patterns of expenditure:** This is shown by figures of private and public expenditure. This is important in the making of the national budget where there is the need to estimate private and public expenditure;
7. They show **regional performance and improvements:** Incomes of different regions in the country can be compared so as to make plans on how to improve backward regions;
8. They are used for **international comparisons** which are necessary if improvement in economic performance is to be achieved;
9. They are used for comparisons of economic performance in one country over time so as to make improvements;
10. They show the **rate of resource utilisation:** The increase in national income may be the result of increased utilisation of national resources;
11. They measure the size of various **economic sectors,** i.e. agriculture, industry and infrastructure or monetary and subsistence sector. This is helpful in tracing the source of economic growth and allocation of resources among these sectors.

Difficulties of measuring national income in LDCs

There are a number of statistical and conceptual problems which are encountered when measuring national income**.** ***Conceptual problems*** are those problems that arise from the interpretation of the subject matter of national income for example, defining the boundary of production.

While ***statistical problems*** are those that arise from the exercise of collecting and processing national income data, such as inadequate information, lack of enough qualified personnel, etc.

A combination of both statistical and conceptual problems includes the following:

1. **Defining the term nation:** There is difficulty in defining the term *nation* in national income. Every country has its own political boundaries but in national income estimation, the term *nation* includes the income earned by nationals of a country in a foreign country beyond the territorial boundaries of the country in question;

2. **Double counting:** There is a possibility of counting some commodities more than once. For example, wheat as an intermediate good may be counted and at the same time bread as the final good;
3. **Non-monetary output:** National income is measured in monetary terms, but there are some goods and services which are difficult to measure in monetary terms, for example, **Subsistence output, services of housewives,** etc. All these activities add to economic welfare and all use economic resources yet none of them is included in official measures of national income and product. This leads to underestimation of national income;
4. **Inadequate information** especially on private expenditure and other private incomes, information on fisheries, crops and animal husbandry, among others, on which very little data is available leads to national income figures underestimated;
5. **Shortage of facilities** such as computers to collect and process national income data may also bring about statistical errors when computing national income;
6. **Price changes:** When the price level in the country rises, national income also shows an increase although the production level may have fallen. Also, there might be a decrease in the price and national income also shows a reduction although production levels may have increased. Thus, due to price changes, national income cannot be adequately measured;
7. **Timing of production:** It is very difficult to determine output produced in the country during the year. For example, crops may stay in the field for more than one year and there is a likelihood that they may be counted year after year;
8. **Inflation:** Changes in prices affect the value of GNP and the effect of inflation is difficult to adjust accurately;
9. It is difficult to determine **transfer payments** such as unemployment benefits, gifts, etc. It is hard to tell whether such payments were received as a result of providing services or not yet they are part of the incomes of the giver;
10. **Omissions from GDP:** There are activities that may be omitted from national income such as prostitution and smuggling, among others. Although those bring welfare and incomes to the people, they are not included when calculating national income. Therefore, it leaves national income figures underestimated;
11. It is difficult to determine **net exports and income earned from abroad** since import and export trade is carried out by many people or groups of people also there are lots of goods that come in and go out undetected due to smuggling.

Shortcomings of using national income figures

1. **Comparison between countries:** The per capita income of a country whose principal diet is rice and fish as in Korea is not comparable with Rwanda's, where the diet is so much varied. Money units do not measure these differences in the kinds of products consumed;

2. **Changes in the country's stock of capital:** National income statistics do not consider the changes in the country's stock of capital equipment. The calculation of depreciation on capital goods is not accurate;
3. **Changes in quality:** The qualitative aspect is totally ignored. The GNP figures do not take into account the quality of goods and services;
4. **Marketed activities:** National income data are confined to goods and services sold in the market. But, in the majority of underdeveloped countries, most production takes place in the homes of people. Measures of national income confined to production for home consumption underestimate per capita income in such countries, since the national income is underestimated;
5. **Use of national income figures over a long period:** For shorter periods of two or three years, comparisons of income totals are valid for most purposes. But over a longer span of time, they can be misleading. Over a longer period, a number of new products may appear in the economy and a number of old products may disappear. It therefore becomes difficult to compare two periods with unlike items.

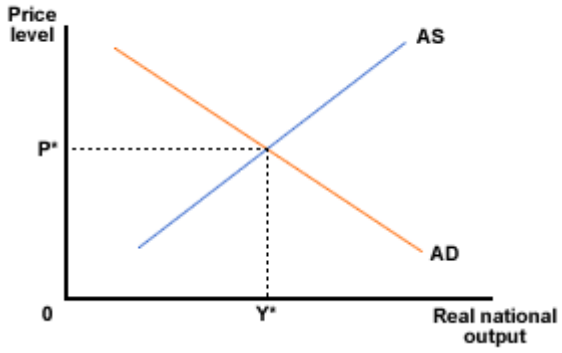
National income equilibrium

Equilibrium can be defined as a state of stability in economic conditions irrespective of the forces influencing different economic agents.

Equilibrium level of national income

a) **Aggregate demand and aggregate supply approach**

We combine the aggregate demand and supply curves to determine the equilibrium level of national income. When we impose the AD on the AS as shown in figure below, we note that AD is greatest at lower prices, whilst AS is at its highest when prices are higher. The equilibrium, in the macro sense, will occur at the level of real national income or output at which the total planned expenditure on output equals the quantity of goods and services firms are willing and able to supply.



From the figure above, equilibrium level of national income is obtained at an output level of Y* and a price level of P*. If nothing changes then the economy will be stable at this equilibrium,

but any changes in aggregate supply and demand will lead to changes in output and the price level.

b) Leakages – injections approach

National income is in equilibrium when total leakages are equal to total injections.

Leakages refer to elements which withdraw money from the circular flow of income. They include savings -S, consumption-C, taxation -T, imports-M and capital outflow-Ko. These elements remove money from the circular flow of income i.e. $C + S + M + Ko$

Injections refer to elements that add to the circular flow of income. They include investment-**I**, consumption-**C**, and government expenditure-**G**, exports-**X** and capital inflow-**Ki**. These elements add money to the economic activities in an economy, i.e. $C + I + G + +X + Ki$

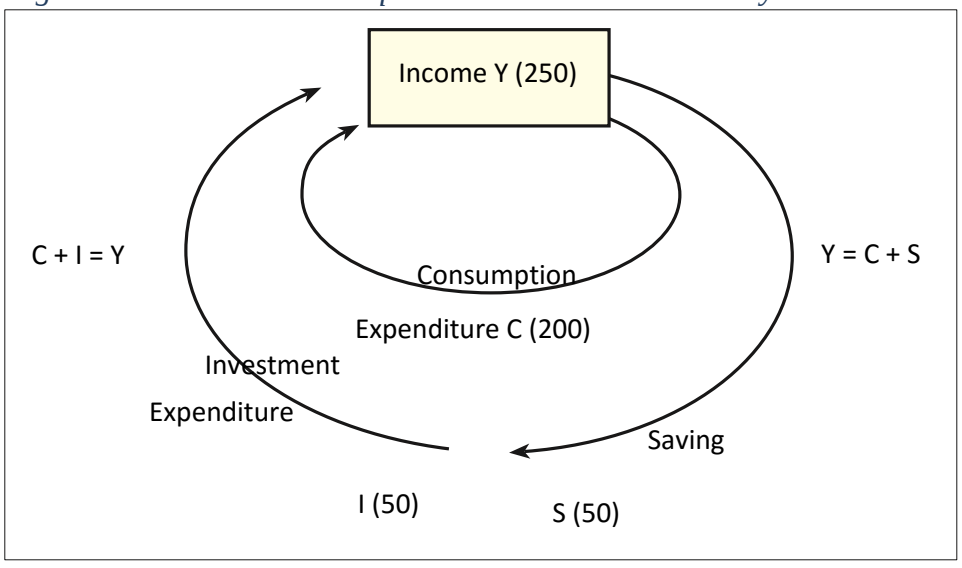
Thus, national income is in equilibrium when $C + S + M + Ko = C + I + G + X + Ki$

(i) National income equilibrium in a closed/two sector economy

A closed economy is one where transactions take place within the country without any foreign trade. The major factors, which determine the level of income **(Y)**, are consumption **(C)**, saving **(S)** and investment **(I)**. The country's income can be used for the consumption and saving. These are known as leakages or withdrawals. The identity is **Y = C + S**. If the level of income is to be maintained, saving must be put back into the economy in form of investment so as to create more income.

Consumption must also take place. These are known as injections. The identity is **C+I =Y**. Therefore, we have **Y = C + S** and **Y = C +I**; equating the two expressions yields **C + S = C + I = Y**. In a closed economy without government, equilibrium income is a situation where savings are equal to investments. This can be illustrated as below:

Figure 7: National income equilibrium in a closed economy

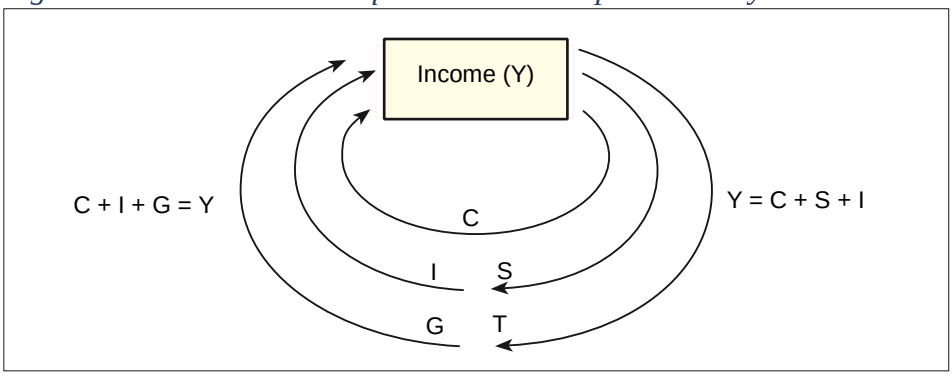


The left hand side of the Figure shows how income is being created through consumption and investment. The right hand side shows how income is being used through consumption and saving. Our objective is to determine precisely the equilibrium level of GDP and to see what factors it depends upon. Thus, **C+I=C+S=Y** which then means I (an injection) =S (a leakage) in a closed economy.

(ii) National income equilibrium in an open economy

An Open economy is one where there is foreign trade. So far, we have dealt with a very simple economy consisting of only households and businesses. All the income created in the process of production was passed on to households as disposable income. Thus, GNP and disposable income were identical.

Figure ....National income equilibrium in an open economy



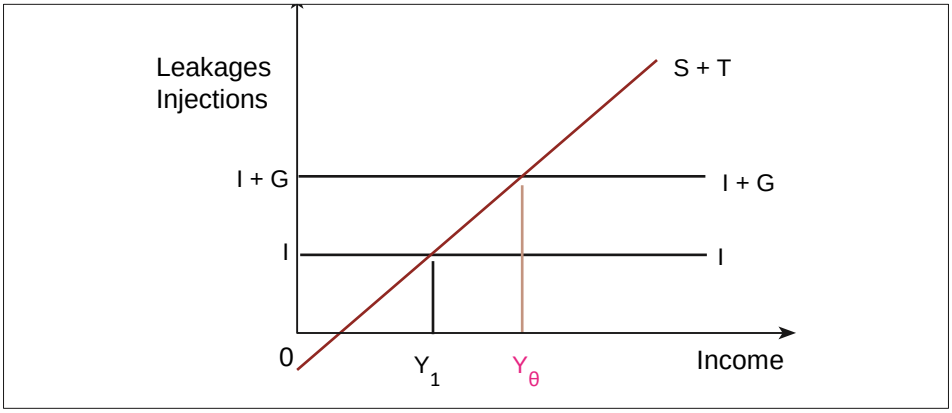
From the figure above, in a simple economy, when the government sector is added, it levies taxes and makes expenditures on the purchase of goods and services. The government also makes transfer payments. Aggregate demand now consists of consumption **(C)** investment **(I)** and government demand for goods and services **(G)**. Therefore, **C + I + G = Y**. Not all the income from the production of output is disposable income to the households. A portion is now absorbed by the government as net tax receipts.

Net tax receipts are total tax receipts less that portion which is returned to the private sector in the form of government transfer payments. While government tax receipts reduce disposable income, government transfer payments such as unemployment allowances increase disposable income.

The income is used for consumption, saving and tax.
Y = C + S + T. Therefore, equilibrium income is where **S + T = I + G**, i.e. leakages = injections. When government expenditure is added on, the equilibrium income increases from Y_1 to Y_θ where **I + G = S+ T**.

Equilibrium income determination: The leakages-injections approach

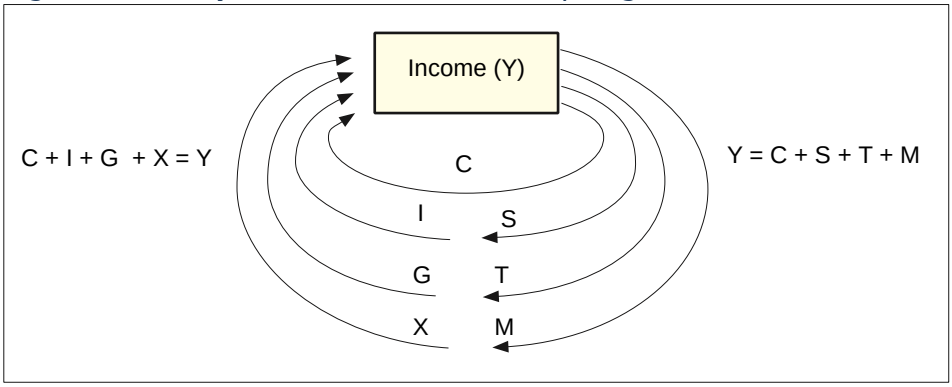
Figure.....The leakages-injections approach



When the foreign sector is introduced, income is created through consumption, investment, government expenditure and exports. Thus, **C + I + G + X = Y**. The income is used for consumption, saving, tax and imports. This is indicated by the following equation **Y = C + S + T + M**.

Equilibrium income is, therefore, equal to **S + T + M = I+ G + X**. Leakages = injections. The equilibrium income is indicated in Figure below;

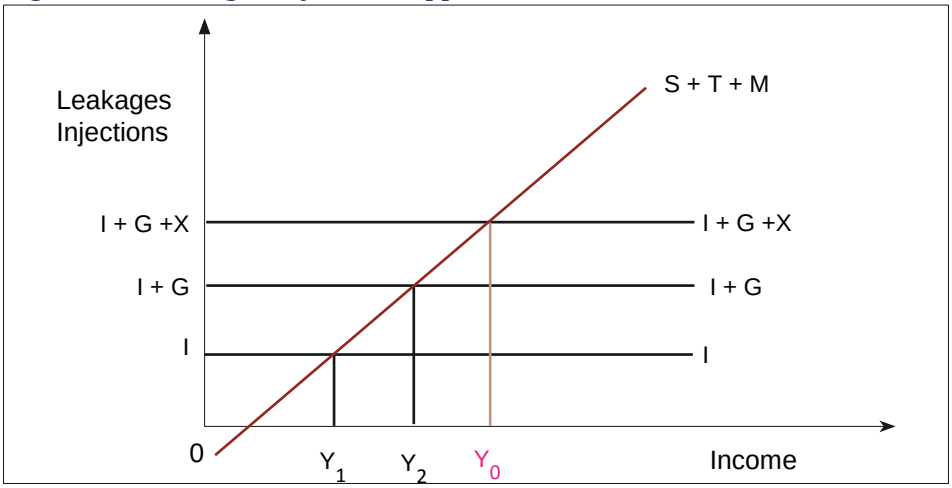
Figure above, Equilibrium income with the foreign sector



From Figure ..., it is seen that when the foreign sector is added on, injections become **C + I +G + X** and leakages become **C + S + T + M**. Therefore, the equilibrium income increases to Ye where**, *I+ G + X = S + T + M.***

Equilibrium income determining: Leakages-injections approach

Figure 12: Leakages-injections approach



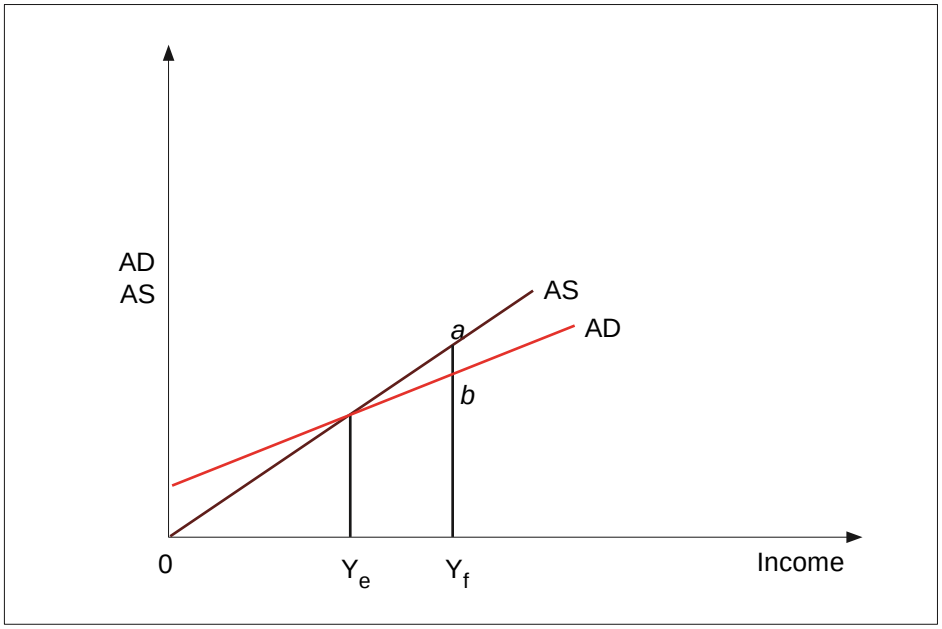
From Figure 12 above, investment, government spending and exports are known as the injections into the flow of income. They increase the circular flow of income. Savings, taxes and imports are referred to as withdrawals or leakages from the flow. They reduce the country's income—the circular flow of income.

The condition for the equilibrium income is that injections = leakages. When injections exceed leakage, the level of income increases whereas if leakages exceed injections, the income level reduces.

Inflationary and deflationary gap

A deflationary gap is a situation where aggregate supply exceeds aggregate demand at full employment.

Figure ...: Deflationary gap



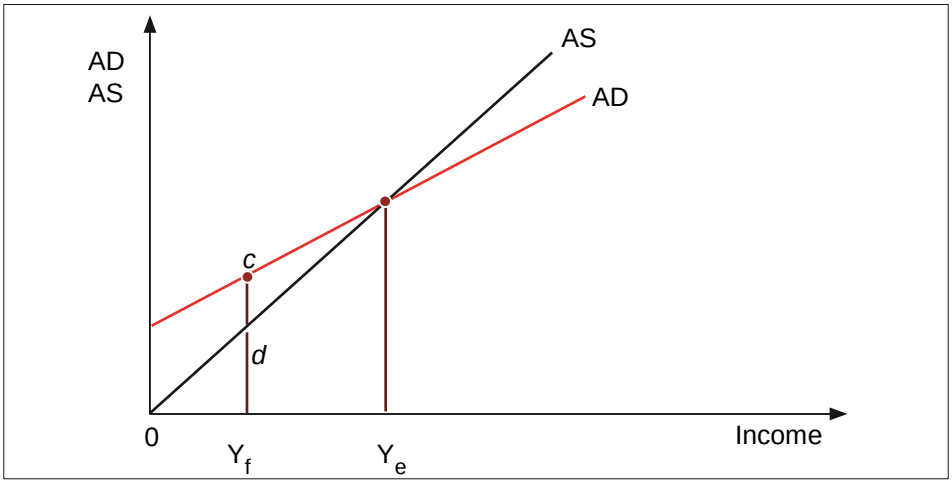
Closing a deflationary gap

Policies that can be used to increase aggregate demand

- **Increasing the volume of exports** so as to get rid of the surplus;
- Discouraging imports so as to avoid increasing the volume of goods in the country;
- **Adopting an expansionary monetary policy** – This will help to increase money in the hands of the people, hence increase their demand;
- **Increasing government expenditure** – This will also increase money in the hands of the people, hence increasing their demand;
- **Increasing wages** such that the people can have access to income and increase demand;
- **Reducing taxes** – This will increase the disposable income in the hands of the people, hence increasing their demand;
- **Adopting price control** especially **maximum** price which is low and will encourage demand.

An inflationary gap is a situation where aggregate demand exceeds aggregate supply at full employment level.

Figure below An inflationary gap



From Figure above gap c-d is an inflationary gap.

Policies to close inflationary gap

Policies that can be used to reduce aggregate demand

- **Adopting a restrictive monetary policy** – This will reduce the amount of money supply and hence lower aggregate demand;
- **Increased imports** – This can help to increase the volume of goods available when demand is greater than supply;
- **Reduced exports** – This is to reduce the amount of goods going out of the country so as to make them enough for the people;
- **Increased taxes** – This is to help reduce the disposable income of the people so that they do not have a lot to spend;
- **Reduced government spending** – This is aimed at reducing and controlling the amount of money in circulation which leads to limited liquidity and low demand;
- **Adopt price control** especially **minimum price** legislation which is a high price that can reduce the demand for goods and services;
- **Reducing wages** by adopting a tight income and wage policy.

Fluctuations in level of economic activities

This refers to **upward and downward swings** in business activities or trade.

There are basically four stages of business growth although some scholars argue that they are five as seen below.

Expansion (Boom)

This is a stage where business activities are at high levels and they tend to acquire profits. The business is normally in the upswing mode as shown by the high levels of economic activities. It **is characterised** by the following:

- There is increase in the demand for both capital and consumer goods.
- Companies invest in more production facilities with a view of making profits from the increase in sales.
- Banks lend capital for expansion at low rates because they have confidence in the investors paying back.
- There are high rates of employment brought about by high aggregate demand and investments.
- Business is at its peak and makes supernormal profits.

Recession

This stage is the upper turning point and shows that the economy is in a decline as shown by the characteristics below:

- Level of sales and production orders start declining.
- Production facilities become underutilised.
- Companies reduce the work rate.
- Workers hired on casual basis are laid off.
- There is reduction in the level of output.
- Banks raise the interest rates to counter the rise in risk of default on loans.
- Most of the companies reduce the price of their goods so that they can increase demand.

Depression

This is the bottom of a cycle where economic activity remains at a low level.
It has the following **characteristics**:

- Demand for products and services reduce, forcing some companies to shut down some production facilities.
- There are rampant cases of unemployment brought by closing of industries.
- There are high rates of poverty.
- The purchasing power in an economy becomes very low.
- The gross domestic product declines and so does the standard of living of the people.
- The fall in price of capital goods is more than that of consumer goods.
- Demand for loans declines because the investors become irritated by the economic situation.

Recovery

This is the stage where business begins regaining its strength. Business may sell output at very low prices to retain the operating costs; carry out some repairs; or gets some credit, among others. This helps it to begin moving from the trough. The stage is characterised by the following:

- Business become confident in the market and they begin buying goods so the business begins making profits.
- The bank rates become low so the companies can afford to borrow and finance projects.
- There is an increase in production because of increase in aggregate demand.
- Companies begin employing people and so there is a reduction in unemployment levels.
- Standards of living of the people improve since they can afford to buy goods and services.
- Profit margins of business start rising and the gross domestic product also begins to rise.

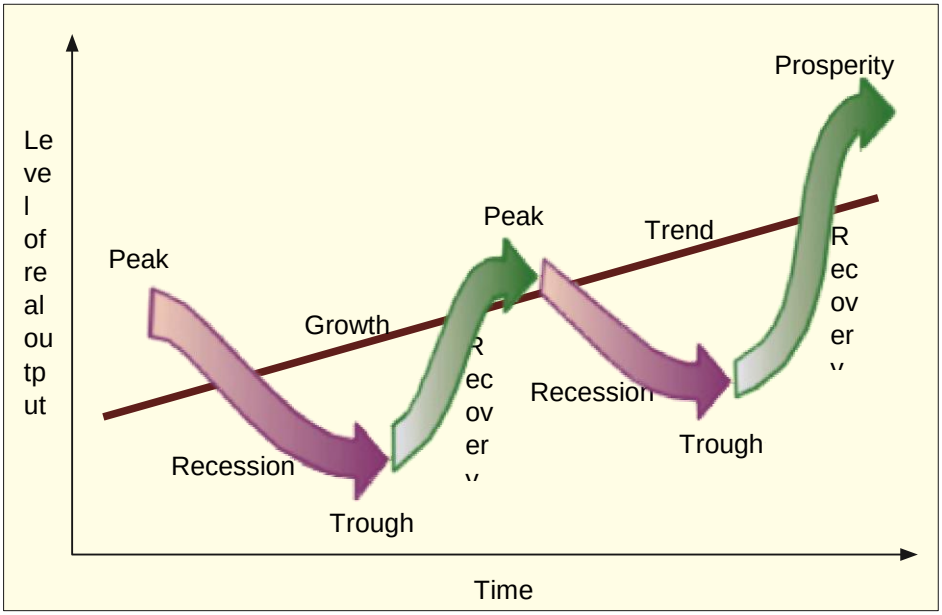
Prosperity

This is where business regains its strength and activities are at their peak.
The following are its **characteristic**s:

- There are high employment levels in an economy.
- There are high incomes due to the employment levels.
- High levels of production is common at this stage.
- There is high aggregate demand and cost which leads to a rise in investment and prices for goods and services.
- The existing capacity of plants is underutilized.

This can be illustrated in the figure below.

Business cycle



From the figure above, we notice that the phases of a business cycle follow a wave-like pattern over time with regard to GDP (real output), with expansion leading to a peak and then followed by contraction.

Per capita income

Per capita income is income received per person in a period.

$$\text{Per capita income} = \frac{National\ Income}{Total\ Population}$$

Example

Given the Rwanda's population in 2018 as 12,000, 0000 and the nominal GDP as 9,000,000,000. We determine the per capita income as:

$$\text{Per capita income} = \frac{9{,}000{,}000{,}000}{12{,}000{,}0000} = \mathbf{750\ \mathit{Frw}}$$

It is important to note that per capita income is expressed in monetary units and for the case of Rwanda, it is expressed in francs. From the example above, every nationals of Rwanda earns 750 Frw per annum.

Exercise

Study the table below showing population and GNP of countries A and B and answer the questions that follow.

Country	GNP (Millions)	Population (Millions)
A	1000	20
B	600	12

a) Calculate the per-capita income of countries A and B

Per capital income is used as an indicator of the standard of living in a country; and to compare the standard of living between countries because it is available for all countries and it is the most relevant among other available measures. Using national income figures to compare standard of living comes with many shortcomings as seen below:

Factors influencing the increased per capita income

- **Levels of education:** This allows people to get employed in different sectors of economy, thus increased levels of income and in the end increased per capita income.
- **Infrastructure development**, such as roads facilitates movement of people and their goods from one place to another. This further increases the level of earnings of the people and as output will be able to reach the market where it is highly demanded.
- **Development of entrepreneurship:** Entrepreneurship development boosts the business sector and employs more factors of production such as labour.
- **Technological development:** When the level of technology increases, level of production also increases leading to increased income and thus increase in the levels of per capita income.
- **Improved terms of trade**: When the country's revenue from exports is more than that from imports, it means that the country doing well and this will positively affect the per capita income of the country.

Limitations of using per capita income figures as a measure of good standard of living in a country for period of time

- Per capita income does not take into account **the distribution of income**. It may be high but when in the hands of a few people and many are poor, it may not reflect a good standard of living in the country.
- Per capita income does not take into account the **pattern of goods produced**, either capital or consumer goods. It may be high but when capital goods are produced as compared to consumer goods that yield satisfaction to the consumers.

- Per capita income does not consider the **working conditions** of the people. It may be high but when the working conditions of the people are poor, it may not reflect a good standard of living.
- Per capita income does not take into account the **amount of leisure**. It may be high but when the people do not have leisure yet we know that leisure is one of the attributes of good welfare, meaning the standard of living will become low.
- Per capita income does not consider the l**evel of subsistence sector**. It looks at the monetary terms of the output but the subsistence sector where food is grown for home consumption is not considered yet it is a basis for good welfare in the rural areas.
- Per capita income does not consider the **level of prices**. It may be high because the prices of goods and services are very high implying that the people cannot afford them, hence leading to poor standards of living.
- Per capita income does not put into consideration the **political climate**. It may be high but when there is political instability in the country, meaning that the people are always on the run. This may not show good standards of living.
- Per capita income does not consider the **quality of goods produced**. It may be high but when the quality of goods produced is low. This means that the quality of life of the people will also be poor.
- **Inaccurate statistical** data for example, population figures. It may be high but when the population figures given are inaccurate. This means that the per capita income figures will not reflect what is actually on the ground.

Per capita income can also be used to compare the standard of living between two different countries. The figures got from the different countries are compared and the country with a high per capita income figure is assumed to be having a high standard of living. However, this is not true in reality as seen further.

Limitations of using the figures of per capita income to compare the standard of living between countries

- It does not consider the types of goods produced. Per capital income may be high in the country, which produces many capital goods, which do not improve the welfare directly in the short-run.
- It does not take into account **leisure** which contributes to welfare. Per capita income may be high in a country where people work hard and forego leisure, which may be on top of their scale of preferences.
- **Transport differences:** Two countries may produce the same quantity and quality of product but may have different figures of per capita income because of the difference in transport costs.
- Per capita income figures do not reflect some factors, which influence the **welfare** of the people. For example, it may be high in a country where there are wars, accidents, diseases, pollution, etc.

- In LDCs, it is likely that **population figures** are inaccurate because of inadequate facilities and, therefore, the figures for per capita income are unreliable.
- Per capita income may be underestimated in a country where there are **omissions in measuring GNP** for example due to a large fraction of subsistence sector, high non-monetary output, etc.
- There are people who live on **illegal activities** such as gambling and smuggling, which are not included in national income figures.
- Countries use **different concepts and definitions** of national income. For example, some countries value subsistence output while others do not. Others use GNP at factor cost while others use GNP at market prices, etc.
- **Income distribution**: A country may have high-income per capita figures when income is in the hands of few people while the majority of the population are suffering.
- **Price structures**: figures of national income may be high because of inflation and this does not means that people are better off. Also a commodity may be cheap in one country and expensive in another but generate the same welfare.
- Per capita income may be high in a country where there is **unemployment** which affects welfare of affected people/ households.

Causes of low per capita income in developing countries

- **Low levels of education:** This makes the people get casual lowpaying jobs leading to low levels of income and in the end the per capita income will be low.
- **Under developed infrastructure** especially in the rural areas: This complicates movement of people and their goods from one place to another. This further limits the level of earnings of the people and some of the output may remain unsold.
- **High levels of unemployment:** Lack of jobs means that the output in the country will be low leading to a low national income and per capita income figures.
- **Low levels of income:** Some institutions give people low incomes despite their high contributions to the economy. Some may end up getting subsistence wage that will reflect a low income per person.
- **Dependence of agriculture which depends on climate:** Agriculture in Rwanda depends on climate and in situations where there is a mismatch between the seasons, the farmers suffer with no output and income leading to low income per person.
- **Large subsistence sector:** This yields little income since only the incidental surplus is sold. Most of the foods grown here are for home consumption implying that the there are no incomes expected during the production process.
- **Unbalanced development:** Some areas are highly developed with many economic activities while others are lagging behind in terms of development. The least developed areas yield low productivity and the general national income will be affected, leading to a low per capita income.

- **Lack of capital to invest in businesses:** There is still lack of enough capital to invest in production activities. This is evidenced by the low level of manufacturing industries. This leads to low productivity, low national income and finally low per capita income.
- **Low prices of agriculture products:** This accompanied by high rates of price fluctuation and little earnings from the agricultural sector, leading to low national income and hence low income per person.

Income inequality

Income distribution refers to the way income is spread among various social groups in an economy. It may be between different people in the same region or in another region or it may be how resources are distributed in different regions.

Inequality means an instance of being unequal which may imply difference in size, degree or circumstances, among others. In economics though, inequality is always talked of in terms following forms or types:

Types of inequality

1. **Personal inequality:** refers to the economic difference between the very poor and the rich people in society.
2. **Regional inequality:** refers to a situation where there is a difference in terms of resource endowments, developments through infrastructure such as roads and industries, among others. These make one region appear different and more developed than others.
3. **National inequality:** This is where some countries are richer than others in terms of resources and development.
4. **Sector inequality:** This where some sectors are richer and developed compared to other sectors e.g Industry being more developed than agricuture.
5. **Occupational inequality:** This where some occupations are more advanced in terms of technology used and payments etc. than other occupations.

Causes of income inequality

- **Differences in distribution of resources**, for instance, people who have access to fertile land are likely to get more income than those who live on marginal land, for example pastoralists.
- **Differences in social and economic infrastructure** such as roads to ease the transportation of goods and services from one area to another.
- **Government policies such as a regressive tax** which taxes the poor more than the rich causes income differences.
- **Historical factors** for example one can get much income because of inheriting property from rich parents. In rural areas, most people become rich because of inheriting land.

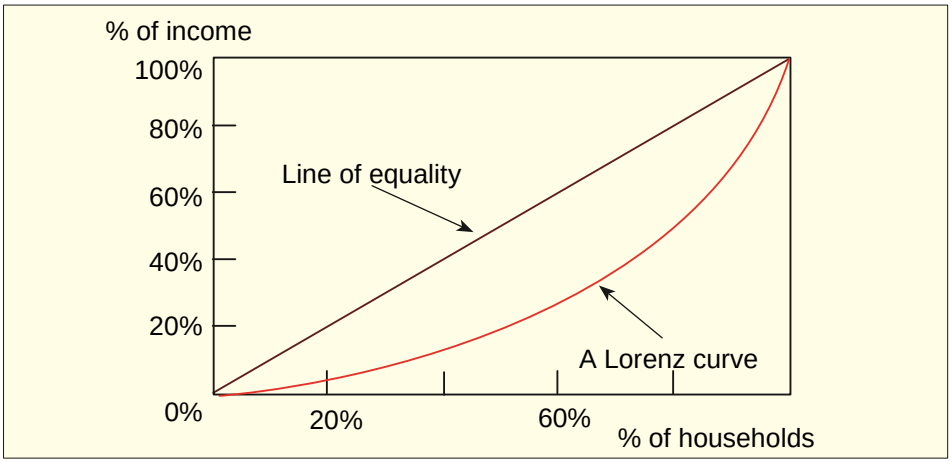
- **Differences in natural abilities**, for example, when one is physically handicapped, he/she is likely to have less income than one who is physically well.
- **Differences in employment**, i.e. some jobs bring in more money than others, hence income inequality.
- **Differences in education levels:** Educated people have higher chances of being employed and earning higher salaries than the illiterate.
- **Uneven distribution of investment opportunities:** Most of the investments are done in the urban centres and others are neglected, hence leading to regional inequalities.
- **Difference in sex:** Females are generally poorer than males because of limited access to income-generating properties such as land and credit.

Lorenz curve

The Lorenz curve is a graphical representation of the distribution of income or wealth in an economy. It was developed by Otto Max Lorenz in 1905 to represent the inequality of wealth distribution.

- It is based on two pieces of information, income and population.
- To draw it, information is required on both (income and population) and then formed into two variables that reflect the cumulative value of income and the population.
- On the horizontal axis we sort the cumulative population in the ascending order of income, with the lowest income first followed by the second lowest and so on. Hence the first 20% of the population will necessarily be the poorest 20% of the entire population.
- It looks at the line of perfect equality where there it is assumed to be income equality and as we move away from the line, the gap between the rich and the poor also increases.

Figure Lorenz Curve



From Figure above, the further away the Lorenz curve from the line of perfect equality, the more the income inequality. And the nearer the Lorenz curve from the line of perfect equality, the less the income inequality.

Gini coefficient

This is also known as the **Gini index** or the **Gini ratio** and it is the measure of statistical dispersion intended to represent the income distribution of a nation's residents. The Gini coefficient is a number between **0** and **1** where **0** corresponds to **perfect equality** (where everyone has the same income) and **1** corresponds to **perfect inequality** (where one person has all the income and everyone else has zero income).

Advantages of income inequalities

- Income is in hands of few people who can invest it and produce commodities for other people and the society at large.
- It encourages the poor to work hard so as to survive in the ever changing economy.
- It encourages savings among the rich which can be used for further investments, employment creation and production of goods and services.
- The rich can invest in research and innovations and improve technologies and this can help to speed up production and economic growth.
- The few rich employ the poor through investments in industries and factories, hence improving their standard of living.
- More tax revenue is realised by taxing the rich and this can lead to increase in national income through progressive taxation.
- The poor take up low category jobs such as cleaners, mortuary attendants etc. which would have nobody to take them up if all people were in the same average class.
- The rich invest in assets, which increase the wealth of the country.
- Foreign exchange is earned by rich export firms. This, through export promotion industries, can lead to increase in the foreign exchange earnings and reduce the balance of payment problems of a country.

Disadvantages of income inequality

- **There is minimum economic welfare of some group of people** because of absolute poverty, i.e. inability to purchase basic needs.
- **Reduction in aggregate demand**: The rich have a lower marginal propensity to consume than the poor. The poor people are left with little money to purchase commodities. The reduction in aggregate demand discourages investment.

- **Misallocation of resources**: The very rich people spend on luxuries, leaving the poor to go without basic needs.
- **Capital outflow** especially when the very rich are non-citizens who always repatriate their earnings to their home countries – In countries which are politically unstable, rich people prefer to invest/ bank their money in other countries where there is political stability.
- It leads to **a reduction in government revenue** since the majority of the people would be having little or no incomes to tax.
- It leads to **social disharmony** whereby the poor feel neglected and not catered for which results into political instability.
- It leads **to failure of government programmes** when the majority have no adequate means to participate in development activities.
- **Regional imbalances** come up because the regions with resources develop at the expense of others without resources.

Measures to control income inequality in Rwanda

- **Education reforms** have been undertaken. This has helped many people to access education so that they can be prepared to get jobs
- **Land tenure reforms:** This is through land redistribution policies and making it accessible to all people in society so that they can be able to carry out agriculture.
- **Kick-start** funds such as the "**one cow per family**" have helped people to access cows that can be used as a source of income through selling the milk.
- **Progressive taxation:** This has reduced the gap between the rich and the poor people since the revenues collected are used to subsidise the poor.
- **Improving infrastructure** such as roads which helps in the movement of people and goods from areas of production to markets helps people to increase their earnings.
- **Liberalisation of the economy:** This has helped people to participate in economic activities and trade, hence increasing their incomes and standards of living.
- **Controlling population growth:** This has helped to reduce the ratio of resources to the population and also dependence burden among the families.
- **Modernising agriculture:** This has helped reduce the level of poverty in rural areas where the activity is fully based. The people are able to increase the quality and quantity of their products, hence receiving more incomes.
- **Improvement of the investment climate:** This has been through giving tax holidays and free land such as the free investment zone in Masoro. This has attracted more investors, hence creating employment opportunities.
- **Improvement of the political climate:** This has created good environment for production whereby the people are not scared of carrying out any activity.

- **Encouraging development of small-scale enterprises:** These have also created more employment for the people in Rwanda, hence improving their standard of living.
- **Formation of co-operatives:** This has been the basis for reducing income inequalities among the people. These cooperatives such as Saccos, for example, umurenge sacco, umwarimu sacco, producer co-operatives, among others, have encouraged micro savings and given small loans to the local people.

UNIT 3: PRICE INDEX

Price index can be defined as the measure of average percentage change in price, from one period to another. i.e. from a base year to current year.

Types of price indices

The following are some of the price indices

1. Consumer price index (CPI); this measures the changes in the price level of a market basket of consumer goods and services bought by households. The National Institute of Statistics of Rwanda (NISR) collects the CPI price information and calculates the CPI statistics for Rwanda on a monthly basis

2. Producer price index (PPI); this measures the average changes in the prices received by domestic producers for their output.

3. Gross Domestic Product deflator (GDP deflator); it is sometimes referred to as implicit price deflator. It is a measure of the level of prices of all new, domestically produced final goods and services in an economy. It can be measured by;

$$\text{GDP deflator} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

4. Retail price index (RPI); this is the measure of the variation of consumer prices or consumer retail goods and services over a period of time. RPI is computed on a monthly basis but an annual rate is also published which serves as a yard stick for adjusting salaries and wages, tax allowances and pensions among others.

Steps of compiling price index figures.

- Selecting the base year
- Selecting the basket of commodities.

- Collecting information about the basket of commodities
- Calculating the simple price index/ price relative**. SPI =** $\frac{Pt}{po} x\ 100$ **or SPI =** $(\frac{Pt-Po}{Po} x\ 100) + 100.$

Where Pt = current year price

Po = base year price.

If the price relative or simple price index is greater than 100%, it means that there has been a rise in the price of that commodity. If the price relative or simple price index is equal to 100%, it means that there has been no change in the price of that commodity. If the price relative or simple price index is less than 100%, it means that there has been a fall in the price of that commodity.

NB: Price relatives have no units.

- **Attaching weights.** Weights are attached to show the relative value of the goods. The commodity with the biggest weight has more value than the one with a small weight. This is done by.

Weighted index = SPI x Weights.

- **Calculating the simple cost of living index/ average simple index / average price relatives:**

This measures the relative changes in money value (inflation / deflation). This is done to measure the changes in standard of living of citizens over time based on the cost of living. If the simple cost of living index is above 100%, it shows there is inflation and a fall in money value by that percentage exceeding 100, which indicates an increase in cost of living and fall in standard of living by the same percentage from the base year to the current year. On the other hand, if the simple cost of living index is less than 100%, it shows there is a deflation and an increase in money value by that percentage less to 100, which indicates a fall in cost of living and an increase in standard of living by the same percentage from the base year to the current year.

Simple cost of living is given by: $\frac{\varepsilon SPI}{No.of\ commodties}\ x100$

- **Calculating the weighted cost of living index/ average weighted index.**

This measures the changes in the general price level in an economy. i.e. whether there is inflation or deflation. If the weighted cost of living index is above 100%, it shows there is inflation which indicates an increase in cost of living and fall in standard of living by the percentage over 100% from the base year to the current year. On the other hand, if the weighted cost of living index is less than 100%, it shows there is a deflation which indicates a fall in cost of living and an increase in standard of living by the same percentage less to 100% from the base year to the current year.

This is done by

AWI = $\frac{\varepsilon \, Weighte \, index}{\varepsilon \, Weights}$

- **Interpreting the findings** to determine whether there was an increase or a decrease in the prices of the consumer basket during a given period of time

Computation of price indices

Example

Study the table below and answer the questions that follow:

Commodity	**Price 2014**	**Price 2016**	**weights**	**SPI 2014**	**SPI 2016**	**Weighted index**
Sugar	100	200	3	100		
Salt	20	30	1	100		
Rice	100	150	5	100		
Fish	50	30	2	100		

Calculate;

i. The Simple Price Index for 2016
ii. Weighted index
iii. Simple cost of living index for 2016
iv. Average weighted index for 2016

N.B. Interpret your findings

i) The Simple price index(SPI) can be calculated in the following steps

Step one

Calculate the SPI for each commodity for each year

Sugar

SPI = $\frac{Pt}{po}$ x 100

SPI = $\frac{200}{100}$ x 100

SPI for sugar = 200

Salt

SPI = $\frac{Pt}{po}$ x 100

SPI = $\frac{30}{20}$ x 100

SPI for salt = 150

Rice

SPI = $\frac{Pt}{po}$ x 100

SPI = $\frac{150}{100}$ x 100

SPI for rice = 150

Fish

SPI = $\frac{Pt}{po}$ x 100

SPI $= \frac{30}{50}\ x\ 100$

SPI for fish is = 60.

Interpretation

This indicates that there is an increase in price of sugar, rice and salt by 100%, 50% and 50% respectively. While there was a fall in price of fish by 40%

ii) Attach weights for the different commodities by;

Weighted index (WI) = SPI x weights

Sugar

WI= 200x 3= 600

Salt

WI= 150x 1= 150

Rice

WI= 150x 5= 750

Fish

WI= 60x 2= 120

iii) Calculating the simple cost of living index/ average price relatives

Simple cost of living is given by: $\frac{\varepsilon SPI}{No.of\ commodties}\ x100$

$\frac{\mathbf{200+150+150+60}}{\mathbf{4}} = \frac{\mathbf{560}}{\mathbf{4}}$

= 140

Interpretation:

There was an increase in the general price level of goods and services by 40% and fall in money value by the same percentage. This indicates that there was an increase in the cost of living and fall in standard of living by 40% from the base year to the current year.

iv) Calculating the weighted cost of living index/ average weighted index

AWI $= \frac{\boldsymbol{\varepsilon\ Weighte\ index}}{\boldsymbol{\varepsilon\ Weights}}$

AWI $= \frac{\mathbf{600+120+\ 750+150}}{\mathbf{3+1+5+2}}$

AWI = $\frac{1620}{11}$

AWI = 147.2

Interpretation:

There was inflation by 47.2%. This indicates that there was an increase in the cost of living and fall in standard of living by 47.2% from the base year to the current year.

Uses of Price indices

- Measuring changes in the **value of money**. When the general price level increases, the real value of money (commodities which a unit of money can buy) reduces. When the general price level reduces the real value of money increases.
- It is the measure of the **rate of inflation** which is the difference between relative price changes of 2 years. When the price increases, it means there is inflation. When the price reduces, it means there is a deflation.
- **Wage determination and change** i.e. wage changes should match with changes in the general price level to avoid a decline in the standard of living of workers when there is inflation and this can be done basing on the price index figures.
- The price index can be compiled for **different regions and towns** so as to determine allowances, wages, taxes etc which should match with inflation.
- **Comparison purposes**. The price Index can be used to compare the standard of living between countries at a point of time, and in one country over time.
- The producers' price index for inputs is used to measure the **variations of input prices.** This helps policy makers when designing policies to influence input prices.
- The price index helps the government in **pricing contracts** and awarding tenders e.g. for construction, input price variation is important when determining total costs to fix and to revise contract values.
- The central bank uses price indices to **design policies** which can stabilize prices.
- The price index for different regions in the country helps manufactures to **locate sources** of

cheaper inputs and areas with higher output prices where to sell commodities.

- Price indexes help the government to trace the **cause of scarcity** of inputs which are reflected in their prices e.g. the drought can be the cause of increase of agricultural raw materials

Problems encountered in compiling price index figures.

- There are **different ways and formulae** of compiling index numbers. The values calculated may differ by the method used and this makes comparison difficult.
- **Choosing the base year.** Because of inflation, it is difficult to get the year when prices were stable.
- It is **hard to include all commodities** in the index. Representative commodities may not show the cost of living of same groups of people though attempts are usually made to include in as many commodities as possible.
- Because of **changes in tastes and preferences**, weights (relative importance that people attach to commodities) change over time and therefore there is need to compile new index numbers over time.
- W**eights always change** because of new discoveries, innovations and changes in consumption patterns meaning that the importance or the value of the commodity may vary in the same year
- The change in the general price level may be due to **change in quality of products**. This may be misinterpreted to be inflation.
- **Differences in income** e.g. the rich and the poor consumer different commodities. Therefore, one index cannot reflect the change in cost of living of all income groups.
- The introduction of **new commodities** and the changes in the tastes and preferences also lead to shift to other commodities hence a problem when comparing the prices in the different years.

UNIT 4: CONSUMPTION, SAVING, INVESTMENT AND MULTIPLIERS.

Consumption

Consumption means using up of economic resources so that they are not available in future. From the individual point of view, *consumption* refers to the expenditure on the purchase of goods for final use by the consumer. Or, it is the act of using goods and services to satisfy human wants. It takes that part of income which is not saved.

Consumption = Disposable income – savings

Types of consumption

Autonomous or dissaving consumption: This is consumption that does not depend on the level of income eg borrowing, begging etc

Induced consumption: This is consumption that depends on the level of income. It varies with disposable income.

Consumption function

Consumption function is the relationship between current consumption and all the factors that influence consumer spending. Using the functional notation, we can express the consumption function as ***C= F (yd., w, cr, r, dg, ex, ygf)*** where;

C- Consumer spending, **yd**. - personal disposable income,

w- Wealth, **Cr**- availability of credit,

r- Interest rates, **dg**- stock of durable consumer goods,

ex- expectations **ygf**- income distribution.

Consumption depends on many factors, thus, a change in any of these factors changes total consumption expenditure. However, it should be noted that consumption largely depends on income. Thus, consumption function can as well be defined as the relationship between the level of consumption and national income. I.e. ***C = C0+ bYd,*** where;

C is consumption and the dependent variable C0 is the consumption at zero income or autonomous consumption;

b is the marginal propensity to consume (MPC);

Yd. is the disposable income which is an independent variable.

Factors influencing the level of consumption

- **General Price level**. The higher the price, the lower the demand and consumption and the lower the price the higher the demand and consumption.
- **Liquidity preference**. The higher the liquidity preference than investing money, the higher the consumption and the lower the liquidity preference, the lower the consumption.
- **Disposable income**. The higher the disposable income, the higher the consumption and the lower the disposable income the lower the consumption.
- **Population size**. The bigger the population size the higher the consumption and the smaller the population the lower the consumption
- **Nature of income distribution**. When income is fairly distributed among the people, consumption will be higher than when income is in hands of the few.
- **Availability of goods and services**. When goods and services are available, consumption will be high than when goods are not in plenty.
- **Degree of speculation**. When people expect prices to go down in future, consumption will be low at present but if prices are expected to be high in future, consumption will be high at present.
- **Government policy of taxation.** If the government over taxes the people, they will be left with little income hence low consumption, but when there are low taxes, income will be high and consumption.
- **Availability of credit facilities**. Consumption will be high if there are credit and hire purchase facilities but it will be low when they can't be accessed.
- **Marginal propensity to consume**. The higher the marginal propensity to consume, the higher the consumption and the lower the MPC, the lower the consumption
- **Rate of interest**. If the rate of interest on borrowed money/loans is high, people will be discouraged from borrowing thus leading to low levels of consumption
- **Wage levels**. An increase in wage levels in the country leads to high consumption and vice versa.
- **Investment levels**. High investment levels indicate that little income is reserved for consumption thus low consumption levels since much of the income is put aside for future use (saving) and investment and vice versa
- **Human desires**. If most people desire to consume today than tomorrow, consumption levels are high in the present but if they desire to consume tomorrow than today, consumption levels are low in the country at present.
- **Income levels**. When people's incomes are high, ceteris peribus, their consumption will be high and vice versa.

Average propensity to consume (APC) and Marginal propensity to consume.

Average Propensity to Consume (APC); this refers to the ratio of total consumption to the level of disposable income. **APC=C/Y.** The average propensity to consume declines as income

increases. This is because as income increases, more is saved than consumed.

Marginal propensity to consume (MPC); this refers to the fraction of an individual's additional income that is spent on consumption

$$MPC = \Delta C / \Delta Y$$

As the income rises, MPC falls; rich people tend to consume a smaller proportion than the poor people. Normally MPC is less than 1. It can be equal to one only when all the additional income is consumed.

Measures to raise APC and MPC

- **Advertisement and propaganda** which help to make the consumers familiar with the use of the products and attracts them to consume more.
- **Development of infrastructure** e.g. from producing centers to different parts of the country which encourages and enlarges markets for the product and this reduces prices due to reduced costs of transport thus encouraging consumption
- **Urbanization which increases people's consumption** because of changes in conditions that attracts them to new articles and because of demonstration effect.
- **Increase wages** leading to increased leading to increased incomes which leads to increased purchasing power.
- **Increase government expenditure** like giving unemployment benefits/ allowances, old age pension etc. which help reduce uncertainties.
- **Offering cheap and easy credit facilities**, thus as people are availed with loans, their consumption increases.
- **Income redistribution policies** i.e. this tends to increase consumption among the poor e.g. subsidizing them through taxing the rich highly
- **Ensuring peace and security** in all parts of the country to ensure efficient earning of income to encourage consumption.

Saving

Savings refers to the proportion of disposable income which is kept for future use**.** It takes forms of personal savings, cooperative savings, and compulsory savings like ***RSSB, mituelle*** among others.

Savings Function

Savings Function shows the relationship between the level of saving and the factors that affect saving. Mathematically this can be expressed as,

$$S = f(Co, Gp, y, px, ps, i, fi \ldots\ldots \text{etc.})$$

Where S= saving

f= function

Co =consumption levels

Gp = government policy on saving

y =income levels

ps political situation

i=interest rate

fi= financial institution

Factors influencing the level of savings

- **Level of income**. The higher the level of income, the higher the savings and the lower the level of incomes, the lower the savings.
- **General Price level**. The higher the general price level, the lower the savings and the lower the price level, the higher the saving
- **Level of interest rates offered by banks**. The higher the interest rate offered by banks on deposits, the higher the savings and the lower the rates, the lower the savings
- **Level of development of financial institutions.** If many financial institutions are set up, savings will be high than when financial institutions are undeveloped.
- **Political situation**. Political stability encourages production, capital accumulation and savings but political instability discourages savings
- **Marginal propensity to save**. The higher the marginal propensity to save, the higher the savings and the lower the MPS, the lower the savings.
- **Existing stock of capital**. The bigger the stock, the more the output and savings and the smaller the capital stock, the lower the savings
- **MPC. The higher the MPC**, the lower the saving and the lower the MPC, the higher the savings
- **Spending habits**. The higher the spending habits, the lower the savings and the lower the spending habits, the higher the savings
- **Level of wages**. The higher the level of wages, the higher the savings and the lower the level of wages, the lower the savings.
- **Disposable income**: The higher the level of disposable income, the higher the savings and the lower the level of disposable incomes, the lower the savings.
- **Government policy on savings**: if government encourages savings, savings level will be high and vice versa.
- **Family size:** if there is a big family size, much money will be spent on consumption than

saving thus low levels of savings than a small sized family.

Average and marginal propensity to save.

Average Propensity to Save (APS) refers to the ratio of saving to the level of disposable income. The APS increases as the income of the individuals increase.

Average propensity to save *(APS) = S/Y*

Marginal propensity to save (MPS). This refers to the fraction of an individual's additional income that is spent on savings.

Marginal propensity to save *(*MPS) = ΔS/ΔY

4.2.4 Relationship between MPC and MPS

MPC+ MPS=1

Y= C+S

ΔY= ΔC+ΔS

Divide both sides by ΔY

ΔY/ΔY= ΔC/ΔY+ΔS /ΔY

1=MPC+MPS.

Investment

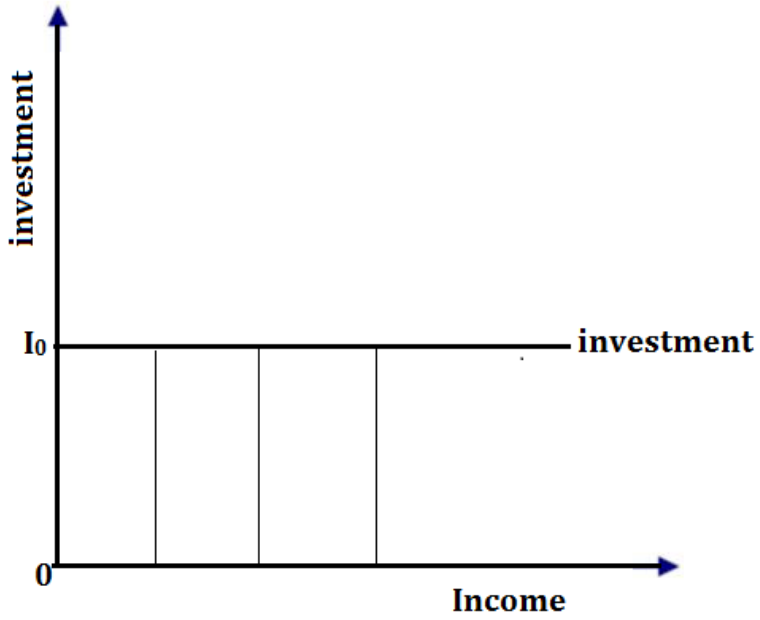
Investment is the expenditure on capital goods with an aim of increasing production. or this is the addition to the stock of capital. It also refers to the purchase of capital goods or putting into use capital to produce capital.

Classification of investment

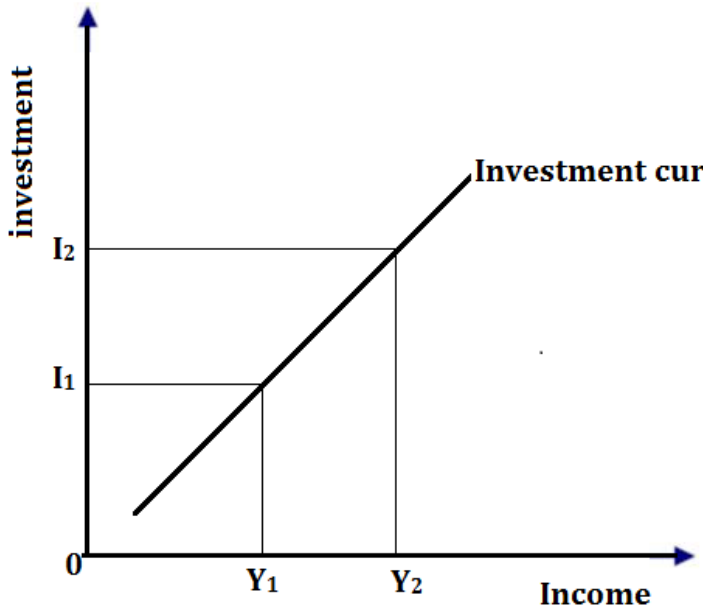
1. **Fixed income investment**. This involves investments in assets such as bonds, fixed deposits and preference shares among others.
2. **Variable income investments**. This involves investments such as business ownership or property ownership. It should be noted also that expenditure on education and health is recognized as an investment in human capital

Types of investment:

1. **Autonomous investment**: This is the investment that is independent of the level of income. It is influenced by exogenous factors like wars, weather changes, population growth, quality and size of labour force etc.



2. **Induce investment:** this is the type of investment that varies with the level of income and profits.



From the above figure, when income is $0Y_1$, the investment level is$0I_1$ and as income increases to $0Y_2$, investment also increases to $0I_2$ and vice versa.

4.3.2.1 Factors influencing investment

- **General Price level**. The higher the price, the higher the level of investments by the investors so as to enjoy the profits and the lower the price, the lower the investment.
- **Liquidity preference**. The higher the liquidity preference than investing money, the lower the investment and the lower the liquidity preference, the higher the investment.
- **Disposable income**. The higher the disposable income, the higher the level of investment and the lower the income, the lower the investment.
- **Level of demand**. The higher the demand, the higher the level of investment and the lower the demand for the goods and services, the lower the demand.
- **Degree of speculation**. When investors expect a boom, there will be high rates of investment than when they expect a slump or depression.
- **Government policy of taxation and subsidization**. If the government over taxes the investors, investments will be low but if the government subsidizes people, investments will be high
- **Availability of credit facilities**. Investments will be high if there are credit facilities accessed by people inform of loans but it will low if these facilities are scarce.
- **Political situation**. Peace and stability encourage investment while insecurity discourages investment.
- **Presence of capital**. The presence of adequate capital resources increases the rate of investment and if capital isn't enough, the rate of investment will be low.
- **Level of entrepreneurs**. Once the level of entrepreneurs in an economy is high, investments will be high and once they are low, investment will be low.
- **Marginal efficiency of capital (MEC)**. This refers to the rate of return expected from an additional unit of a capital asset over its cost. Thus, it's the percentage of profits from a given investment on a capital asset. Therefore, if MEC is high, investors would wish to get high returns in form of profits and therefore they will increase their investments and vice versa.
- **The rate of interest** (payment made for the use of capital): the higher the rate of interest, the lower the level of investment and vice versa. Hence if the cost of borrowing money is low, most people will acquire loans and invest, ceteris paribus and vice versa.
- **Availability of financial institutions**: If there many financial institutions and are accessible and conducive to citizens for savings, it will encourage savings and thus making loanable funds available which encourages investment and vice versa.

Limitations of investment in Rwanda.

- **Limited markets** due to low incomes of the people and this limits the investors from

putting up mega structures in terms of investments.

- **Under developed infrastructure** in some areas especially in rural areas limits the movement of potential investors, goods and services from areas of production to the markets.
- **Unfavorable investment climate in form of high taxes** charged by the governments to investors discourage them from investing. However, the trend is changing where investors are given tax holidays depending on their capacities
- **Limited capital**. There is still a problem of limited capital where by the local people do not have the necessary capital to invest.
- **Political insecurity** in some areas especially those surrounding Burundi and Congo. The instabilities in those countries cause panic in the Rwandan areas adjacent to those areas
- **High population growth rate** leads to increase in the dependence ratio among the families leaving little disposable income for savings, and investment government.
- **High level of liquidity preference**. Many people prefer to hold their money in cash or near cash form because of different motives such as precautionary, speculation among others. This limits their capacity to invest.
- **Limited entrepreneur skills** needed for inventing and innovating. Still the levels are low meaning that there are no new things that may come on the market.
- **Competition from outside countries** that bring in their goods on the local market at a low price compared to the one at which home made goods are sold.

Ways of improving investment in Rwanda

- **Expanding the market through integration and signing treaties** with other countries. **Developing more feeder roads** in addition to the ones that already exist.
- **Availing a conducive investment climate**.
- **Availing capital**. This can be through the commercial banks giving loans and credit at low rates of interests to attract the potential borrowers
- **Strengthening security** in areas near countries with instabilities
- **Controlling the rate of population** growth through a maximum number of children per family.
- **Encouraging people to reduce the rate of liquidity** and carry out savings.
- **Improving entrepreneur skills needed for inventing and innovating**.
- **Competition can be reduced through economic integration and specialization** where countries within the same region produce different goods and sale to others.
- **Subsidization policy** buy the government can help to reduce the problem of inadequate

capital.

Multipliers and accelerator principle.

Multiplier refers to the number of times initial change in expenditure multiplies itself to give a final change in income. The multiplier can be shown as: **Multiplier (M) = ΔY/ΔE**

The size of the multiplier is determined by the proportion of extra income going on extra consumption i.e. MPC. The higher the MPC, the higher will be the multiplier.

$$\mathbf{M= \frac{1}{1-MPC}} \quad \textbf{or} \quad \mathbf{M= \frac{1}{MPS}}$$

Example 1

Given that MPC=0.4, calculate the multiplier magnitude.

Solution;

Multiplier= **1/1-MPC**

1/0.6= 1.667

Therefore, the multiplier magnitude = 1.667

OR Multiplier**=** **1/MPS**

MPS = 1 - 0.4 =0.6

1/0.6 =1.667

Example 2

If the initial increase in capital investment was 20 million francs and this bought a final increase in total expenditure of 100 million francs, calculate multiplier.

Multiplier (M) **= ΔY/ΔE**

100 million/20 million= 5

Types of multipliers

- **Government multiplier**. It refers to the number of times initial government expenditure multiplies itself to give a final change in income. I.e. ***M= ΔY/ΔGE***

- **Investment multiplier**. It refers to the number of times initial investment expenditure multiplies itself to give a final change in income. ***M= ΔY/ΔI or 1/MPS or 1/1-MPC***
- **Consumption multiplier**. It refers to the number of times initial change in consumption expenditure multiplies itself to give a final change in income. ***M= ΔY/ΔC***
- **Export multiplier**. It refers to the number of times a given change in export earnings multiplies itself to give a final change in income. ***M= ΔY/ΔX***
- **Employment multiplier**. It refers to the number of times a given change in employment multiplies itself to give a final change in income. ***M= ΔY/ΔEmployment***
- **Tax multiplier**. It refers to the number of times a given change in tax expenditure multiplies itself to give a final level of income. ***M= ΔY/ΔTax expenditure***
- **Income multiplier:** this is the number of times a change in total expenditure multiplies itself to give a final change in income**.** This explains the process by which a change in total expenditure ***(E=C+I+G+X-M)*** leads to a change in income.

Calculations of multipliers

Work out and interpret the following calculations

1. Given that MPS is 0.2, find the MPC and determine the magnitude of the multiplier**.** Interpret your answer.
2. Given that the marginal propensity to consume is 0.75, calculate the size of multiplier. Interpret your answer.

Example 1.

Given that as a result of increase in investment expenditure from 20 million francs to 60 million francs, national income increased from 3000 million francs to 7000 million francs. What is the investment multiplier?

Solution;

Investment multiplier =ΔY/ΔI

ΔY=7000million frw-3000million francs= 4000million francs

ΔI= 60 millionfrw-20 million francs= 40 million francs

Thus; I.M= 4000million/40 million= 100

This means that the initial investment expenditure has multiplied its self-100 time to give a final change in national income.

NB: multiplier has no units; it is simply a number of times.

Example 2;

Given that the final change in investment from 3 million francs to 8 million francs led to an increase in income from 200 million francs to 400 million francs. Calculate the investment multiplier.

Solution;

Investment multiplier =ΔY/ΔI

ΔY= 400million-200 million= 200 million francs

ΔI=8 million- 3 million= 5million francs

Thus, I.M= 200million/5million francs=4

Therefore, the investment multiplier= 4.

This means that the initial investment expenditure of 3million francs has multiplied its self-3 times to bring about a final change in income of 400 million francs.

Accelerator principle

The accelerator principle (AP) is the number of times the original change in consumption multiplies itself to give a final change in investment

$$\textbf{\textit{Accelerator principle}} = \frac{change in investment}{change in income}$$

$$\textbf{\textit{Accelerator principle}} = \Delta I/\Delta C$$

Example: If consumption of beans increases from 15 kg to 22 kg and increase in investment moves from 100Frw to 150Frw.The accelerator principle would be:

$$\frac{150-100}{22-15}$$

$$\frac{50}{7}$$

Accelerator principle = 7.1

UNIT 5: MONEY

Money is defined as anything that is generally accepted as a medium of exchange for the goods and services and in settlement of obligations. This abstract definition of money avoids identifying money with a particular object which may at one time or another be used as money.

All sorts of articles or objects have served as money throughout the ages. These include among others beads, salt, stones, gold, silver, paper and cattle.

Evolution of money

1. **Barter trade**. This was the first form of exchange where commodities were exchanged for commodities. For example, cassava for sheep. With barter, an individual possessing any surplus of value, such as a measure of grain or a quantity of livestock, could directly exchange it for something perceived to have similar or greater value or utility, such as a clay pot or a tool, however, the capacity to carry out barter transactions is limited in that it depends on a coincidence of wants. For example, a farmer has to find someone who not only wants the grain he produced but who could also offer something in return that the farmer wants. Finding people to barter with is a time-consuming process and this factor is most likely the main driving force in the creation of monetary systems -- people seeking a way to stop wasting their time looking for someone to barter with.
    a. **Commodity money**. This replaced barter trade and sorts of commodities of high value like salt, tobacco, cattle, seashells, pearls, precious stones, tea, tobacco, cow, leather, cloth, wine, etc. have been used as a medium of exchange (i.e., money).
    b. **Durable commodities**. These included iron, copper, and cowrie shells among others. However, these were too common hence they could not act as good

money.

c. **Precious metals:** Inadequacy of commodity money led to the evolution of metallic money like gold and silver because they were found to have qualities of good money. Such metals were later cut into small pieces of different shapes called **coins**. At first, the metal value of the coin was equal to its face value and such coins were called **full bodied money**. Later coins whose real value was less than the face value was called **token money**:

d. **Paper money**. In the Middle Ages, the keeping of values with goldsmiths, persons trading with gold and silver items, was common. The goldsmith, as a guaranty, delivered a receipt. Such receipts stated the name of the owner and the amount of gold deposits kept. Later these were used as money because they were as good as the gold kept. After some time, the gold smith started issuing notes in excess of the gold reserves kept and this money not backed by gold is known as fiduciary issue. With time, these receipts came to be used to make payments, circulating from hand to hand, giving origin to paper money. This process was finally taken over by the state as one of its essential features and ultimately commodity and metallic money gave way to Paper Money which means currency notes. Nowadays, use of paper money has almost become universal along with coins made of copper, bronze or nickel, etc.

e. Banknotes. As the volume of transactions increased, even paper money started becoming Inconvenient because of time involved in its counting and space required for its safe keeping. This led to introduction of Bank Money (or credit money) in the form of cheques, drafts, bills of exchange, credit cards, etc. These days plastic money in the form of debit cards are becoming popular. Thus, bank money has become the most important form of money in modern times because it is not only a very convenient form of money for large payments, but also eliminates risks and is durable.

Qualities of good money

- **Acceptability**. Good money should be acceptable by everyone as a medium of exchange. This is the prime requirement for money. The use of money is based on confidence. One is prepared to accept money provided one is confident that others will also accept it.
- **Durability**. The goods that are used as money should be durable. It would not be acceptable if it could deteriorate. For instance, if a metal is used, it should not wear away. It should be noted that the money's durability lies in its value.
- **Scarcity**. Good money should be scarce because if it is common, it would lose value

due to increase in demand. Its supply must be less than the demand but it must be available

- **Homogeneity**. Good money should be similar; the features on the same denominations should be the same as on another denomination. Varying degrees of quality will lead to confusion and uncertainty in the public and eventually there will be loss of confidence
- **Divisibility**. Good money should easily be broken down into smaller denominations (divisible in small units). Whatever physical commodity is being used as money, it must be capable of being divided into smaller amounts to make possible smaller transactions.
- **Portability**. Good money should be able to carry from one place to another. It must not be heavy in relation to its value. It must be transportable in terms of bulk and weight. Modern money consists of coins, bank notes, cheques and bank drafts and these can easily be carried without attracting attention
- **Difficult to forge.** (*Hard to counterfeit*)- Good money should not easily be faked or copied i.e. be hard to forge. It should be made of features and quality that cannot easily be forged otherwise forged money will increase money in an economy which leads to inflation and in turn money will lose value. *Money which is forged is called* ***counterfeit money.***

Functions of Money

Medium of Exchange. Money's most important function is as a medium of exchange to facilitate transactions. Without money, all transactions would have to be conducted by **barter**, which involves direct exchange of one good or service for another.
Measure of Value. Money is the measuring rod of everything. By acting as a common denominator, it permits everything to be priced, that is, valued in terms of money.
Store of Value (purchasing power). In order to be a medium of exchange, money must hold its value over time; that is, it must be a store of value.

The Basis of Credit: Money facilitates loans. Borrowers can use money to obtain goods and services when they are needed most.
A Standard of deferred/ Postponed Payment: Here again money is used as a medium of exchange, but this time the payment is spread over a period of time.
Goods and services are distributed through the pricing mechanism. Goods can be moved from one area to another mainly from areas of low price to areas of high price through a process called *arbitrage***.** All this can only be done through price mechanism which uses money
Transfer of immovable property Money can facilitate the physical transfer of property.
Unit of account. Money also functions as a unit of account, providing *a common measure of the value* of goods and services being exchanged. Money enables **specialization** to take

place by ascertaining the demand for goods and services.

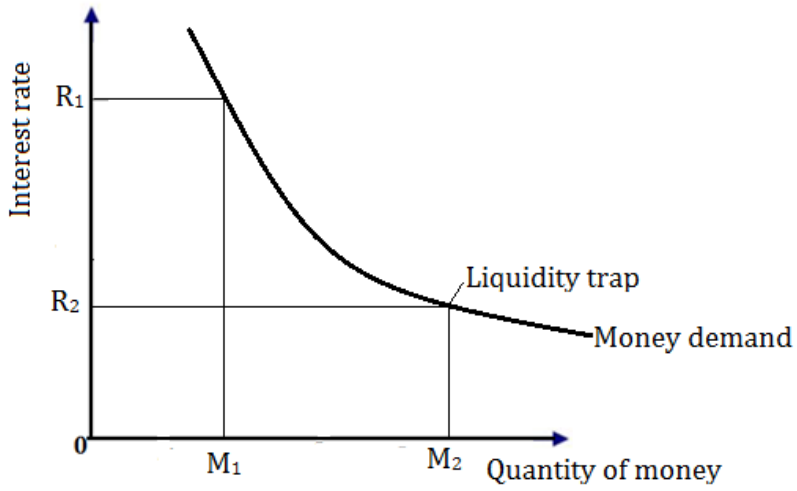
The demand for money is also called *liquidity preference*. It is the desire by the people to hold money in cash or near cash form rather than investing it.

Keynesian theory of demand for money

According to Keynes, people demand for money because of the three main motives as explained below

1. **Transactions Motive.** According to this motive, people demand for money so as to carry out every day transactions like buying food, clothes among others needed in the everyday life. You can also keep an inventory of money inform of deposits at the bank to make transactions such as paying rent, water and other bills. Keynes argued that the demand to hold money to make transactions is determined by the level of income and by institutional factors.
2. **Precautionary Motive.** According to this motive, people demand for money to cater for unforeseen circumstances like sickness, travel among others. For instance, if a person plans to travel for a long distance, he will expect to spend money on travel ticket, lodging, food among others but still he may need to have some money aside for instances that may come unknowingly such as sickness on the way, increase in the travel tickets among others.
3. **Finance motive:** According to this motive, people especially businessmen demand for money to finance the ongoing investments on which a lot of capital is already invested. Like purchasing fuel, raw material paying wages etc. This is especially with business men who need a certain amount of money in cash or liquid for purposes of financing day to day business e.g. paying for fuel, hiring labour etc.
4. **Speculative motive.** According to this motive, people demand for money in anticipation of future trends in the business so as to profit from them. Normally a change in prices in future will help the business men to benefit when they buy at lower prices and sale in future when the prices increase. Here businessmen have a belief that money tomorrow will be better. Speculation helps business men to make abnormal profits in future. Keynes assumed that individuals can hold their wealth in two ways; i.e. In cash balances in excess of those needed to meet transactions demand and in bonds.

NB: The point where the rate of interest is too low to break liquidity preference is known as **liquidity trap**. At this point there is a likelihood of low levels of investment.



At a higher interest e.g. R_1 money demand is low e.g. at M_1. An investor with excess money will seek to hold bond and therefore the price of bonds will rise. This makes the interest rate to fall to R_2 and as it falls the demand for money rises to M_2. Below R_2 the interest rate is too low to break the liquidity preference thus **liquidity trap.**

5.3 Money supply

Money supply refers to the total amount of money in circulation together with that money held by commercial banks plus quasi money. It comprises of the total currency notes, coins and demand deposits with the banks, held by the public.

In modern economies, money supply is divided into three levels, namely:

1) **M1 (Narrow money);** This is money supply that involves cash (i.e notes and coins) and demand deposits. It looks at money as a medium of exchange.
2) **M2 (Broad money);** This is money supply that involves cash (.e notes and coins), demand deposits and time deposits (deposits that require notice before withdrawn). Ie M2= M1+ time deposits
3) **M3 (Broader money)** This involves cash (ie notes and coins), demand deposits, time deposits and money market instruments like certificates of deposit i.e M3= M2+ fixed deposits

There are two types of money supply

1. **Exogenous (Discretionary) money supply**.
   This is money supply which is fixed and determined by issuing authority like central bank. Such money supply is fixed regardless of the economic activities.

2. **Endogenous (automatic) money supply**
   This is the money supply determined by the level of economic activities. The higher the level of economic activities, the higher the money supply and the lower the activities, the lower the money supply

Determinants of money supply

- **Level of economic activities.** The higher the level of economic activities, the higher the money supply and the lower the activities, the lower the money supply.
- **Buying and selling of security by the central bank.** When the central bank buys security like bonds from the public, it increases money but when it sells, it reduces money supply.
- **Balance of payment surplus.** When the export earnings are greater than the import expenditure, the money increases in supply but when they are low, money supply will be low.
- **Rate of printing money.** When more money is printed, it increases money in circulation, this is called financial accommodation
- **Rate of capital inflow and out flow.** When the rate if inflow like from tourists is high, there will be high money supply while high capital outflow reduces money supply.
- **Level of monetarization of the economy**. When the economy uses money as a medium of exchange, money supply will increase while use of barter leads to low money in supply.
- **Rate of credit creation by commercial banks.** Where there is a high rate of credit creation, there will be increase in money supply while a low credit creation leads to low money supply.
- **Rate of government borrowing.** High rate of government borrowing increases money supply while low government borrowing leads to low money supply.

The quantity theory of money.

According to the theory, the value of money depends on the following factors:

1. **The quantity of money in circulation (M)** i.e. an increase in the quantity of money in circulation would bring about a proportionate increase in the prices.
2. **The velocity of circulation of money (V)**.
3. The **number of transactions (T)** that take place in the economy.

4. **General price levels (P)** in the economy.

Irving Fisher's theory therefore states that; **"an increase in money supply will bring about appropriate change in prices, provided the velocity and number of transitions which take place remain constant".**

or

The general price level **(P)** is determined by the quantity of money in circulation **(M)** assuming that the velocity of circulation **(V)** and the level of transaction which take place **(T)** are held constant

As modified by Fischer, the quantity theory of money can be expressed by the equation below

$$MV = PT$$

Or

$$P = \frac{MV}{T}$$

Where; M= Quantity of Money

V= Velocity of circulation of money i.e. number of times one unit of money is used to make transactions

T= number of transactions

P= General Price Level

5.4.1 Calculations of the quantity theory of money

Example:

Assume V and T remain constant, if the quantity of money is increased the price level will go up but the value of money will fall and vice versa. Assume that:

M= 100

V=10

T=50

Find the value of P.

P=MV/T = 100x10/50 =20

If M=200, then P=200x10/50 = 40

If M=50, then

P=50x10/50 =10

Exercise:

1a) Given that the price level is 120, the velocity of money is 80 and number of transactions is 90. Calculate the money supply at time **"t"**

b) If the general price level increases to 150, Calculate money supply and explain what is the happening to the value of money.

Assumptions of Fisher's Approach

Fisher's theory is based on the following assumptions:

- Price is a passive factor in the equation of exchange which is affected by the other factors.
- Velocity is assumed to be constant and is independent of changes in money in circulation
- Number of transactions also remains constant and is independent of other factors such as Money in circulation and Velocity
- It is assumed that the demand for money is proportional to the value of transactions.
- The supply of money is assumed as an exogenously determined constant.
- The theory is applicable in the long run.
- It is based on the assumption of the existence of full employment in the economy.
- There is no hoarding of the increased money supply but it must be spent on buying goods and services.

- The quantity theory places a misleading emphasis on the quantity of money as the principal cause of changes in the price level during the trade cycle. Prices may not rise despite increase in the quantity of money during depression; and they may not decline with reduction in the quantity of money during boom. Further, low prices during depression are not caused by shortage of quantity of money, and high prices during prosperity are not caused by abundance of quantity of money.

- 6**.** One of the main weaknesses of Fisher's quantity theory of money is that it neglects the role of the rate of interest as one of the causative factors between money supply and prices. Fisher's equation of exchange is related to an equilibrium situation in which rate of interest is independent of the quantity of money.

Limitations of Quantity theory of money

- The quantity theory of money is unrealistic because it analyses the relation between M and P in the long run. Thus, it neglects the short run factors which influence this relationship. Keynes also does not believe that the relationship between the quantity of money and the price level is direct and proportional.

- Velocity is not constant**.** When there is underemployment equilibrium, the velocity of circulation of money **V** is highly unstable and would change with changes in the stock of money or money income. Thus, it was unrealistic for Fisher to assume **V** to be constant and independent of **M**.

- Neglects Store of Value Function: Another weakness of the quantity theory of money is that it concentrates on the supply of money and assumes the demand for money to be constant. In other words, it neglects the store-of-value function of money and considers only the medium-of-exchange function of money. Thus, the theory is one-sided.
- Neglects role of government: The theory ignores the role of the government in price control. There can be increase in money supply but the government fixes the prices hence there will be not price increase.
- A country may have a lot of unemployed resources and an increase in money supply can increase demand which leads to an increase in goods and services and this may make prices fall or not change.
- It assumes all money is spent which is untrue since some money may be saved. E.g. If it is instead saved, **"V"** may be affected hence **"p"** may remain unchanged**.**

EXERCISE 1

UNIT1. MARKET STRUCTURE

1. a) Distinguish between a market and market structure. /2mks.
   b) State the different categories of market structures. /2mks
2. What do you understand by the term perfect competition? /2mks.
   b) State the assumptions underlying perfectly competitive markets. /5mks
3. In Rwanda, there is a firm supplying electricity. Name it and then, considering the knowledge you have about market structures, with a supporting reason, identify the type of market structure it is. /3mks
4. Manzi Publishers Rwanda, is the sole supplier of economics books in Rwanda. Describe the factors that may have favored it to carry out that activity alone. /5marks
5. a) Define the term equilibrium. /2marks
   b) When do you think the firm is in equilibrium? /3marks
6. How should monopoly be controlled? /5mks
7. Briefly describe the characteristics of monopolistic competition. /5mks
8. a) What do you understand by the term product differentiation? /2mks.
   b) State how would make your product to appear different from the similar products of your rivals. /4mks.
   c) Why would you prefer to make your products appear different from those of your rivals'? /2mks
9. a) Briefly explain the features of oligopoly. /5mks.
   b) Distinguish between perfect and imperfect oligopoly. /3mks
10. Why do prices under oligopoly firms tend to rigid? 5mks
11. Choose the best alternative. /4MKS
    a) The firm under oligopoly is in equilibrium when:
       i) MC=MR
       ii) AC=AR,
       iii) MC=AC,
       iv) AR=MR
    b) In the short run, the firm under oligopoly earns:
       i) Normal profits,
       ii) losses,
       iii) Abnormal profits,
       iv) None of the above

c) Oligopoly firms operate at:
   i) Optimum capacity,
   ii) Excess capacity,
   iii) Over capacity,
   iv) Equilibrium point

d) The demand curve under oligopoly is:
   i) Elastic,
   ii) Perfectly elastic,
   iii) Inelastic,
   iv) Kinked.

12. How is use of nonprice competition by rival firms under oligopoly impactful? /7mks

EXERCISE 2

UNIT 2: MEASURING NATIONAL INCOME.

13. Differentiate between the following
    i) Gross domestic product (GDP) and Gross national product (GNP). /2mks
    ii) Nominal income and real income. /2mks
14. a) Distinguish between standard of living and cost of living. /3mks.
    b) Why are standard of living low in developing countries. /4mks
15. a) Distinguish between percapita income and disposable income. /2mks
    b) Given the table below, answer the questions that follow.

Country	GNP (million $)	Population (million $)
M	1000	20
N	800	12

    Expected: Calculate the percapita income for both countries. /4mks

16. a) Distinguish between inflationary gap deflationary gap. /3mks
    b) Suggest possible measure to close each gap. / 6mks
17. a) Distinguish between national income at factor cost and national income at market price. /4mks
    b) Given GDP_{mp}, what adjustments can be reached at to obtain NNP_{fc}? /4mks
18. a) Explain the approaches used in measuring national income. /3mks
    b) Explain how the three approaches give the same results. /6mks
19. a) What is the difference between real flows and monetary flows? /2mks
    b) With the aid of an illustration, describe the circular flow of income in a closed economy.
    /8mks.

20. a) What is equilibrium? /1mk

b) Explain situations when national income is in equilibrium. /3mks

c) The additions to the circular flow of income are called……., while the withdraws are called……. /2mks

d) The situation when aggregate demand is greater than aggregate supply at full employment is known as…… and when aggregate supply is greater that aggregate demand at full employment is known as……

/2mks

EXERCISE 3

1. Given that government expenditure in an economy is increased by 100 million, where the MPC is 0.8. Find the final change in national income.
2. Given that MPS is 0.2, find the MPC and determine the magnitude of the multiplier.
3. Given MPC is 70%, find MPS.
4. Calculate the magnitude of the multiplier where MPC is 40%.

b). Given that the multiplier in an economy is 2 and the final level of income is 100 million. Find the MPS and change in expenditure

EXERCISE 4

1. Discuss how the concept of GDP deflator is directly related to the general welfare of people of a given country.
2. Explain how inflation and deflation are determined under price index computation.
3. Discuss why commodities that make up the basket of goods do not always yield identical weights.
4. Study the table below and answer the questions below it.

Commodity	Average price 2012	Simple price index 2012	Average price 2016	Simple price index 2016	Weight	Weighted index 2016
Sugar	700	100	900		5	
Soap	300	100	500		3	
Maize	150	100	200		2	
Meat	700	100	1000		6	

Beans	400	100	300	8
Charcoal	1000	100	1200	15

Calculate:

i) Simple price index for 2016
ii) Weighted index for 2016
iii) Simple cost of living index for 2016
iv) Weighted cost of living index for 2016
v) Interpret the finding to determine whether there is an increase or a decrease in the prices of consumer basket of goods and why.

Exercise

1a) Explain the quantity theory of money.

b) Assuming the level of transactions is 200, the velocity of money is 40 and money supply is 600. Calculate the price levels in an economy.

c) If money supply is increased from 600 to 1200. Calculate the general price levels and tell what is happening to money value.

2a) Explain how increase in money supply and government spending affect output in the long run.

b) Explain the inapplicability of the Fisher's theory of exchange.

ASSIGNMENT

UNIT 1: MARKET STRUCTURES:

1. a) Distinguish between perfect markets and imperfect markets. /2mks
   b) Study the table below and answer the questions that follow.

Output (Q)	Total Revenue (TR)	Total Cost (TC)
0	-	1100
1	500	1400
2	1000	1620
3	1500	1750
4	2000	1800
5	2500	1850

6	3000	1940
7	3500	2190
8	4000	2600
9	4500	3250

Required:

a) Under what category of market structure is the firm operating and why? /3mks
b) Identify the level of fixed costs by the firm. /2mks
c) What is the average fixed cost when 5 units are produced? /2mks
d) What is the level of total variable cost when 4 units are produced? /2mks
e) Give a justification for the nature of marginal revenue for the firm above. /4mks

2. a) Explain the conditions under which perfect competitive firms operate. /5mks
   b) With the aid of illustrations, describe how firms under perfect competition maximize profits both in the short run and long run.
3. Discuss the arguments for and against existence of monopoly firms. /15mks
4. a) Describe different ways monopolists can use to discriminate their customers while selling their commodities. /5mks
   b) What make price discrimination by monopolists successful? /4mks
   c) Discuss the advantages and disadvantages of price discrimination /6mks.
5. a) Distinguish between breakeven and shut down points of a firm under perfect competition. /6mks.
   b) Why do you think a firm may persist in production even when it is not able to cover all variable costs of production? /9mks
6. a) Identify the basis of monopoly in your country. /10mks.
   b) Why is it necessary to control monopoly in your country? /5mks.
7. a) With examples from your country, describe the conditions for monopolistic competition. /7mks.
   b) Describe the different methods used by oligopolistic firms to win market in your country. /8mks.

UNIT 2: MEASURING NATIONAL INCOME:

8. Express the factors that determine the level of standard of living in a given country. /15mks
9. a) Analyse the determinants of national income levels in an economy. /8mks
   b) Account for the low the levels national income in your country. /7mks
10. Analyse why percapita income isn't a good measure of standard of living
    a) Within a country between periods. /8mks
    b) Between countries in a given period. /7mks
11. a) Describe the approaches used in measuring national income. /6mks
    b) Examine the problems of using each method methods of national income. /9mks
12. a) Why do you think producing national income figures of the country annually is necessary? /8mks

b) What do think are the difficulties encountered in measuring national income? /7mks

13. a) With an aid of illustration describe the phases of the business cycle. /11mks
    b) Describe the characteristics of a business cycle. /4mks.
14. a) What do you think leads to increased percapita income levels in a country? /6mks
    b) Account for the low levels of percapita income in Rwanda. /9mks.
15. a) Account for the income gap in your country /8mks
    b) Present arguments for and against income inequality. /7mks.
16. a) a) Describe the different types of income inequality. /6mks
    b) Assume you are among the policy makers in the country, which policy measures you can put in place to reduce income inequality. /9mks
17. a) Examine why the government of Rwanda undertakes compilation an annual gross domestic product. / 8mks
    b) What policy measures have been put forward by government of Rwanda to improve the level of Gross Domestic Product (GDP) /7mks

UNIT 3: PRICE INDEX.

18. Study the table below and answer the questions that follow:

Commodity	Base year price 2012	Base year simple index 2012	Selected year price 2015	Simple index 2015	Weight	Weighted index 2015
A	200	100	700		5	
B	150	100	500		4	
C	500	100	1000		3	
D	100	100	300		2	
E	700	100	1200		1	

a) Calculate the:
   i. Simple index for 2015 / 2mks
   ii. Weighted index for 2015 / 2mks
   iii. Simple cost of living index for 2015 / 2mks
   iv. Weighted cost of living index for 2015 / 2mks

b) Discuss the uses of price index numbers. / 3marks

c) Examine the problems encountered in the compilation of the price index / 4mks

UNIT 4: CONSUMPTION, SAVING, INVESTMENT AND MULTIPLIERS.

19. a) a) Analyse the factors that determine aggregate consumption in an economy. /9mks
    b) Suggest possible measures that can be taken to improve average propensity to consume.

20. a) Examine the factors that determine the level of saving in an economy. /9mks
    b) Why do people save? /6mks
21. a) Distinguish between autonomous investment and induced investment. /4mks
    b) Express the factors that determine investment levels in an economy. /11mks
22. a) Identify the hindrances to investment capacity in Rwanda. /8mks.
    b) If you were put in charge of investment in Rwanda, what policy measure would you put forward to attract investments in Rwanda? /7mks
23. a) Explain at least 5types of multipliers. /5mks
    B) Discus any 5 factors influencing the level of savings in Rwanda. /10mks
24. Examine the factors limiting the operation of the investment multiplier in Rwanda. /8mks.
    b) Suggest possible measures that can be taken to improve investment levels in Rwanda. /7mks.

UNIT 5: MONEY:

25. a) What is meant money supply / 2mks
    b) Discuss the effects of increased money supply. / 13mks
26. What makes Rwandan currency good in the country? /8mks

c) How is Rwandan currency important in the economy?