BUSINESS ECONOMICS

Introduction to Economics

Economics is a study of human activity both at individual and national level. The economists of early age treated economics merely as the science of wealth. The reason for this is clear. Every one of us in involved in efforts aimed at earning money and spending this money to satisfy our wants such as food, Clothing, shelter, and others. Such activities of earning and spending money are called "*Economic activities*".

It was only during the eighteenth century that *Adam Smith*, the Father of Economics, defined economics as the study of nature and uses of national wealth'.

Dr. Alfred Marshall, one of the greatest economists of the nineteenth century, writes "Economics is a study of man's actions in the ordinary business of life: it enquires how he gets his income and how he uses it". Thus, it is one side, a study of wealth; and on the other, and more important side; it is the study of man. As Marshall observed, the chief aim of economics is to promote 'human welfare', but not wealth. The definition given by AC Pigou endorses the opinion of Marshall. *Pigou* defines Economics as "the study of economic welfare that can be brought directly and indirectly, into relationship with the measuring rod of money".

Prof. Lionel Robbins defined Economics as "the science, which studies human behaviour as a relationship between ends and scarce means which have alternative uses". With this, the focus of economics shifted from 'wealth' to human behaviour'.

Lord Keynes defined economics as 'the study of the administration of scarce means and the determinants of employments and income".

What is Economics?

Economics is the study of how Man uses the available resources to satisfy his needs. It therefore deals with allocation of goods and services among consumers. Thus, in combining resources to satisfy human wants, economics tends to answer the following questions; what, how, when, where and for whom to produce?

Business Economics is a branch of economics that focuses on the behavior of individuals, households, firms and government (stakeholders) in trying to allocate the scarce resources to maximize their respective objectives.

For consumers, economics is the study of how individuals allocate their scarce resources to maximize utility or satisfaction.

For business firms, it is fundamentally the study of how different stakeholders (suppliers, producers, distributors, wholesalers and retailers) allocate their limited resources to produce/purchase goods and services to maximize their profits/gains.

To government, economics is about rational resource allocation to maximize social economic welfare/utility.

Branches of Economics

Microeconomics is the study of economic actions of individuals and smaller groups such as those of consumers, producers and resource owners. It's therefore that part of economics that looks at the functioning of small economic units. It is mainly concerned with price determination in the market. Therefore, price is the central concept in microeconomics.

Macroeconomics looks at the economy as a whole. It deals with aggregate behavior of all economic agents in an economy. It mainly deals with economic growth, income distribution, inflation, unemployment and balance of payments position.

Economics is further sub-divided into positive and normative economics.

Positive Economics deals with issues that can be observed or it deals with scientific explanations of the working of the economy. It further looks at the world as it is and different from what it should be or ought to be.

Normative Economics provides the conditions that are based on personal value judgment. It does not involve scientific proof or research. It tries to explain how the world should be/ought to be. They are statements that are subjective in nature e.g. the standard of living will improve if unemployment is solved.

The Five Fundamental Questions in Economics

The need for ensuring efficiency in production of goods and services and their efficient distribution among the consumers arises due to (i) Scarcity of resources; (ii) Ever growing human wants; and (iii) Desire to maximize gains.

The pulling forces between the two parties (producers and consumers) can be solved by ensuring efficiency in production and distribution of goods and services expressed in the following questions;

- ***What to Produce?*** The problem 'what to produce' is the problem of choice between commodities. This problem arises mainly for the reason that scarcity of resources does not permit production of all the goods and services that people would like to consume; it is essentially concerned the objective of maximizing profits.
- ***How to Produce?*** The problem 'how to produce' is the problem of choice of technique. choice is between labour and capital-intensive technique that minimize production costs
- ***For whom to Produce****?* I.e. the target markets. The problem 'for whom to produce' is the problem of marching the production pattern with the demand pattern, so that those who have the ability and willingness to pay get the commodity. the objective is to maximize sales revenue & profits

- ***Where to Produce?*** This is a problem of ***location***, depending on what the business/ industry is producing, different factors like proximity to raw materials, markets, electricity have to be considered.
- ***When to Produce?*** This question looks at times and seasons, e.g. success and Christmas cards have to be produced at specific times of the year, for agricultural products, there are planting and harvesting seasons etc.

Basic Principles of Economics

Human wants are unlimited and the resources to satisfy them are limited. As a result, the basic principles of Economics explain this concept. These principles further show the fundamental problems of human beings in their bid to try and use the scarce resources to satisfy the unlimited wants. These principles are:

(a) Scarcity
(b) Choice
(c) Opportunity cost

a) Scarcity

This refers to the limited supply or insufficiency of resources in satisfying the needs of an individual, family or state, in relation to the unlimited wants. Due to the problem of scarcity, one has to make rational choices by satisfying the most pressing wants first and then the least pressing ones last.

As a result, there is need to prioritize by making a list of one's wants in order of satisfaction. In the list, the most pressing needs are put at the top to be satisfied first, then the less pressing ones are put last on that list. This list is known as the **Scale of preference**.

b) Choice

Choice refers to the act of making the right decision at the right time so as to use limited or scarce resources to satisfy the unlimited wants. For instance, a student who has a fixed amount of money can opt to buy a textbook to use in the classroom, rather than buying sports shoes to be wearing over the weekends.

c) Opportunity Cost

This refers to the second best alternative foregone when a choice is made. It can be illustrated using the opportunity cost curve, which shows the amount sacrificed on one commodity in order to get more of another.

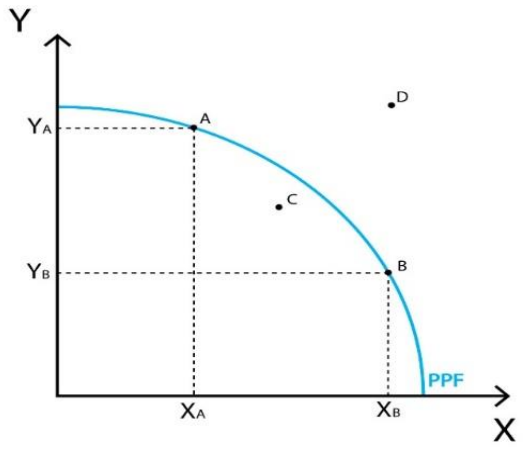
PRODUCTION POSSIBILITY FRONTIER (PPF)

It is a locus of points showing alternative combinations of two commodities that can be produced when all the available resources/factors of production are fully and efficiently utilized.
It is also called the **transformation curve** or **the opportunity cost curve.**

Assumptions of the PPF

- It assumes that only two commodities are produced.
- It assumes that the level of technology is fixed and constant.
- It assumes that all available resources are fully utilised.
- It assumes that similar resources will be used to produce either or both of the two goods.
- It assumes that resources are given.

Diagram:



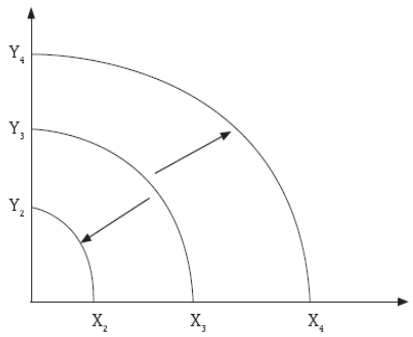
The points along the PPF such as **A** and **B** show maximum physical combinations that can be produced when all resources are fully employed i.e. efficiency in production.

Points inside the PPF such as **C** show the combination of X and Y that can be produced using less of the available resources and technology. Such a point is not desirable because it is a point of resource underutilization or inefficiency.

Points outside the PPF such as **D** are desirable by every economy because they show greater output of both commodities. Such points are desirable and indicate economic growth. However, they are difficult to attain due to scarcity of resources.

Shifts in the Production Possibility Frontier.

Unbiased shift in the PPF: This is the PPF that shifts evenly such that, there is an increase in production of both goods. This therefore implies that an improvement in technology and increase in resources favours both goods, thereby causing an increase in production of both Goods X and Y.



An outward shift of the PPF from **Y_3 X_3** to **Y_4X_4** indicates economic growth. This may be due to any of the following reasons:

- Discovery of new natural resources.
- Advancement in technology that leads to production of more goods and services.
- Expansion of markets that encourage production of more goods and services.
- Improvement in the skills of labour that results into efficiency in production.
- Increased investment as a result of improved entrepreneurship skills.

An inward shift from **Y_3 X_3** to **Y_2X_2** indicates an economic decline. Similarly, there is a reduction in the quantity produced of both Goods Y and X. This may be due to any of the following reasons:

- Exhaustion of new natural resources.
- Decline in the invention and use of technology that leads to production of poor quality and fewer goods and services.
- No new markets that encourage production of more goods and services.
- Decline in the availability of trained manpower, through retrenchment of workers. This results into less output and inefficiency in production.
- Decreased investment as a result of poor entrepreneurship skills.

Biased shift in the PPF:

This is a PPF that shifts outwards in favour of one commodity only. In this case, the PPF shifts outwards more in one direction than the other. This is caused by improvement in technology and increased factors of production that are in favour of one commodity.

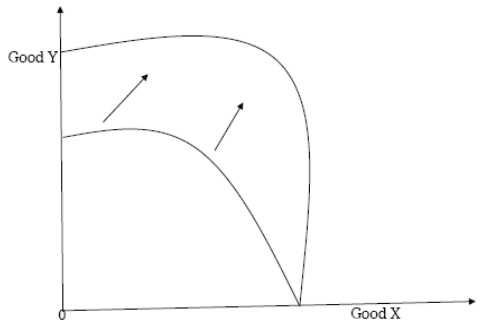


Fig 2.6: A biased PPF (in favour of Good Y)

Importance of the PPF

- The PPF shows whether there is economic growth or decline in the country. An outward shift indicates economic growth. An inward shift indicates economic decline.
- The PPF shows the rate of unemployment by showing the rate at which resources are employed or utilised. Points along the PPF show full employment and utilisation of resources. Points inside the PPF show the unemployment and underutilization of resources.
- The PPF shows the combination of goods and services that can be produced in an economy.
- It indicates technological advancement within an economy. When the level of production increases, the PPF shifts outwards. This indicates technological advancement.

THE RELATIONSHIP BETWEEN SCARCITY, CHOICE AND OPPORTUNITY COST

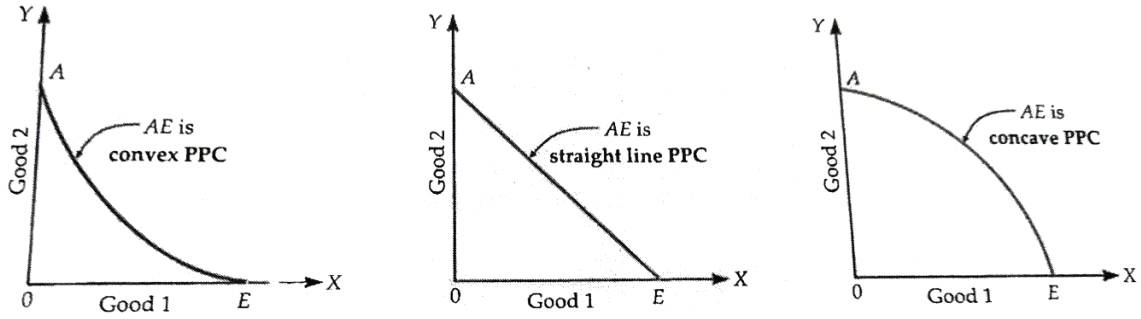
Activity

In groups of five, discuss the relationship between scarcity, choice and opportunity cost, using the PPF. Make presentations after the discussion.

The PPF indicates what is attainable and what is not attainable given the level of resources. Due to scarcity of resources, a producer cannot produce the maximum level of output for the two goods at once. The producer makes a choice to either produce more of Good X and less of Good Y and vice- versa. If the producer produces more of Good X he foregoes units of Good Y (opportunity cost) as shown by the PPF.

Implications of different shapes of Production Possibility Frontier (PPF)

(a) (b). (c)



The shape of the PPF can convey important implications for an economy. Here are the implications of different shapes of a production possibility frontier:

a) Convex PPF

The convex shape of the PPF means *decreasing opportunity cost*. A convex PPF suggests that resources are more adaptable between the two goods. The opportunity cost of producing more of one good decreases as you produce more of that good and less of the other. This implies increasing returns to scale or specialization.

b) Linear PPF(straight line)

The linear PPF implies *constant opportunity cost*. This means that resources can be easily reallocated from one good to another in a constant ratio, indicating that the economy has access to constant technology and resources are perfectly adaptable between the two goods.

c) Concave PPF:

The concave shape of the PPF implies *increasing opportunity cost.* The opportunity cost of producing more of one good increases as you produce more of that good and less of the other. This is because the factors of production used in producing both goods are not interchangeable and cannot be used to produce both goods. Therefore, to produce each additional unit of good X and more units of good Y are sacrificed.

Economic Systems

An economic system refers to the general organisation and structure of an economy. It deals with the ownership of resources, control and allocation of resources and the general distribution of goods and services. There are three major economic systems:

a) The free enterprise/laissez-faire/capitalist economy.
b) The command/planned/socialist economy.
c) The mixed economy.

1. Free Enterprise Economy

It is where resources are privately owned and their allocation is done by forces of demand and supply. In a purely capitalist economy, forces of demand and supply answer the fundamental economic questions. Individuals in a free-market economy pursue their own interests without government intervention.

2. Planned/socialist Economy

It is an economy where resources are owned and allocated by the state. It's a society where the government makes all decisions about production and consumption. The state through the central planning committee/authority decides how resources are to be allocated and how the output is to be distributed. The main of production is to maximize social welfare.

3. Mixed Economy

This is an economic system where resources are owned, allocated and distributed by a central planning authority (government) on behalf of the citizens. The government, on behalf of the citizens, takes all economic decisions.

In real sense there is no country that is purely command or capitalist i.e. all economies are mixed but the percentage of government or private sector participation differs

Case study

In different countries, the way resources are owned, controlled, allocated and the general distribution of goods and services is different. In U.S.A for example, resources are owned and controlled by individuals with limited government intervention. In China, resources are owned, controlled and distributed by the government. Uganda and Kenya have a mixed economy.

In other countries, both the private individuals and the government own resources and participate in resource allocation.

In groups of five,

a) Explain the meaning of an economic system, using the above case study.
b) Identify the major economic systems that exist in the world.
c) In small groups discuss the characteristics of the economic systems discussed above and identify the economic system in which your country belongs.
d) Discuss the advantages and disadvantages of the above economic systems

THEORY OF DEMAND AND SUPPLY

The Demand Theory

Demand is a desire for a good, backed by ability and willingness to pay. A desire without sufficient resources (money income) is merely a wish. A desire with resources but without willingness to spend is only a *potential demand.* A desire accompanied by ability and willingness to pay makes a *real* or *effective demand*.

Demand = Desire + Ability to pay + Willingness to spend.

The Law of Demand

The law demand states that; all other things remaining constant (*ceteris paribus*), the quantity demanded of a commodity increases when its price decreases and decreases when its price increases. This law implies that demand and price are inversely related.

DETERMINANTS OF DEMAND

- **Price of the Commodity.** This is the most fundamental factor that ensures regard for the law of demand which states that the higher the price, the lower the quantity demanded and vice versa other factors held constant.
- **Government Policy of Taxation and Subsidization.** Taxes reduce the disposable incomes and therefore when taxes are increased, quantity demanded decreases. Through subsidization, government can avail goods to consumers at low prices that market prices. Subsidies increase quantity demanded.
- **Tastes and Preferences of Consumers.** In case, they are favorable, quantity demanded increases and vice versa.
- **Seasonal Changes.** A favorable season increases the demand for particular products e.g. rainy seasons increase the demand for umbrellas, gum boots, etc and vice versa.
- **Price of Related Commodities**; Demand for a commodity is influenced by change in price of related goods. They are of two types :
  a) **Substitute Goods** – The goods which can be used in place of each other or which can be substituted for each other .Example- Tea and Coffee, Increase in price of Tea, decreases the demand for tea and eventually increase the demand for coffee, as due to increase in price of tea, the consumers will shift to consumption of coffee.
  b) **Complementary Goods** – These are goods which complete the demand for each other and therefore are demanded together, Example – Pen and Ink, Car and Petrol. In case of Complementary goods a fall in price of one, causes increase in demand of the other and a rise in price of one causes decrease in demand for another.
- **Level of Consumers' Income.**
  The demand for a commodity may increase/decrease with a rise in income depending on nature of commodity .For this; the goods are divided into;

(i) **Normal Goods**: The goods whose demand increases with rise in income and decreases with fall in income are termed as normal goods. They have positive effect related to income.

(ii) **Inferior Goods:** The goods whose demand decreases with rise in consumer's income and increases with the fall in income is termed as inferior goods. There is an inverse relation between income of consumer and demand for goods. The income effect is negative.

- **Price Expectations in Future:**
  If consumers expect changes in price of commodity in future, they will change the demand at present even when the present price remains the same e.g. If consumers expect the prices to rise in the near future they may increase the demand for a commodity now.
- **Population Size**:
  If the size of the population is more, demand for goods will be more. The market demand for a commodity substantially changes when there is change in the total population.

DEMAND FUNCTION

Demand function is an expression that shows the relationship between demand for a commodity and its various determinants (factors affecting demand).

$$Qx^d = f(P_x, Pr, Y, T, E, N, Yd)$$

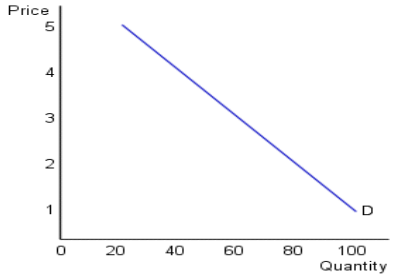
Where;
Qx^d = Quantity demanded of commodity X.
Px = Price of Commodity X.
Pr = Price of Related Commodity.
Y = Consumer's Income.
T = Taste and Preference.
E = Consumer's Future Expectation.
N = Number of Population (Size of Population)
Yd = Distribution of Income.

Demand Schedule

It is a table showing various quantities of a commodity demanded at respective prices.

Price (Shillings)	*Quantity (Kilograms)*
1	100
2	80
3	60
4	40
5	20

Demand Curve. This is a graphical representation of the demand schedule. It is a locus of points showing quantity demanded of a commodity at various price levels. It has a negative slope that shows the inverse relationship between the price of a commodity and its quantity demanded.



The Concept of Market Demand

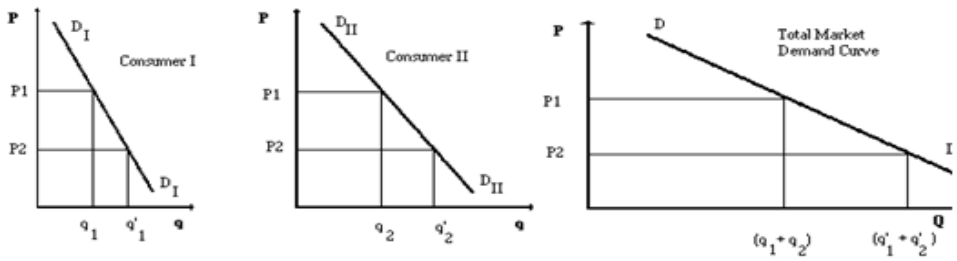
Market demand refers to the total quantity that all the users of a commodity are willing to buy at a given price over a specific period of time. In fact, market demand is the sum of individual demands. Market demand can be represented using a schedule and/or a curve.

The ***Market Demand Schedule*** is a table showing different quantities of a commodity that all the buyers in the market are ready to buy at different possible prices of the commodity at a point of time.

Price of commodity x	***Quantity demanded by consumers***		***Market demand***
	Q_A	**Q_B**	**$= Q_A + Q_B$**
100	50	70	120
200	40	60	100
300	30	50	80
400	20	40	60
500	10	30	40

Market Demand Curve

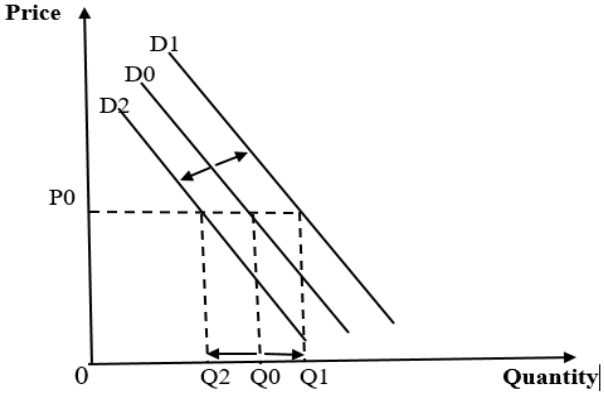
A market demand curve is the horizontal summation of the individual demand curves i.e. by taking the sum of the quantities consumed by individual consumers at each price.
Consider a market consisting of two consumers:



At price **P1** figure above, consumer 1 demands q1, consumer II demands quantity q2, and total market demand at that price is **(q_1+q_2).** At price **P2**, consumer 1 demands q'_1, and consumer II demands quantity q'_2 and total market demand at that price is **(q'_1+q'_2).** DD is the total market demand curve.

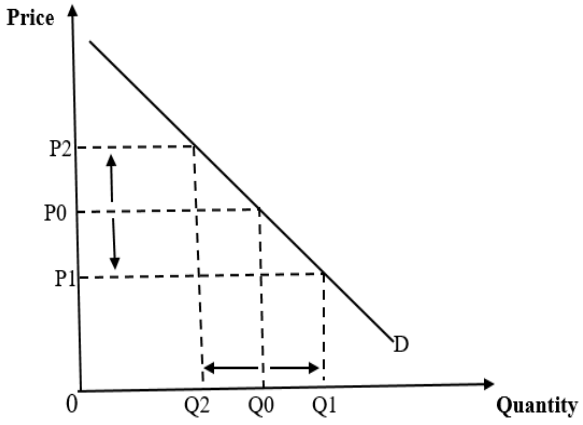
CHANGE IN DEMAND VS. CHANGE IN QUANTITY DEMANDED

Change in Demand refers to increase or decrease in quantity demanded at constant price brought about by changes in factors influencing demand. This is reflected in the shift of the demand curve to either the right or left respectively.



At constant price **P_0**, quantity demanded can decrease or increase due to changes in other determinants of demand. A decrease in demand is illustrated by the shift of the demand curve to the left (D_0D_2) resulting in reduction in quantity from Q_0 to Q_2. On the other hand, an increase in demand is illustrated by the shift of the demand curve to the right (D_0D_1) leading to increase in quantity from Q_0 to Q_1.

Change in Quantity demanded refers to an increase or decrease in the amount of the good purchased due to changes in its price ceteris Paribas. It is represented by a movement along the same demand curve.



EXCEPTIONS TO THE LAW OF DEMAND:

The Following are the exceptions to the law of demand:

1. **Articles of Distinction/Prestigious Goods:** Certain goods are purchased to emphasise status/prestige. Such goods will be purchased when sold at higher price and are demanded less at a lower price. E.g. Precious Diamonds.

2. **Giffen Goods**: They are highly inferior goods showing a very high negative income effect. As a result when price of such commodities falls, the demand also falls even when they happen to be relatively cheaper than other goods. This is also known as Giffen paradox.

3. **Expectation of Further Change in Price:** When buyers expect a further rise in the price, they purchase increased quantity of the commodity even at a higher price and vice versa. E.g. Gold prices.

4. **Necessities**: Those goods which are a must for living and necessities of life for which a minimum quantity has to be purchased by the consumer irrespective of the price. Eg. Food Grains, Salt etc.

5. **Ignorance of buyers about Quality**. Many a times, buyers due inertia or out of sheer ignorance consider the price of the commodity as index of its quality. Due to this ignorance, a lower-price commodity may be considered inferior. Therefore, purchasers buy lesser quantity of the commodity at its lower price. However, when the price of commodity is more, buyers consider it to be superior and thus buy more of it than before.

SUPPLY THEORY

Definition of Supply

Supply refers to the amount of the commodity producers are willing to bring to market at various prices per period of time. Quantity supplied may differ from quantity produced since some commodities produced may not be brought to the market.

The Law of Supply

The law of supply states that; "other things being equal, the higher the price the greater the quantity supplied or the lower the price, the smaller the quantity supplied." It implies that the supply of a commodity and its price are positively related.

DETERMINANTS OF SUPPLY

The following are the main factors that influence supply of a commodity:

1. Price of the Commodity

The higher the price, the higher the quantity supplied and vice versa, ceteris paribus. When the market price for a commodity increases, it becomes more profitable to supply such a commodity. Therefore, the supplier will be willing to produce and supply more, which increases quantity supplied of such a commodity.

2. Cost and Availability of Factors of Production

When factors of production are cheap and readily available, producers are able to produce more and supply increases. When factors of production are scarce and expensive, the capacity of producers to produce becomes low and supply reduces.

3. Goals of the Firm

The producer aims at profit maximisation. Profits can be maximised either by selling less output at high prices or by selling more output at low prices. Profit maximisation through sales maximisation lowers profit per unit but increases profit through high sales. Thus, it increases the quantity supplied. Profit maximisation through high prices increases the profit margin per unit but reduces the quantity supplied.

4. The Level of Technology

When firms use advanced and more efficient methods of production, the amount of commodities produced and brought to the market increases. For instance, in the agricultural sector, the use of tractors, combine harvesters, irrigation, spraying pumps and other machines increases quantity supplied. The use of inefficient, slow and poor methods of production keeps quantity supplied very low e.g. use of a hand hoe.

5. Prices of Related Products

When commodities are jointly supplied, a change in price of one influences the supply of another. For instance, increase in the price of beef may lead to increase in the supply of skins because the two commodities are supplied together. A change in the price of commodities that use the same resources to be produced also affect the supply of each other.

6. Government Policy of Taxation and Subsidization

The government may influence the supply of a commodity in different ways.
Some of these ways are:
(a) *Imposing high taxes on production*: This reduces production and supply by increasing the costs of production. Production becomes expensive when taxes on it are increased.
(b) *Offering subsidies*: The government can offer subsidies to producers. This increases their production capacity. This increases supply by reducing costs of production.

7. Seasonal Changes

In the agricultural sector, production, especially in developing economies largely depends on physical conditions. When seasonal/ natural factors are favourable supply increases and when they are unfavourable, supply decreases.

8. The Number of Producers

When producers are many, their capacity to produce is high and strong. When producers are few, supply remains low.

9. Degree of Freedom Entry of New Firms into the Industry

Some industries have entry barriers in form of startup costs, patents, technology, and/or limit pricing by the already existing firm. When there is freedom of entry of new firms into the industry, supply increases while restricted entry of new firms keep supply low.

10. Gestation Period

This is the duration between the time when the decision to produce and supply a commodity is taken and the time when output is actually produced and supplied. A long gestation period reduces supply in the current period. A short gestation period increases supply in the current period.

Supply Function

Supply function is an expression that shows a technical relationship between quantity supplied of a commodity and its determinants.

$$Q_x^s = f(P_X, P_y, T, N_f, \ldots, \beta).$$

Where; Q_x^s = Quantity supplied of commodity X

P_x= Price of commodity X

P_y= Price of commodity Y

T= Taxes

N_f= Natural factors

β = other factors

Supply Schedule.

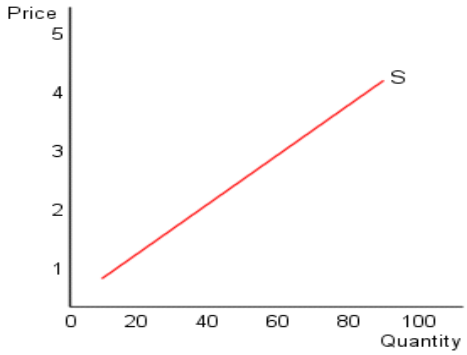
Supply schedule is a table that shows the relationship between the price of the good and the quantity supplied.

Price	Quantity supplied
1	20
2	40
3	60
4	80
5	100

Supply Curve.

This is a graphical representation of the supply schedule. It is a locus of points showing quantity supplied of a commodity at various price levels. Normally, the supply curve slopes upwards from left to right showing that the higher the price the higher the quantity supplied and vice versa.

Diagram:



The Concept of Market Supply

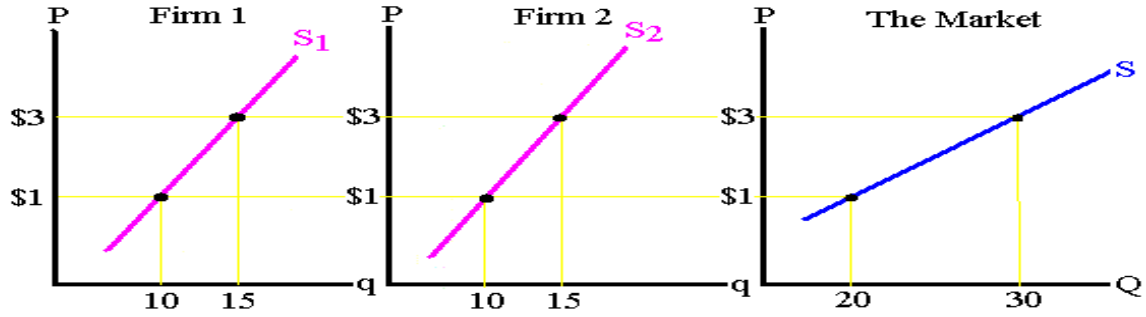
Market supply refers to the sum of all individual supplies for all sellers of a particular good or service.

The market supply schedule is a table that lists the quantity supplied for a good or service that suppliers throughout the whole economy are willing and able to supply at all possible prices.

Price ($)	***Quantity supplied in Kgs***		***Market Supply***
	Firm 1	Firm 2	**= 1+2**
$1	10	10	30
$3	15	15	30

Market Supply Curve

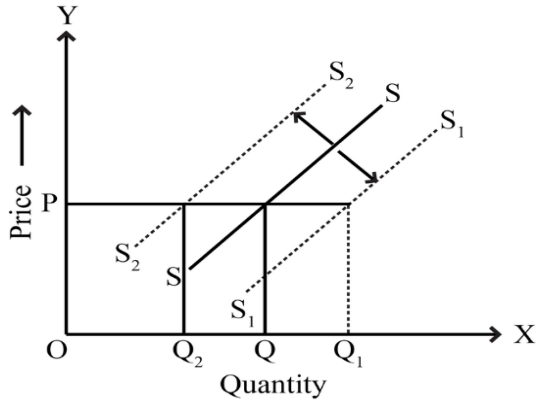
The short-run market supply is the horizontal sum of the all firms' short-run supply curves. Market supply curve is derived for two firms as shown below:



CHANGE IN SUPPLY VS. CHANGE IN QUANTITY SUPPLIED

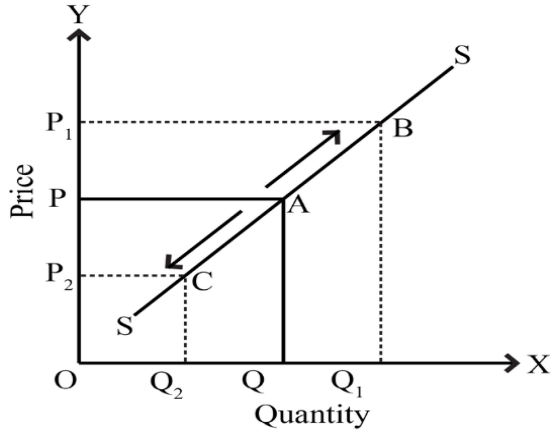
Change in supply refers to increase or decrease in quantity supplied at constant price brought about by changes in factors influencing supply. This is reflected in the shift of the supply curve to either the right or left respectively.

Illustration



At constant price **P**, quantity supplied can decrease or increase due to changes in other determinants of supply. A decrease in supply is illustrated by the shift of the supply curve to the left **(SS_2)** resulting in reduction in quantity from **Q** to **Q_2**. On the other hand, an increase in supply is illustrated by the shift of the supply curve to the right **(SS_1)** leading to increase in quantity supplied from **Q** to **Q_1**.

Change in Quantity Supplied refers to an increase or decrease in the amount of the good put to market due to changes in its price ceteris Paribas. It is represented by a movement along the same supply curve.



In the diagram above, at point **OP**, the supply is **OQ**. When price rises to **OP1**, supply rises to **OQ1**. In this case, the producer moves from **A** to **B** upwards but remains on the same supply curve. When price falls to **OP2**, supply falls to **OQ2**. The producer moves from **A** to **C** but remains on the same supply curve.

Market Equilibrium-Linear model

Equilibrium refers to the situation of stability or balance where changes in market forces do not affect the equilibrium point.

Assumptions

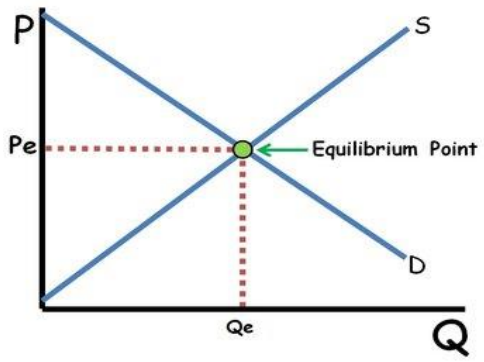
- Assumes that market is in equilibrium when quantity demanded equals quantity supplied i.e. $Q_d=Q_s$
- Quantity demanded is a decreasing linear function of price i.e. increase in price reduces quantity demanded and vice versa
- Quantity supplied is an increasing linear function of price i.e. increase in price increases quantity supplied and vice versa

It should be noted that from assumption one where $Q_d=Q_s$, yields the equilibrium price (P_e) and equilibrium quantity (Q_e). In this case, where the initial equilibrium is restored to the point of equilibrium is referred to as a stable equilibrium.

Demand and Supply schedule

Price(Shs)	*Quantity demanded*	*Quantity supplied*
500	30	102
400	48	84
300	**66**	**66**
200	84	48
100	102	30

Graphical Illustration:



Algebraic Derivation of Equilibrium Price and Quantity

Given that $Q_d = a - bP$ and $Q_s = -c + dP$ where '**a**' is constant and it's the vertical intercept of the demand function, '**b**' is the slope of the demand function and its negative as required. '**c**' is the vertical intercept of the supply function and '**d**' is the slope of the supply function and its positive as required.

$$Q_d = Q_s$$
$$a + bP = -c + dP$$
$$a + c = bP + dP$$
$$a + c = P(b+d)$$
$$\frac{a + c}{b + d} = \frac{p(b + d)}{b + d}$$
$$P^e = \frac{a + c}{b + d}$$

Substituting the equilibrium price (P^e) into either the demand function or supply function yields the equilibrium quantity.

Using the demand function $Q_d = a - bP$

$$Q^e = a - b\left(\frac{a + c}{b + d}\right)$$

$$Q^e = a - \frac{ba - bc}{b + d} = \frac{a(b + d) - ba - bc}{b + d}$$

$$Q^e = \frac{ab + ad - ba - bc}{b + d}$$

$$Q^e = \frac{ad - bc}{b + d}$$

Given that $Qd = 36 - 4P$ and $Qs = -12 + 12P$. Find the equilibrium price and quantity
At equilibrium quantity demanded equals quantity supplied i.e. $Qd = Qs$

$$36 - 4P = -12 + 12P$$

$$36 - 4P + 4P + 12 = -12 = 12 + 12P + 4P$$

$$36 + 12 = 12P + 4P$$

$$\frac{48}{16} = \frac{16P}{16}$$

$$\boldsymbol{P^e = 3}$$

Using$Qs = -12 + 12P$, equilibrium quantity (Q^e) will be

$$Q^e = -12 + 12(3)$$
$$Q^e = -12 + 36$$
$$\boldsymbol{Q^e = 24}$$

Given the following demand and supply functions, calculate the equilibrium price and quantity

$Qd = 10 - 2P$ and $Qs = -2 + 2P$

$Qd = 30 - 2P$ and $Qs = -5 + 5P$

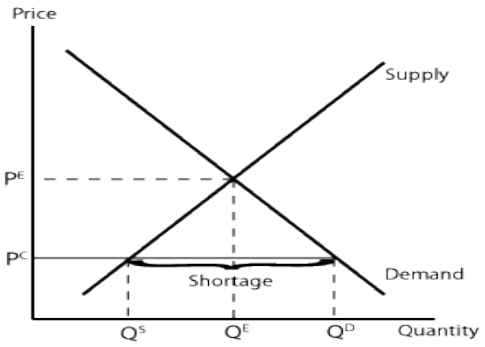
PRICE CONTROL

Price control is a regulation that sets a maximum or minimum legal price for a particular good. Price controls can be divided into two opposing categories: *price ceilings* and *price floors.*

Price Ceiling (Maximum Price)

Price ceiling is where the government fixes the price lower than the equilibrium level above which it is illegal for anyone to sell goods. It is usually done to avail essential goods to everyone at low prices mainly to prevent exploitation of consumers by producers and sellers. Maximum price is set below the equilibrium level and the seller is free to sell at any price below it.

Illustration:



Reasons for setting Maximum Price

- Protect consumers against exploitation by sellers and producers
- To improve the standards of living of people since they would buy commodities at lower prices.
- To encourage proper distribution of commodities among people.

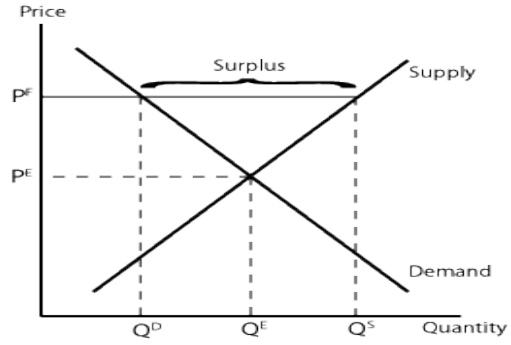
Negative effects of Maximum Price

- Leads to shortages as demand exceeds supply i.e. Q^S Q^D
- Discourages production as the price is very low
- Black marketing and hoarding may occur
- It's expensive since it involves high administrative costs

Price Floor (Minimum Price)

Price floor is where the government fixes the price above the equilibrium level below which it is illegal to sell. It is mainly done because government feels sympathetic with producers of certain goods. It is usually set during periods of bumper harvests when there is plenty/excess supply of goods by producers, which causes prices to fall tremendously below the profit levels.

Illustration



Reasons for setting Minimum Price

- To protect producers against middlemen
- Encourage production since high prices are set
- To improve and stabilize producers' incomes and living standards
- To increase government revenue through increased taxes on producers

Negative effects of Minimum Price

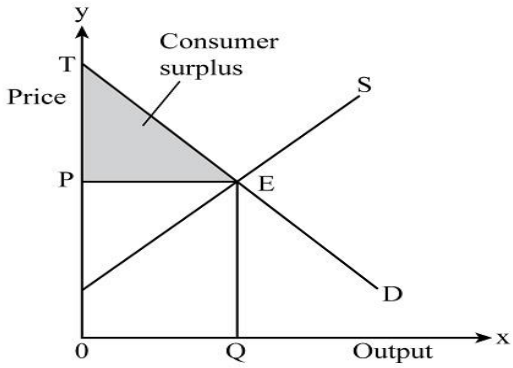
- Leads to unmanageable surplus as supply exceeds demand
- May lead to inflation due to increase in prices of goods
- It's expensive in terms of proper storage and administration
- May encourage smuggling due to increased prices of goods

The Concepts of Consumer surplus and Producer surplus

Consumer Surplus

Consumer surplus is the difference between what the consumer is willing to pay and what he/she actually pays for the commodity.

Graphically, it is represented by the area below the demand curve but above the price level as shown below.



The shaded area is the consumer surplus. At equilibrium, the consumer will demand **Q** given by the intersection of demand and supply curves at price **P**. S/he will pay an amount of money equal

to the area **OPEQ**. However, s/he is willing to pay an amount of money equal to the area **OTEQ**. Therefore, the difference between the two expenditures is the consumer surplus i.e.

OTEQ - OPEQ = PTE.

Taking into consideration the demand and supply curves, the formula for consumer surplus is **CS** = $\frac{1}{2} \times Base \times Height$.

Calculation of Consumer Surplus from the Demand Schedule

Given the following demand schedule and suppose that market price is Shs.40. Calculate the consumer surplus.

Quantity (kg)	0	2	5	9	16	25	35	48
Price (Shs)	90	80	70	60	50	40	30	20

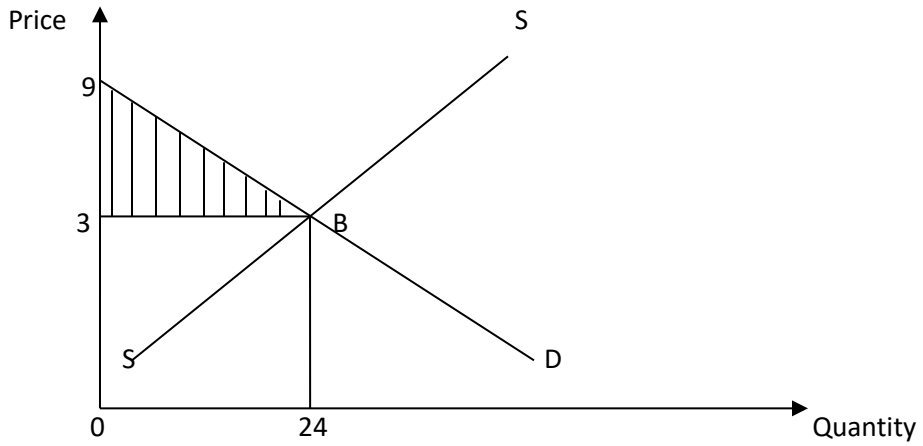
Consumer's surplus = Willingness to pay – Actual pay

Price (Shs)	***Quantity (Kg)***	***Change in quantity (ΔQ)***	***Willingness to pay (P × ΔQ)***	***Actual pay (Mkt price× ΔQ)***	***Consumer's surplus***
90	0	0	0×90=0	0×40=0	0
80	2	2	2×80=160	2×40=80	80
70	5	3	3×70=210	3×40=120	90
60	9	4	4×60=240	4×40=160	80
50	16	7	7×50=350	7×40=280	70
40	25	9	9×40=360	9×40=360	0
Total		**25**	**Shs.1320**	**Shs.1000**	**Shs.320**

Example;

Given that $\text{Qd} = 36 - 4P$ and$\text{Qs} = -12 + 12P$. Calculate the consumer's surplus.

Using the formula $\frac{1}{2} \times Base \times Height$



We work out for the price the consumer is willing to pay using the demand function $\mathrm{Qd} = 36 - 4P$ i.e. price represented by point A. Assuming that $\mathrm{Qd} = 0$, then

$$\mathrm{Qd} = 36 - 4P$$

$$0 = 36 - 4P$$

$$0 + 4\mathrm{P} = 36 - 4P + 4P$$

$$\frac{4\mathrm{P}}{4} = \frac{36}{4}$$

$$\mathrm{P} = \mathrm{Shs.}\,9$$

Base = 24 – 0 =24 and Height = 9 – 3 = 6. Substituting in the formula $\frac{1}{2} \times Base \times Height$, yields

$$Consumer's\ surplus = \frac{1}{2} \times Base \times height$$

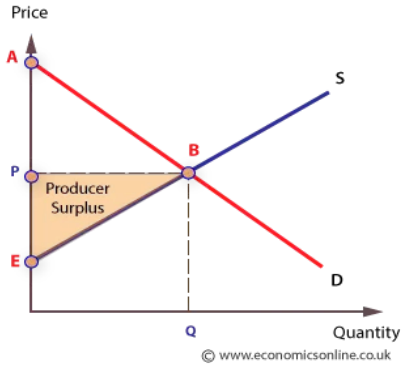
$$Consumer's\ surplus = \frac{1}{2} \times 24 \times 6$$

$$Consumer's\ surplus = 12 \times 6$$

$$Consumer's\ surplus = Shs.\,72$$

Producer Surplus

Producer surplus is the difference between the amount of money that a producer actually receives upon the sale of the good and the minimum amount that s/he would be willing to accept for the same quantity.
Graphically, it is represented by the area above the supply curve but below the price level as shown below:



The shaded area is the producer surplus. At equilibrium, the producer will supply **0Q** given by the intersection of demand and supply curves at price P. S/he will receive an amount of money equal

to the area **0PBQ**. However, s/he is willing to sell at an amount of money equal to the area **0EBQ**. Therefore, the difference between the two receipts/sales is the producer surplus i.e.

0PBQ – 0EBQ = PEB

Taking into consideration the demand and supply curves, the formula for producer surplus is

PS = $\frac{1}{2} \times Base \times Height$

Calculation of Producer Surplus from the Supply Schedule

Given the following supply schedule and suppose that market price is Shs.80. Find the producer's surplus.

Price (Shs)	20	40	50	60	70	80	100	120
Quantity (Kg)	0	2	5	10	16	25	35	50

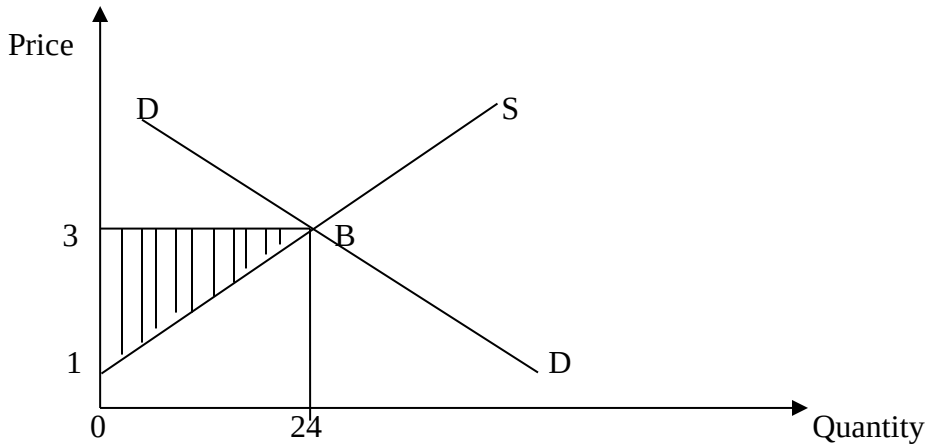
Producer's surplus = Actual sales/receipts – Willingness to sale/expected receipts

Price (Shs)	***Quantity (Kg)***	***Change in quantity(ΔQ)***	***Actual sales (AS)***	***Willingness/Expected sales (WTS)***	***Producer's surplus***
20	0	0	0×80=0	0×20=0	0
40	2	2	2×80=160	2×40=80	80
50	5	3	3×80=240	3×50=150	90
60	10	5	5×80=400	5×60=300	100
70	16	6	6×80=480	6×70=420	60
80	25	9	9×80=720	9×80=720	0
Total		**25**	**Shs.2000**	**Shs.1670**	**Shs.330**

Example;

Given that $\text{Qd} = 36 - 4P$ and $\text{Qs} = -12 + 12P$. Find the producer's surplus

Using the formula $\frac{1}{2} \times Base \times Height$



We work out for the price the producer is willing to charge using the supply function $\text{Qs} = -12 + 12P$i.e. price represented by point A. Assuming that $\text{Qs} = 0$, then

$$\text{Qs} = -12 + 12P$$

$$0 = -12 + 12P$$

$$0 + 12 = -12 + 12 + 12P$$

$$\frac{12\text{P}}{12} = \frac{12}{12}$$

$$\text{P} = \text{Shs.}\,1$$

Base = 24 – 0 =24 and Height = 3 – 1 = 2. Substituting in the formula$\frac{1}{2} \times Base \times Height$, yields

$$Producer's\ surplus = \frac{1}{2} \times Base \times Height$$

$$Producer's\ surplus = \frac{1}{2} \times 24 \times 2$$

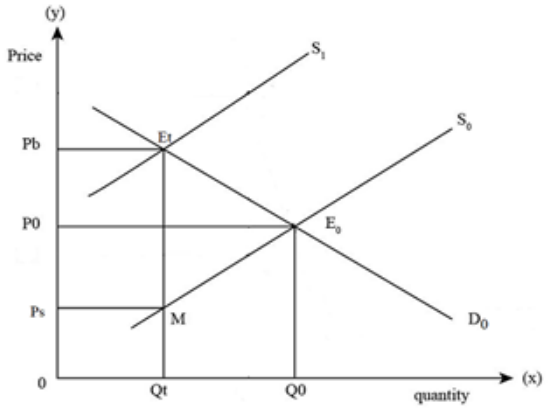
$$Producer's\ surplus = 12 \times 2$$

$$Producer's\ surplus = Shs.\,24$$

Effect of a Per Unit Tax on Equilibrium Price and Quantity

Specific/per unit tax is a tax of fixed amount imposed on each unit of a commodity. A per unit tax can be imposed on either sellers or buyers.

When the specific tax is imposed on the sellers of a particular product, the supply curve shifts upwards to the left due increase in the cost of production as shown below:

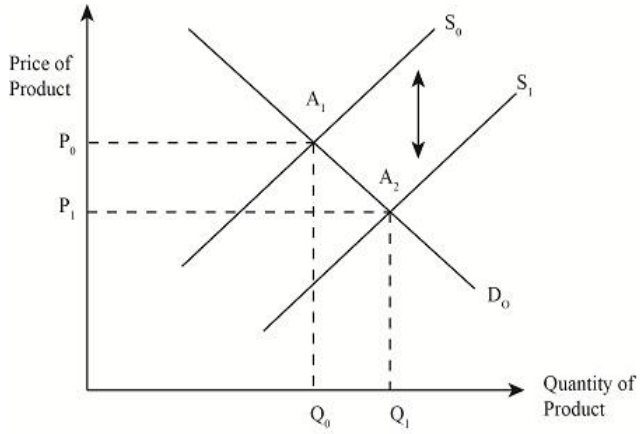


In the above diagram, before the imposition of the tax, the market equilibrium is at point $\mathbf{E_0}$, where demand intersects supply. At that point, equilibrium price is $\mathbf{OP_0}$ and equilibrium quantity is $\mathbf{OQ_0}$. When a specific tax is imposed on sellers of a particular product, the supply curve shifts upwards to the left from $\mathbf{S_0}$ to $\mathbf{S_t}$, and demand curve remains constant and as a result, a new equilibrium is established at point $\mathbf{E_t}$.

At the new equilibrium position, the price paid by the buyers is $\mathbf{P_b}$ and the price received by the sellers is $\mathbf{P_s}$. The vertical distance between $\mathbf{P_b}$ and $\mathbf{P_s}$ is the amount of per unit tax imposed by the government. Therefore, the imposition of a tax leads to increase in price from $\mathbf{P_0}$ to $\mathbf{P_b}$ and reduced output from $\mathbf{Q_0}$ to $\mathbf{Q_t}$.

Effect of Subsidy on Equilibrium Price and Quantity

If the government offer a subsidy to firms, this will reduce per unit cost of production. This will shift supply curve downwards, as for a given market price, the firm is willing to produce more. This will reduce the equilibrium price and increase the equilibrium quantity.



In the diagram above, $\mathbf{S_0}$ is the original supply curve before the government subsidy. When government extends the subsidy, the supply curve shifts to the right from $\mathbf{S}$ to $\mathbf{S_t}$ by the amount of the subsidy. As a result, new equilibrium is established at point $\mathbf{A_2}$ leading to a reduction in equilibrium price from $\mathbf{P_0}$ to $\mathbf{P_1}$ and increase in equilibrium quantity from $\mathbf{Q_0}$ to $\mathbf{Q_1}$. The total subsidy is shared between the sellers and buyers depending on degree of elasticity of demand.

THE CONCEPT OF ELASTICITY

Elasticity is a measure of the percentage responsiveness of a given dependent variable to percentage changes in independent variable(s) i.e. it is the degree of responsiveness of a given dependent variable due to changes in independent variable(s).

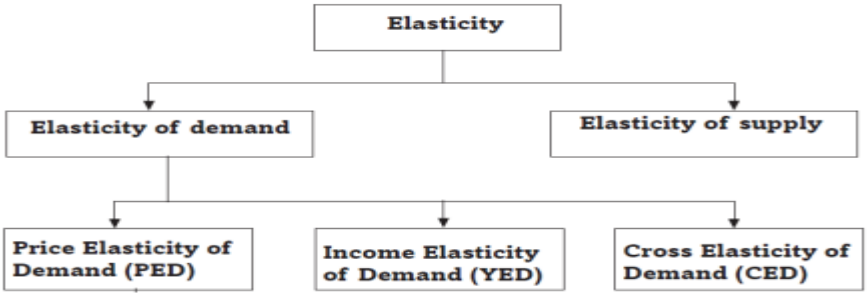


Figure 8.1: Different types of elasticity in Economics

Elasticity of Demand:

Elasticity of demand is the percentage responsiveness of quantity demanded of a commodity to percentage change in factors affecting demand e.g. price of the commodity, income of the consumer, price of related commodities, etc. There are three key types of elasticity of demand:

i) Price elasticity of demand
ii) Income elasticity of demand
iii) Cross elasticity of demand

Price elasticity of demand is the degree of responsiveness of quantity demanded of a commodity due to change in its own price i.e. it's the percentage change in quantity demanded due to percentage change in the price of the good. By formula it is given as

$$Price\ elasticity\ of\ demand\ (e_p) = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price of the good}}$$

$$e_p = \frac{\Delta Q}{Q} \times 100 \div \frac{\Delta P}{P} \times 100$$

$$e_p = \frac{\Delta Q}{Q} \div \frac{\Delta P}{P}$$

$$e_p = \frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$$

$$e_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Since the normal demand curve is drawn sloping down, then its negative due to the negative relationship between price and quantity demanded. So, then the price elasticity of demand formula should have a negative sign

$$e_p = -\left(\frac{\Delta Q}{\Delta P} \times \frac{P}{Q}\right)$$

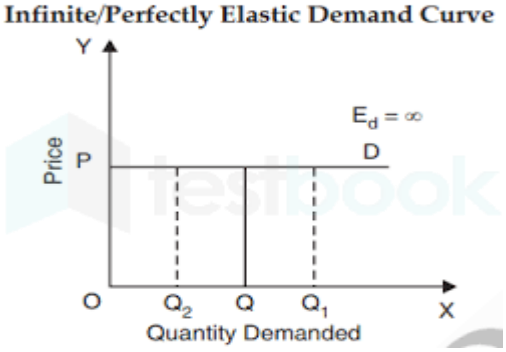
Table 2.5 Degrees of Price Elasticity of Demand

Numerical Value	*Terminology*	*Description*	*Shape of the Demand curve*
$e_p = \infty$	Perfectly elastic	Change in demand is infinite at a given price	Horizontal
$e_p = 0$	Perfectly inelastic	Demand remains unchanged whatever be the change in price	Vertical
$e_p = 1$	Unitary elastic	$\%\Delta Q = \%\Delta P$	Rectangular Hyperbola
$0 < e_p < 1$	Inelastic	$\%\Delta Q < \%\Delta P$	Steeper
$\infty > e_p > 1$	Elastic	$\%\Delta Q > \%\Delta P$	Flatter

Perfectly Elastic Demand:

Perfectly elastic demand is one where the percentage of change in quantity demanded is **infinite** even if the percentage of change in price is zero.

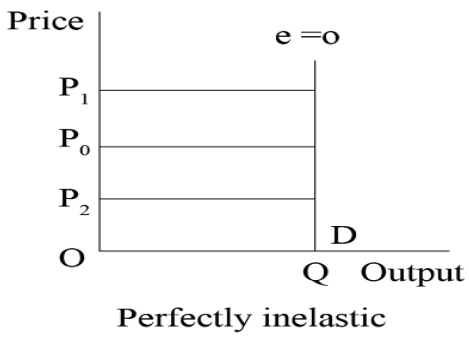
In perfectly elastic demand, a small rise in price results in fall in demand to zero, while a small fall in price causes increase in demand to infinity. In such a case, the demand is perfectly elastic or ep = ∞. In perfectly elastic demand, the demand curve is represented as a horizontal straight line, which is shown below:



Perfectly Inelastic Demand

Perfectly inelastic is one where a change in the price of a product will have no effect on the quantity demanded of that product. A perfectly inelastic demand is one when there is no change in quantity demanded of a product with change in its price. The numerical value for perfectly inelastic demand is zero ($e_{p=O}$)

In case of perfectly inelastic demand, demand curve is represented as a straight vertical line, which is shown in the figure below.

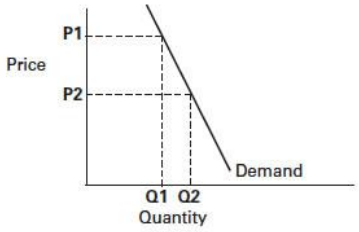


Perfectly inelastic

Inelastic Demand

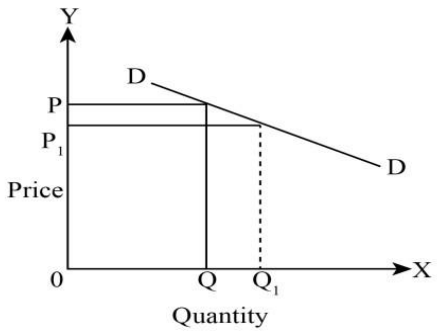
Inelastic demand is one where the percentage change produced in quantity demanded is less than the percentage change in the price of a product. For example, if the price of a product increases by 30% and the demand for the product decreases only by 10%, then the demand would be inelastic. The value of price elasticity of demand ranges between zero and one.

Figure 2. Inelastic Demand



Elastic Demand

Elastic demand refers to the demand where the proportionate change produced in quantity demanded is greater than the proportionate change in price of a product. The numerical value of elastic price elasticity of demand ranges between one to infinity. For example, if the price of a product increases by 20% and the demand of the product decreases by 25%, then the demand would be elastic.



Unitary Elastic Demand:

Unitary elastic demand is one the proportionate change in demand produces the same proportionate change in the price of the product. The numerical value for unitary elastic demand is equal to one (ep=1).

The demand curve for unitary elastic demand is represented as a rectangular hyperbola, as shown below:

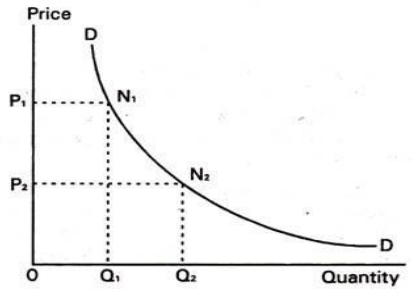


Fig. 3.9. Unitary elastic demand

Example:

The price of pineapples in the market rose from 1100/= to 1200/= per kilogram and the amount bought changed from 500 to 450 kilograms per day. Compute the price elasticity of demand for pineapples and comment on the nature of elasticity they exhibit in this market.

Price Elasticity of Demand along a Linear Demand Curve

To evaluate whether price elasticity of demand is not the same along a linear demand curve, we shall assume the following demand function $\mathrm{Qd} = a - bP$. Differentiating the function with respect to p, yield, $\frac{\Delta \mathrm{Q}}{\Delta \mathrm{P}} = -\mathrm{b}$……(i)

But $e_p = -\left(\frac{\Delta \mathrm{Q}}{\Delta \mathrm{P}} \times \frac{\mathrm{P}}{\mathrm{Q}}\right)$……(ii)

Substituting equation (i) into equation (ii) will yield

$$e_p = -\left(-\mathrm{b} \times \frac{\mathrm{P}}{\mathrm{Q}}\right)$$

$$e_p = \frac{\mathrm{bP}}{\mathrm{Q}}$$

E.g. Given that $\mathrm{Qd} = 36 - 4P$ and$\mathrm{Qs} = -12 + 12P$. Find the price elasticity of demand.

Earlier alone we found the equilibrium price as $P^{\mathrm{e}} = 3$ and equilibrium quantity (Q^{e}) as $Q^{\mathrm{e}} = 24$. Differentiating the demand function with respect to P will yield $\frac{\Delta \mathrm{Q}}{\Delta \mathrm{P}} = -4$. Using the formula

$$e_p = -\left(-\mathrm{b} \times \frac{\mathrm{P}}{\mathrm{Q}}\right)$$

$$e_p = -\left(-4 \times \frac{3}{24}\right)$$

$$e = \frac{12}{24}$$

$$e_p = 0.5$$

Factors Affecting Price Elasticity of Demand

a) Nature of Commodity

i. *Necessity of goods*: They have inelastic demand because consumers cannot do without them e.g. salt, water etc.
ii. *Luxuries*: They have elastic demand because consumers can do without them.

b) Availability of Substitutes

i. *Goods that have closer substitutes*: Here, the elasticity of demand is higher i.e. more elastic as when price of a commodity rises, the consumer has options of drifting to its substitutes e.g. Tea and coffee.
ii. *Goods without close substitutes*: These goods are less elastic in demand since the consumer has no other option than that good e.g. Cigarette, liquor.

c) Variety of uses of the Commodity

i. *Goods with many uses:* The commodities that can be put to a variety of uses have elastic demand as if the price of such good increases, the demand is restricted for important purposes e.g. Electricity, if its price increases, its use may be restricted to important uses such as lighting.
ii. *Goods with less use*: Its demand is likely to be inelastic e.g. Paper

d) Postponement of use

i. The consumption of the good which can be postponed, the demand will be elastic, eg: demand for residential houses is postponed when interest rates on loans are high.
ii. When consumption cannot be postponed, then it has inelastic demand.

e) Income Level of the Buyer:

i. Consumers with high level of income will not be bothered by a rise in price of commodity. Therefore, elasticity of demand is expected to be low, e.g. demand for luxury cars by multibillionaires.
ii. The demand of middle-income consumer is more elastic, e.g: demand for small cars by middle class people in Uganda.

f) Habit of the Consumer

If the consumer becomes accustomed/habitual for a commodity, then the demand will be inelastic, as he cannot reduce the demand even when the goods are highly taxed, e.g. cigarettes, liquor.

g) Proportion of expenses/proportion of Income spent on commodity

i. Goods on which consumer does not spend higher proportion of income, they will have inelastic demand, eg: needle, matchbox.
ii. Goods on which the consumer spends a larger proportion of their income, then the elasticity is high, eg: clothes etc.

h) Price Level

Elasticity of demand will be high at higher level of price and lower at the lower level of price.

I) Time period

i. *Long period:* It is more elastic as consumer can change his consumption habits more conveniently.
ii. *Short period:* The demand is inelastic as the consumer cannot change the consumption very easily.

Importance of Price Elasticity of Demand

- Helps in price determination.
- Used in taxation policy.
- Used when carrying out devaluation
- Used in wage determination
- Used by government in subsidization
- Used by producers in determining the nature of product to be produced

INCOME ELASTICITY OF DEMAND

It is a degree of responsiveness of quantity demanded of a good to changes in the consumer's income. It can also be defined as the percentage change in quantity demanded of a commodity due to percentage change consumer's income. It is given by the formula

$$Income\ elasticity\ of\ demand\ (e_y) = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in consumer's income}}$$

$$e_y = \left(\frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q}\right)$$

Income elasticity of demand can be negative, positive or zero

- When e_y is **negative,** then the good is *inferior.* This means that an increase in consumer's income reduces quantity demanded

- When e_y is **positive**, then the good is *normal*. This means that an increase in consumer's income increases quantity demanded
- When e_y is **zero,** then the good is a *necessity*. This implies that a change in consumer's income (increase or decrease) has no effect on quantity demanded

Example:
John recently lost his job and his monthly income reduced from 500,000/= to 300,000/=.His demand for beef also decreased from 10 to 5 kilograms per month.

i) Compute his Income elasticity of demand for beef.
ii) Based on the answer above, what type of commodity is beef.

Cross Elasticity of Demand
It is the responsiveness of quantity demanded of a commodity due to a given change in the price of another good. It measures the percentage change in quantity demanded of a good say Y arising from a given percentage change in the price of another good say X. It is given by the formula

$$Cross\ elasticity\ of\ demand\ (e_{xy}) = \frac{\text{Percentage change in quantity demanded of good Y}}{\text{Percentage change in price of good X}}$$

$$e_{xy} = \left(\frac{\Delta Q_y}{\Delta P_x} \times \frac{P_x}{Q_y}\right)$$

Cross elasticity of demand can also be negative, positive or zero

- When e_{xy} is **negative**, then the two goods are *complements*. This implies that an increase in price of X leads to a fall in quantity demanded of Y and vice versa.
- When e_{xy} is **positive**, then the two goods are *substitutes.* This means that an increase in price of X leads to increase in quantity demanded of Y and vice versa.
- When e_{xy} is **zero,** then the two goods are *not related*. This means that change in the price of X has no effect on quantity demanded of Y

Example:
Suppose the price of beans increased from 2000/= to 4000/= and in response the demand for peas increased from 2 to 2.5 kilograms per week.

a) Compute the cross elasticity of demand for peas.
b) What is the relationship of beans and peas? Justify your answer

ELASTICITY OF SUPPLY

It is the responsiveness of quantity supplied of a commodity to changes in factors affecting supply.

Types of Elasticity of Supply

1. Price Elasticity of Supply

It is the degree of responsiveness of quantity supplied of a commodity due to changes in its own price. It is always positive reflecting a positive relationship between price and quantity supplied. It is given by the formula

$$Price\ elasticity\ of\ supply\ (e_p) = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$

$$e_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Forms of Price Elasticity of Supply

Elastic Supply

Elastic supply is one where a given percentage change in price leads to a larger change in quantity supplied. The value of PES is greater than one but less than infinity.

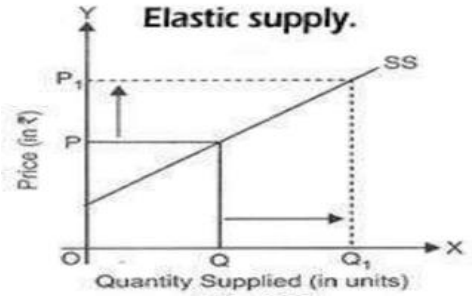


Fig. 9.25

Inelastic Supply

Inelastic supply is one where a given percentage change in price leads to a smaller change in quantity supplied. The value of price elasticity of supply is greater than zero but less than one.

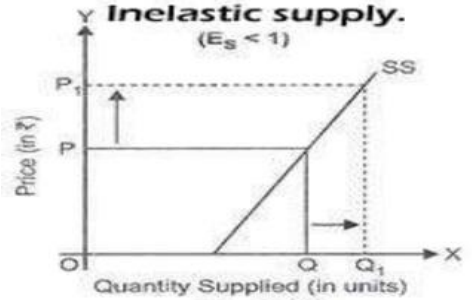
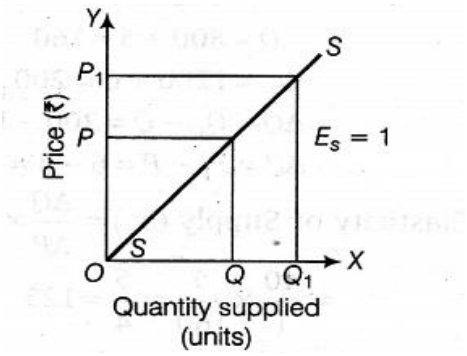


Fig. 9.26

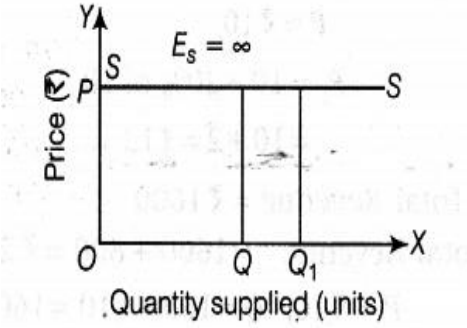
Unit Elasticity of Supply

Unitary elasticity of supply refers to a situation when the percentage change in quantity supplied of a commodity is exactly equal to the percentage change in its price. In this case, the value of price elasticity of supply will be equal to one.



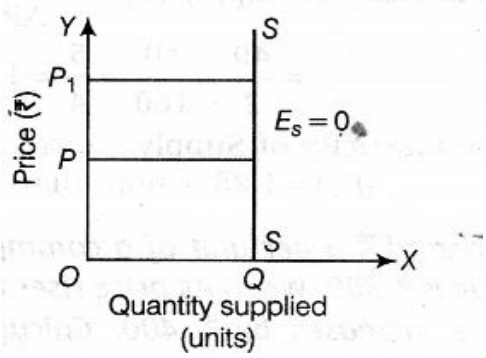
Perfectly Elastic Supply

If supply is perfectly elastic, it means that any change in price will result in an infinite amount of change in quantity. The value of price elasticity of supply equal to infinity. The economic interpretation of this supply curve is that an unlimited quantity will be offered for sale at the price OP.



Perfectly Inelastic Supply

Perfectly inelastic supply means that quantity supplied remains the same when price increases or decreases. Sellers are completely unresponsive to changes in price. As a result, this means the price elasticity of supply (PES) value is equal to zero.



E.g. Given that $\mathrm{Qd} = 36 - 4P$ and$\mathrm{Qs} = -12 + 12P$. Find the price elasticity of demand.

Earlier alone we found the equilibrium price as $P^{\mathrm{e}} = 3$ and equilibrium quantity (Q^{e}) as $Q^{\mathrm{e}} = 24$. Differentiating the supply function with respect to P will yield $\frac{\Delta \mathrm{Q}}{\Delta \mathrm{P}} = 12$. Using the formula

$$e_p = \mathrm{b} \times \frac{\mathrm{P}}{\mathrm{Q}}$$

$$e_p = 12 \times \frac{3}{24}$$

$$e_p = \frac{36}{24}$$

$$e_p = 1.5$$

2. Cross Elasticity of Supply

It is the responsiveness of quantity supplied of a commodity due to a given change in the price of another good. It measures the percentage change in quantity supplied of a good say Y arising from a given percentage change in the price of another good say X. It is given by the formula

$$Cross\ elasticity\ of\ supply\ (e_{xy}) = \frac{\text{Percentage change in quantity supplied of good Y}}{\text{Percentage change in price of good X}}$$

$$e_{xy} = \frac{\Delta \mathrm{Q_y}}{\Delta \mathrm{P_x}} \times \frac{\mathrm{P_x}}{\mathrm{Q_y}}$$

Cross elasticity of supply can be negative, positive or zero

- When e_{xy} is **negative,** then the two goods are *competitively supplied*. This implies that an increase in price of X leads to a fall in quantity supplied of Y and vice versa.
- When e_{xy} is **positive**, then the two goods are *jointly supplied*. This means that an increase in price of X leads to increase in quantity supplied of Y and vice versa.
- When e_{xy} is **zero**, then the two goods are *not related*. This means that change in the price of X has no effect on quantity supplied of Y.

Review questions:

<u>Question One</u>:

a) Explain the terms consumer's and producer's surplus
b) Given the following demand and supply schedules and suppose that market prices are 50$ and 120$ respectively. Determine the consumer's surplus and producer's surplus.

Demand schedule

Price (US$)	120	100	80	60	50	40	30	20
Quantity (Kg)	0	2	6	11	18	25	40	50

Supply schedule

Price (US$)	20	40	60	80	100	120	180	200
Quantity (Kg)	0	1	4	9	15	22	30	50

Question Two:

a) Given the demand and supply functions as ***Qd = 100 - 5P*** and Qs = ***-125 + 20P;***
   Calculate the following
   i. Equilibrium Price
   ii. Equilibrium Quantity
   iii. Consumer Surplus
   iv. Producer Surplus
   v. Price Elasticity of Demand

b) Given that the government sets the price at 10;
   i. State whether it's a price ceiling or Price Floor
   ii. Calculate the size of imbalance created by the price

Question Three;

Given the following demand and supply functions for apples in Pick and Pay Supermarket in Kireka;

Qd = 90 – 0.4P.

Qs = -10 + 0.1P

Where; *Qd* is Quantity Demanded

Qs is Quantity Supplied and *P* is the Price.

Required;

a. Calculate equilibrium Price and Quantity
b. The producers complain that the market price is too low for them to recover the production cost of the commodity. To protect the producers, the government reacts by fixing the price at 150/=. With the help of an illustration, determine the size of the imbalance caused by the intervention.
c. Calculate the consumer's surplus and Producer's surplus.
d. Calculate the price elasticity of demand and price elasticity of supply.
e. Illustrate the effect of a subsidy on any given commodity.

THE THEORY OF CONSUMER BEHAVIOR

THE CONCEPT OF UTILITY

Utility is the basis of consumer demand. Consumers demand for a commodity because they derive utility/ satisfaction from it. Utility is the psychological feeling of satisfaction, pleasure, happiness or well-being that a consumer derives from the consumption, possession or use of a commodity. There are two basic approaches to measuring utility i.e.

i) Cardinal utility theory
ii) Ordinal utility theory

The Cardinal Utility Theory/Approach

According to this approach utility is measured is subjectively measured in units called *Utils* using an instrument called Utilometer. This means that a consumer can tell exactly how much satisfaction s/he can get from consumption of a certain good.

Assumptions of Cardinal Utility Theory

- The consumer is rational such that s/he aims at maximizing utility given her income and prices of the commodities s/he purchases.
- Utility derived from each good is measurable in monetary units that the consumer is prepared to pay for another unit of the good.
- Assumes constant marginal utility of money i.e. changes in income does not affect utility got from consumption of any commodity.
- Assumes the law of diminishing marginal utility i.e. as a person consumes more and more units of a good, the utility got from the successive units consumed declines/reduces.
- Total utility derived from consumption of a basket/bundle of goods depends on the different quantities of individual commodities consumed by her/him i.e. $TU = U(X_1, X_2, \dots, X_n)$
- Assumes consumption of only one commodity.
- The consumer's utility function is independent of the utility functions of other consumers. Whatever s/he decides to buy depends entirely on his/her personal preference not under the influence of other consumers.
- All commodities available to the consumer are divisible into smaller units.

Total Utility (TU)

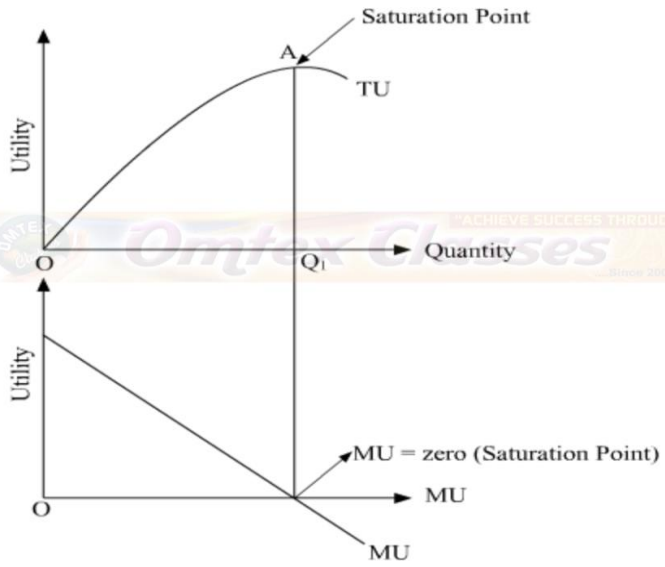
This is the total satisfaction an individual gets from the consumption of a good or service. Graphically, total utility curve rises from zero up to maximum point (point of satiety) and then it falls. It behaves in accordance with the law of diminishing marginal utility.

Marginal Utility (MU)

It is the additional utility got from consumption of an extra unit of a commodity i.e. it is the change in total utility divided by change in quantity of a commodity consumed i.e. $MU = \frac{\Delta \mathrm{TU}}{\Delta \mathrm{Q}}$.

No of units Consumed	*Total utility*	*Marginal utility*
0	0	0
1	20	20
2	35	15
3	45	10
4	50	5
5	50	0
6	45	-5

Graphical relationship between TU & MU



Relationship between Total Utility and Marginal Utility

- When TU is rising, MU is positive
- When TU reaches maximum, MU reaches zero
- When TU is diminishing, MU is negative
- The highest point of the TU curve is known as the point of satiety.

Consumer Equilibrium under the Cardinal Utility Approach

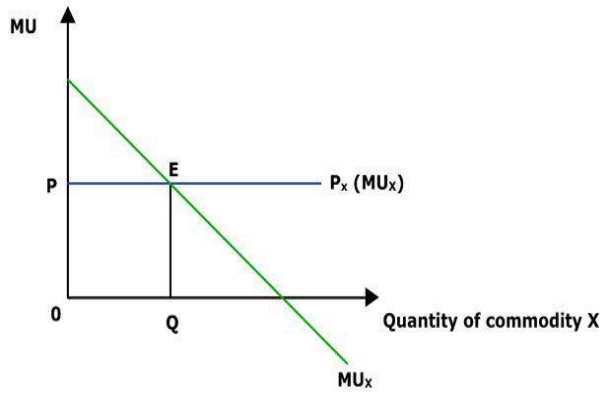
For a single commodity

Marginal utility shows the value a consumer places on each unit of the product and this value is reflected by the price a consumer is willing to pay for a unit of a commodity. A utility maximizing consumer will adjust his purchases of a commodity until the marginal utility of the last unit purchased (measured in money units) is equal to the price of a unit of that product.

$\mathbf{MU_X = P_X}$

If marginal utility of X (MU_X) is greater than the price of X (P_X), then the consumer buys more units of X. In so doing MU_X reduces until $MU_X=P_X$. If $MU_X<P_X$ then the consumer reduces the units of X being bought. This leads to increase in MU_X until $MU_X=P_X$. Thus, the equilibrium condition of the consumer is $MU_X=P_X$

Illustration: Consumer's equilibrium



For two commodities

If there are more goods, then the consumer reaches his equilibrium when he equates the ratios of marginal utility of individual goods to their prices i.e. $\frac{\mathbf{MU_x}}{\mathbf{P_x}} = \frac{\boldsymbol{MU_y}}{\mathbf{P_y}}$.

This implies that the consumer is in equilibrium when he derives equal utility from any commodity upon spending an extra unit of his income given the commodity prices.

Limitations of the Cardinal Utility Theory

- Assumes utility is measured in money terms but in reality, utility cannot be measured objectively.
- Assumes that the consumer is rational which is not the case.
- The assumption of constant utility of money breaks down because as consumer's income changes, the marginal utility of money also changes. Therefore, money loses its purpose/function of measuring utility.
- Assumes that one commodity is consumed but in reality, many commodities are consumed
- It considers the law of diminishing marginal utility but this is a psychological law that is taken for granted and is non-operational in real world.
- The consumer's utility function is not independent of utility functions of other consumers i.e. there are externalities both positive and negative.

The Ordinal Utility Theory/Indifference Curve Approach

Here utility is not numerically measured but rather the consumer arranges/ranks the different baskets of goods in order of preference i.e. it assumes that the consumer has the ability to rank different combinations in such a way that s/he chooses one with the greatest satisfying power.

Assumptions of the Ordinal Approach

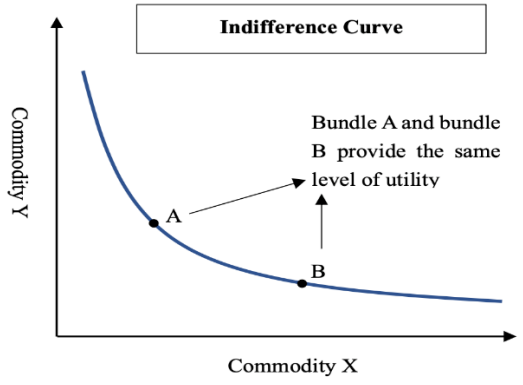
- Utility is ordinal i.e. a consumer can arrange her/his preferences in order of satisfaction s/he gets from each basket.
- A consumer is rational i.e. she aims at maximizing utility given income level and commodity prices.
- Assumes consumption of at least two commodities.
- Total utility of a consumer is a function of different quantities of individual commodities consumed i.e. $TU = U(X_1, X_2, \dots, X_n \;\; Y_1, Y_2, \dots, X_n)$
- Assumes diminishing marginal rate of substitution i.e. the slope of the indifference curve (MRS) is negative and shows the rate at which the consumer is willing to substitute commodity say **X** for another.
- Assumes consistency of choices in that if a consumer prefers combination A to B in one situation, then s/he should not prefer B to A in another situation when A is still available.
- Assumes transitivity of choices in that if a consumer prefers combination A to B and yet prefers B to C then s/he should prefer A to C.

Indifference Curve:

It is a locus of points of different combinations of two goods that yield the same level of satisfaction to the consumer i.e. along an indifference curve the consumer is indifferent between commodity combinations.

A set of indifference curves that are parallel to each other is an ***Indifference map***. These curves indicate different levels of satisfaction in that higher indifference curves give higher satisfaction and vice versa. Since consumers are rational, they would prefer combinations that lie on highest possible indifference curves to those lying on lower indifference curves.

Illustrations of an indifference curve and indifference map



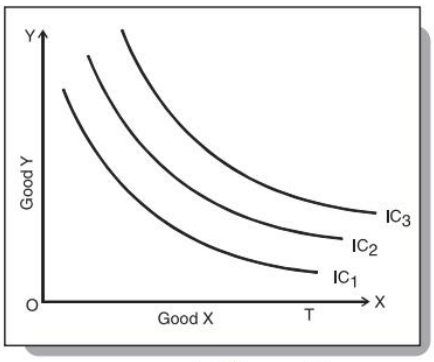


Fig. 2 : Indifference Map

Properties of Indifference Curves

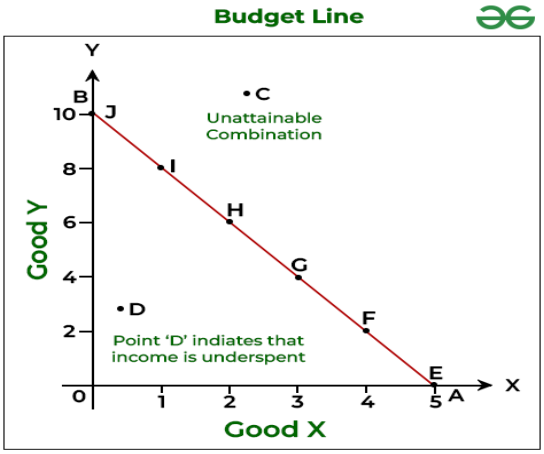
- An Indifference curve has a negative slope. This implies that the two commodities can be substituted for each other and that if the quantity of one-commodity increases, the quantity of another must reduce.
- Between two ICs, it is possible to have several other combinations from which the consumer obtains the same level of satisfaction.
- An Indifference curve does not touch either axis. If it touches X-axis, the consumer would be consuming one commodity X and zero of Y yet the consumer derives utility from a combination of two commodities according to the ordinal utility theory.
- They are convex to the origin. The slope of the curve reduces as one move from left to right. This is because of the diminishing marginal rate of substitution.
- An Indifference curve that lies to the right of another show higher levels of satisfaction while the one to the left show's lower levels of satisfaction.
- Indifference curves do not intersect. If they do intersect, they would contradict the assumption of consistency and transitivity.
- Indifference curves are not necessarily parallel to each other. This is because the
- Different combinations of goods lying on the same indifference curve give a consumer the same level of utility.

The Budget Line

It is a locus of points showing various commodity combinations of any two goods that a consumer can purchase given his/her income and commodity prices.
The combination of goods and services that a household can buy is limited by income level and prices.
The equation of Budget Line is **M = PxQx + PyQy**
Where M=Money income of the consumer; Px= Price of good X, Py=Price of good Y, Qx= Quantity of good X; Qy= Quantity of good Y.
Illustration:

Assume that a consumer has a total budget of Shs.4000, with which he can buy various combinations of Good X and Good Y. The cost of one unit of Good X is Shs.800 and the cost of one unit of Good Y is Shs.400 respectively. The potential set of combinations that can be purchased by the consumer are:

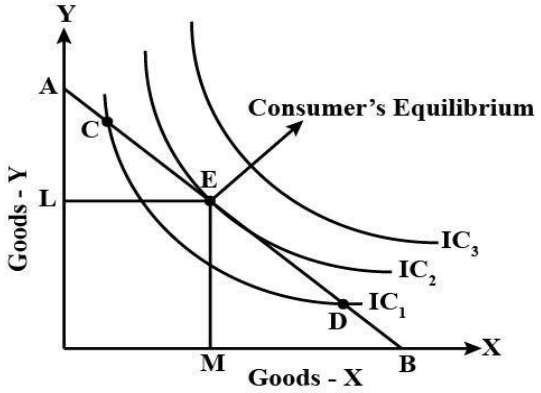
Possible combinations	***Quantity of Good X***	***Quantity of Good Y***
E	5	0
F	4	2
G	3	4
H	2	6
I	1	8
J	0	10



In the above graph, AB is the Budget Line and OAB is the Budget Set. Also, every point on the Budget Line indicates different bundles of Good X and Good Y that the consumer can purchase by spending his entire income of 4000 at the given prices of goods.

Consumer Equilibrium under the Ordinal Utility Approach

A consumer is in equilibrium when she chooses the most satisfying combination of two goods which is affordable i.e. it is shown by the point of tangency of the highest indifference curve and the budget line.



In the diagram above, **AB** is the budget line. **IC_1, IC2** and **IC_3** are indifference curves. A consumer can buy any of the combinations, **C, D** and **E** of good **X** and good **Y** shown on the budget line **AB**. He cannot attain any combination on **IC_3** as it is above the budget line **AB** but he can only buy those combinations that are on the budget line. Out of **C**, **D** and **E** combinations, the consumer will be in equilibrium at combination **'E'** because at this point, the budget line (**AB**) is tangent to the highest indifference curve **IC_2**. Combinations **`C'** or **'D'** will not give the consumer maximum satisfaction because they are situated on lower indifference curve **IC_2**. It means that the consumer's equilibrium point is the point of tangency of budget line and indifference curve. At equilibrium;

Slope of indifference curve = Slope of budget line or ***MRSXY=PX/PY***.

PRODUCTION THEORY

Definition of Production:

Production refers to the economic process of converting of inputs into outputs. Production uses resources to create a good or service that is suitable for use or exchange in a market economy. They see every commercial activity other than the final purchase as some form of production. Production is a process, and as such, it occurs through time and space.

Basic Concepts of Production Theory

Input; this is a good or a service that goes into the process of production while an **output** is any good or service that comes out of the production process

Fixed and Variable Inputs

A fixed input/factor is one whose quantity is fixed in the short run (e.g. capital, land buildings) i.e., it remains constant in the Short run while *a variable input/factor* is one that changes with the change in output.

Short-run and Long Run

These two terms refer to the time-period involved in the process of production.

The Short run refers to the period of time in which the supply of certain inputs is inelastic or fixed. Output in this period can be increased by increasing only the use of the variable factor (e.g. labour and raw materials).

The Long run refers to the period in production in which the supply of all the inputs is variable, implying that in this period, output can be increased by employing more of the variable and fixed factors of production.

Assumptions of the Production Theory

- Assumes that the firm sells all its output
- Sales revenue is equal to the value of the goods
- A firm produces each output as cheap as possible given the level of technology
- All units of each factor of production are equally efficient
- Price of each factor of production is given/constant

Production Function

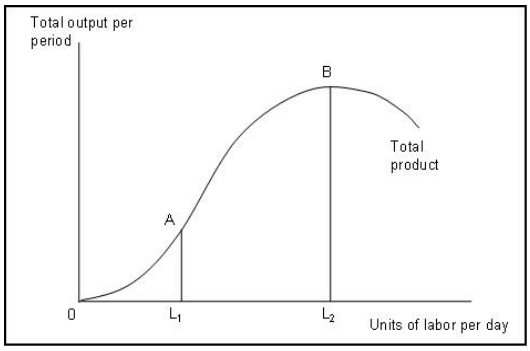
It is a technical relationship between inputs and outputs OR It is the ability of the firm to convert inputs into outputs in a given state of technology in a particular time period.

A production Function has the following assumptions:

- Perfect divisibility of both inputs and outputs

- There are only two FOP- labour (L) and capital (K)
- Limited substitution of one factor for another
- A given level of technology
- Fixed supply of one factor in the SR

Short-Run Production Function:
It refers to production in the short-run where there are some fixed factors and variable factors. In the short-run, production will increase when more units of variable factors are used with the fixed factor. Law of variable proportion comes under Short run production.



The shape of the short-run production function is explained by the law of diminishing marginal returns or the law of variable proportions.

Law of Variable Proportions:

The law states that; "keeping other factors constant, as more and more units of a variable factor are employed on a fixed factor, output will first increase but beyond a certain point, additional units will result into a decrease in output".

Assumptions of the Law:

- Only one factor is variable and other factors are fixed
- The variable factor units are homogenous
- Input prices remain unchanged
- The technology remains the same at a given point of time.
- The law operates in short-run period only

The Concepts of Total Product, Average Product and Marginal Product:

Total Product:
Total product refers to the total amount (or volume) of output produced with a given amount of input during a given period of time.

Average Product:

Average product refers to the per unit total product of the variable factor (labour).OR it is Output per unit of input.

i.e. $\mathbf{AP} = \frac{\textbf{Total Product}}{\textbf{variable factor}}$

Marginal Product:

Marginal product is the additional output produced by employing an additional unit of a variable factor.

i.e. $\mathbf{MP} = \frac{\textbf{Change in total product}}{\textbf{Change in variable factor}}$ OR $\mathbf{MP} = \frac{\Delta \mathbf{Q}}{\Delta \mathbf{L}}$

Given the table below, Calculate AP and MP

Labor (L)	Total Product (Q)	Average Product (AP=Q/L)	Marginal Product (MP=ΔQ/ΔL)
1	5	5	5
2	15	7.5	10
3	45	15	30
4	73	18.25	28
5	86	17.2	13
6	91	15.2	5
7	91	13	0
8	88	11	-3

A graphical illustration of TP, AP and MP

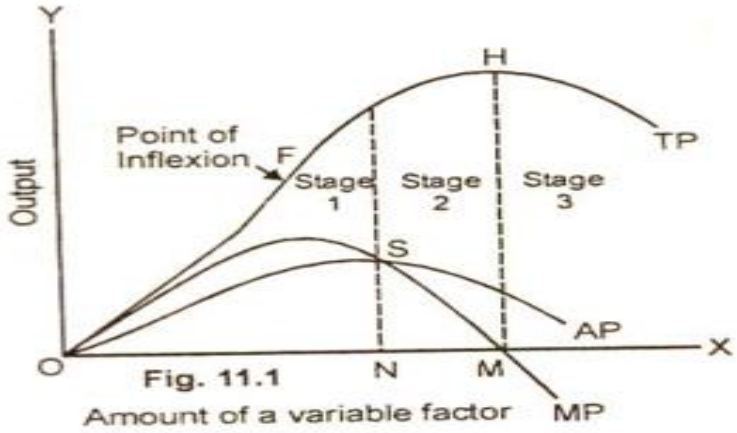


Fig. 11.1

From the above illustration, it can be noted that;

- When TP is increasing, AP is also increasing and MP is positive
- When TP is at maximum, MP is zero

- When TP is falling, MP is negative
- When AP is increasing, MP is above it
- When AP is at maximum, it is equal to MP
- When AP is falling, MP is below it

Regions/Stages of the Production Function

First Region (Intensive region of production)

- This begins from zero to where MP =AP.
- In this region TP, MP, and AP are positive
- The fixed factor is not fully utilized and thus every additional unit of a variable factor increases TP. It is irrational to operate in this region.
- MP reaches its maximum in this region.

Second Region (Economic region of production)

- This starts where MP = AP up to where TP is at maximum and MP=0
- TP is still rising but at decreasing rate.
- MP, AP are still positive but falling
- The fixed factor is fully and efficiently utilized
- This is the economic stage and production should take place in this region

Third region (Extensive region of Production)

- This region starts from where TP is at maximum (and MP =0) on wards.
- TP, AP are declining and MP is negative, the fixed factor is over utilized.
- Every additional unit of a variable factor leads to decline in total output. It is also irrational to operate in this region

Long-Run Production Function:

It refers to production in the long run where all factors become variable. In the long run, production can be increased by increasing units of all the factors simultaneously and in the same proportion. Laws of returns to scale comes under longrun production function.

The Law of Returns to Scale:

The law of returns to scale explains the proportional change in output with respect to proportional change in inputs**.** In other words, the law of returns to scale states when there is a proportionate change in the amounts of inputs, the behavior of output also changes. The degree of change in output varies with change for inputs. For example, an output may change by a large proportion, same proportion, or small proportion with respect to change in input.

Three phases of Returns to Scale

Increasing Returns to Scale:

It occurs when the increase in output is more than proportional to increase in inputs.

For example, if all the inputs are increased by 5%, the output increases by more than 5% i.e. by 10%.

Constant Returns to Scale:

It occurs when the increase in output is proportional to increase in inputs. If we increase all the factors (i.e. scale) in a given proportion, the output will increase in the same proportion i.e. a 5% increase in all the factors will result in an equal proportion of 5% increase in the output

Decreasing Returns to Scale:

It occurs when the increase in output is less than proportional to the increase in inputs.

For example: if all the factors are increased by 5%, the output will increase by less than 5% i.e. by 3%.

Isoquant Curve

An isoquant is a curve showing various combinations of two factor inputs (capital and labor) that produce the same level of output.

Properties of an Isoquant

- An isoquant has a negative slope. This implies that for one factor to increase (***L***), the other (***K***) must reduce
- Isoquants do not intersect
- An isoquant to the right of another represents a higher level of output
- Between any two points on an isoquant, there exist many other points
- Between any two isoquants, there exist many other curves
- Isoquants do not touch either of the axes
- An isoquant is convex to the origin because of the diminishing marginal rate of technical substitution.

Illustration:

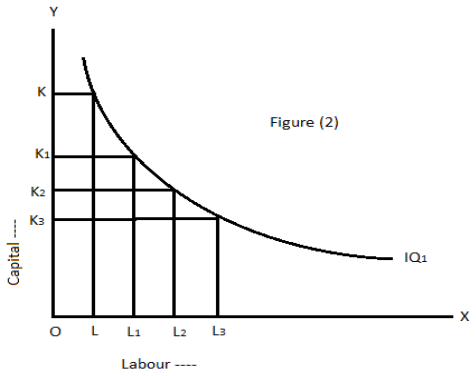


Figure (2)

Isocost Line

An isocost line is a locus of points representing various combinations of two factors, which the firm can buy with a given outlay.

Higher isocost lines represent higher outlays (total cost) and lower isocost lines represent lower outlays.

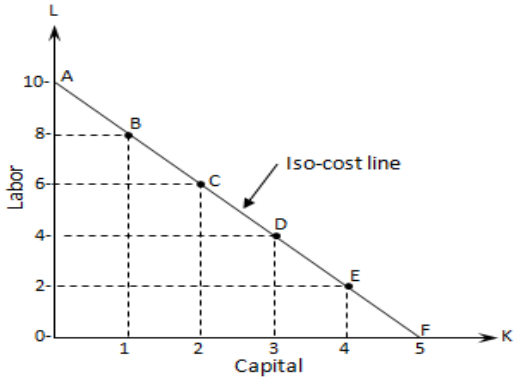
The equation of Isocost Line is $\mathbf{C = P_k.Q_k + P_L.Q_L}$

Where C= Total Cost outlay; P_K= Price of Capital, P_L=Price of Labour, Q_K= Quantity of Capital, Q_L= Quantity of Labour.

Illustration:

Assume that a Producer has a total budget of **$1000**, with which he can buy various combinations of capital and labour. The cost of one unit of capital is **$200** and the cost of one unit of labour is **$100** respectively. The potential set of combinations that can be purchased by the producer are:

Combinations	Quantity of Capital	Quantity of Labour
A	0	10
B	1	8
C	2	6
D	3	4
E	4	2
F	5	0

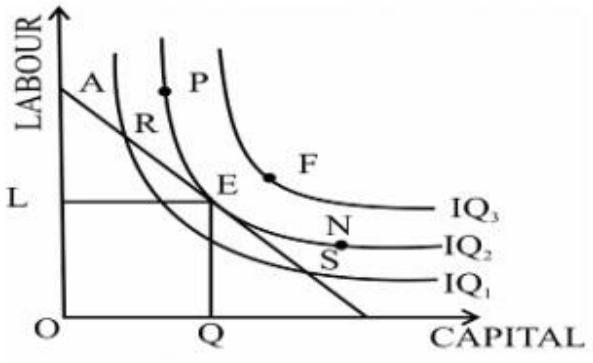


Producers' Equilibrium

Producer equilibrium implies the situation where producer maximizes his output. It is also known as optimum combination of the factors of production.

A producer is in equilibrium when she chooses the combination of two inputs that minimizes costs which is affordable i.e. lies on isocost line and highest affordable isoquant.

Figure Producers' Equilibrium



In the above diagram, **E** is the point of equilibrium, where isoquant is tangential to isocost line. Given isocost line, points '**P', 'N**' and '**F**' are beyond the reach of the producer and points '**R**' and '**S**' on isoquant **IQ1** give less output than the output at the point of equilibrium '**E**' which is on IQ2. The amount spent on combinations **R, E, S** is the same as all the three points lie on the same isocost line. However, the output produced at point **E** is higher as E lies on a higher isoquant. Given the isocost line and the series of isoquants (isoquant-map), a producer will choose that level of output, where a given isocost line is tangential to the highest possible isoquant.

Therefore, the producer is in equilibrium at point **E** where the isoquant is tangential to the isocost line. At this point, the slopes of the isoquant and the isocost line are equal.

Mathematically,

From the slope of isoquant; $MRTS_{\mathrm{L,K}} = \frac{dK}{dL} = -\frac{MP_L}{MP_K}$

And the slope of isocost; $\frac{dK}{dL} = -\frac{w}{r}$

Equating the two slopes, we get the equilibrium condition of the producer

$$\frac{MP_L}{MP_K} = \frac{w}{r}$$

This states that a firm/producer is in equilibrium when she equates the ratio of the marginal productivities of the factor to the ratio of their prices. Dividing w and multiplying MP_K both sides, we obtain another equivalent equilibrium condition

$$\frac{MP_L}{\mathrm{w}} = \frac{MP_K}{r}$$

THE THEORY OF COSTS

Cost refers to the total expenses incurred in the production of a commodity. The functional relationship between cost and output is expressed as 'Cost Function.

Economic theory distinguishes between Short Run (SR) and Long Run Costs (LR). SR costs are costs over a period of time when some Factors of Production (FOP) are fixed e.g. capital, while LR costs are the costs over a period of time when all FOP are variable.

Costs are divided into implicit and explicit costs;

1. **Implicit Costs:**
   These are costs incurred in the production but are not included when calculating profit and losses of a firm. E.g. salary of the firm's owner, own transport, personal premises. They are social costs such as real costs which are being used in production of a given unit of output.

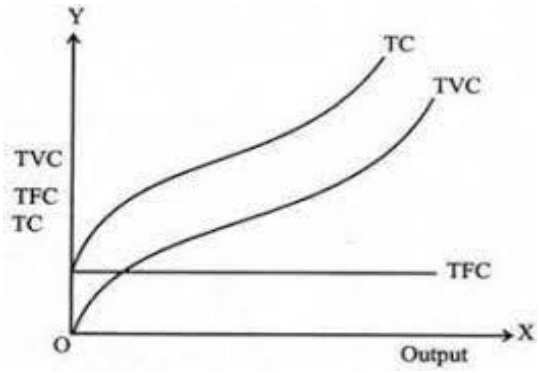
2. **Explicit Costs:**
   These are expenses incurred by the firm and are included in the calculation of the firm's profit and losses e.g. wages and salaries of workers, costs of raw materials, transport costs, etc.

Explicit costs can further be divided into fixed costs, variable costs, total costs, average fixed costs, average variable costs, average total costs and marginal costs.

Total Fixed Costs (TFC):
These are expenses of a firm that do not change with the level of output e.g. rent for business premises, salaries of top management, interest on capital borrowed, insurance premiums, etc. $\mathrm{TFC} = \mathrm{TC} - \mathrm{TVC}$

Total Variable Costs (TVC):
These are expenses of a firm which change with the level of output e.g. transport costs, wages/salaries, costs of raw materials, etc. $\mathrm{TVC} = \mathrm{TC} - \mathrm{TFC}$

Total Costs (TC):
Total cost is the sum of total fixed cost and total variable cost.
TC = TFC + TVC
The relationship between total fixed cost, total variable cost and total cost will be clear from following the Figure:



The total cost does not begin from zero because when output is zero there are still the fixed costs incurred by the firm. Therefore, at output zero the total costs equal to total fixed costs i.e. $TC = TFC$.

In the short run, some factors are fixed and expenses on such factors are fixed costs while other factors are variable so expenses on them are variable costs whereas in the long run all costs are variable because time is long enough to enable firms vary all their factor inputs. The analysis of costs and output relationship in the Short run is based on the law of variable factor proportions.

Marginal Cost (MC):

Marginal Cost is defined as the change in total costs resulting from producing one extra unit of output. In other words, It is the additional cost arising from production of one more unit of output i.e. $\mathbf{MC} = \frac{\Delta \mathbf{TC}}{\Delta \mathbf{Q}}$.

Average Fixed Cost (AFC):

Average fixed cost is the fixed cost per unit of output. It is obtained by dividing the total fixed cost by the number of units of the commodity produced.

$$\mathbf{AFC} = \frac{\mathbf{TFC}}{\mathbf{Q}}$$

Average Variable Cost (AVC):

Average variable cost is the variable cost per unit of output. It is the total variable cost divided by the number of units of output produced.

$$\mathbf{AVC} = \frac{\mathbf{TVC}}{\mathbf{Q}}$$

Diagrammatically, the AVC is 'U' shaped. The law of variable proportions provides the fundamental explanation for the shape of this curve. It means that the AVC curve first falls, reaches a minimum and then begins to increase.

Average Cost (AC):

Average total cost is simply called average cost which is the total cost divided by the number of units of output produced. $\mathbf{AC} = \frac{\boldsymbol{TC}}{\boldsymbol{Q}}$. It is also equal to the sum of average fixed costs and average variable costs i.e. $\boldsymbol{AC} = \boldsymbol{AFC} + \boldsymbol{AVC}$.
The AC curve is also U-shaped due to the law of diminishing marginal returns in the short run and in the long run due to economies and diseconomies of scale.

The Relationship between Short Run Cost Curves (AFC, MC, ATC and AVC)

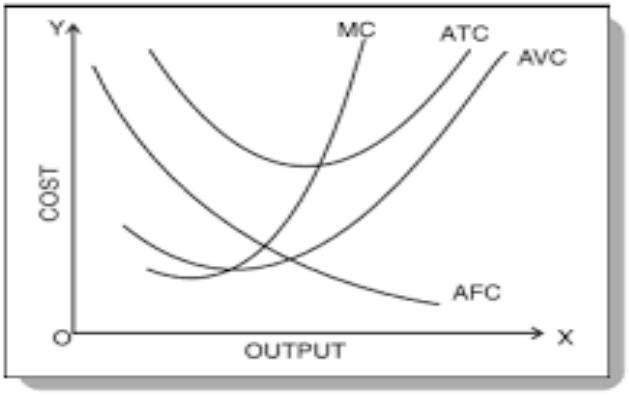
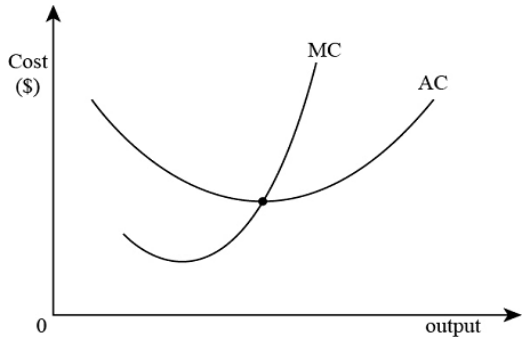


Fig. 1 : Short run Average and Marginal Cost Curves

Explanation:

- The ATC, AVC and MC are all U shaped because of the law of diminishing returns
- The ATC lies above the AVC and AFC curves because it is summation of both the AVC and AFC
- The AVC gets close to the ATC but does not touch it due to the existence of fixed costs. The gap between the two curves represents the AFC.
- The MC cuts the AVC before it cuts the ATC that is the AC is higher than the AVC.
- The MC cuts the AVC and AC curves at their lowest points
- AVC reaches its minimum point at a lower level of output than the ATC. This is because when AVC starts to increase, ATC continues to decline because of the substantial decline in AFC that cannot be outweighed by the increase in AVC until the minimum point of AC.
- When AVC and ATC are declining, the MC is below them and when they are rising, MC is above them.
- The AFC diminishes continuously with the increase in output but does not touch the output axis.

Relationship between Average Cost and Marginal Cost Curves



1) When marginal cost is less than average cost, average cost is falling.
2) When marginal cost is greater than the average cost, average cost is rising.
3) The marginal cost curve must cut the average cost curve at AC's minimum point from below. Thus at the minimum point of AC, MC is equal to AC.

Short run cost schedules

Output (Q)	Total fixed costs(TFC)	Total Variable Costs(TVC)	Total Costs (TC)	Average Fixed Costs(AFC)	Average Variable Cost(AVC)	Average Cost(AC)	Marginal cost(MC)
0	100	0	100	--	--	--	--
10	100	250	350	10	25	35	25
20	100	460	560	5	23	28	21
30	100	660	760	3.3	22	25.3	20
40	100	820	920	2.5	20.5	23	16
50	100	1000	1100	2	20	22	18

Short Run Cost Function

Cost-output relations can be expressed mathematically by the cost function. **C = f (Q)** where, C=Cost and Q=Quantity of output.

The shape of cost curves depends on the nature of the cost function which are derived from actual cost data.

Linear Cost Function.

TC = a + bQ, where **a** = Total Fixed Cost (TFC), **bQ** = Total Variable Cost (TVC)

The Average and Marginal cost functions can be obtained from the Total Cost Function as follows:

Average Cost (AC) = TC = a + bQ = a/Q + b Q / Q

Marginal Cost (MC) = dTC/dQ = b

Quadratic Cost Function. $TC = C = a + bQ + Q^2$

Cubic Cost Function $TC = C = a + bQ - cQ^2 + dQ^3$

Assume that the cost function is empirically and explicitly estimated as:

$$\boldsymbol{TC = 10 + 6Q - 0.9Q^2 + 0.05Q^3}$$

Then;

i. TVC = $\underline{\mathbf{6Q - 0.9Q^2 + 0.05Q^3}}$

ii. AFC = TFC/Q

$$\underline{\mathbf{= 10/Q}}$$

iii. AVC = TVC/Q

$$= 6Q - 0.9Q^2 + 0.05Q^3 /Q$$

$$\underline{\mathbf{= 6 - 0.9Q + 0.05Q^2}}$$

iv. ATC = TC/Q

$$= 10 + 6Q - 0.9Q^2 + 0.05Q^3/Q$$

$$\underline{\mathbf{= 10/Q + 6 - 0.9Q + 0.05Q^2}}$$

v. MC = dTC/dQ

$$\underline{\boldsymbol{= 6 - 1.8Q + 0.15Q^2}}$$

Example;

Quality Cuts is the best beef processor in Jinja City and its total cost function is given as;

$\boldsymbol{TC = 1800 + 500Q^2 + 10Q^3}$**,** where Q is quantity of beef in Kilograms and costs are in Ugandan Shillings. Suppose $\boldsymbol{Q = 3}$**,**

Compute the following

i. The Total fixed costs of Quality cuts

$$\underline{\mathbf{TFC = UGX.\ 1{,}800}}$$

ii. The Total variable costs

$TVC = 500Q^2 + 10Q^3$, but Q = 3

$= 500(3^2) + 10(3^{3)}$

$= 500(9) + 10(27)$

$= 4500 + 270$

$$\underline{\mathbf{= UGX.\ 4{,}770}}$$

iii. Average fixed costs

$$AFC = \frac{TFC}{Q}$$

$$= \frac{1800}{3}$$

= UGX. 600

iv. Average Variable costs

$$AVC = \frac{TVC}{Q}$$

$$= \frac{4770}{3}$$

= UGX. 1,590

v. Average costs

$$AC = \frac{TC}{Q}$$

But TC = TFC + TVC; TFC = 1,800 and TVC = 4,770

Thus TC = 1,800 + 4,770 = 6,570

$$AC = \frac{6570}{3}$$

= UGX. 2,190

vi. Marginal costs

$$MC = \frac{dTC}{dQ}$$

$= 1000Q + 30Q2$

$= 1000(3) + 30(3^2)$

$= 3000 + 30(9)$

$= 3,000 + 270$

= **UGX. 3,270**

Questions;

1. Given KQ company's information in the table below, compute the company's Total fixed costs(TFC), Total variable costs(TVC), average fixed costs(AFC), average variable costs(AVC), average costs(AC) and marginal costs(MC) and complete the table;

Output	TFC	TVC	TC	AFC	AVC	AC	MC
0			60				
1			110				
2			140				
3			165				
4			186				
5			210				
6			240				
7			280				
8			340				

2. Consider a firm whose production cost structure is represented by the following total cost function: $\boldsymbol{C = 180 + 50Q^2 + Q^3}$ where $\boldsymbol{C}$ is the total cost and $\boldsymbol{Q}$ is the output level. It is revealed that the firm produces **9** units of output.

   Determine the value of the firm's
   i. Total variable costs.
   ii. Average fixed costs.
   iii. Average variable costs.
   iv. Average costs.
   v. Marginal costs.

3. Given the cost function of the firm below,
   $\boldsymbol{TC= 600-200Q+350Q^2+30Q^3}$ and that $\boldsymbol{Q=20}$

   Determine the following specific costs of the firm

   i. Total Fixed costs
   ii. Total Variable costs
   iii. Average Variable costs
   iv. Total costs
   v. Average Total costs
   vi. Marginal costs

COSTS IN THE LONG RUN

In the long run, all factors of production are variable. There are no fixed costs because firms can adjust all inputs to find the optimal production scale. Long-run cost analysis focuses on finding the least-cost combination of inputs for different levels of output.

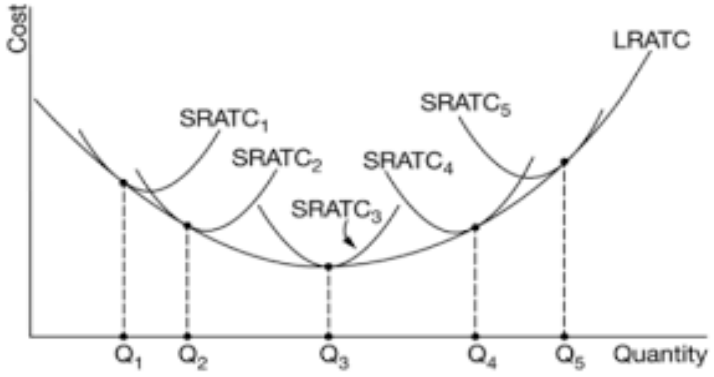
The Long run Average Cost

It is a curve showing a locus of points corresponding to the minimum possible costs of producing a given level of output.

The LRAC is the envelope of multiple SRAC curves, indicating the most cost-efficient way to produce each level of output when the firm can adjust all factors of production.

The LRAC curve is often referred to as the envelope curve because it is formed by tangent points to the series of SRAC (Short-Run Average Cost) curves. Each SRAC curve represents a situation where the firm has a fixed level of capital or some other fixed input. As the firm adjusts its fixed inputs in the long run, the SRAC curves shift, and the LRAC curve traces the lowest possible average cost for each level of output.

The shape of the long run average cost curve is explained by Economies of scale and Diseconomies of scale.



Economies of Scale and Diseconomies of Scale

Economies of scale are the cost advantages that a business obtains due to expansion. These are the advantages gained by an individual firm by increasing its size i.e having larger or more plants.

This fall in average costs as output increases indicates that a business is benefitting from economies of scale.

Economies of scale can be defined as; 'the reduction in average costs of production that occur as a business increases its scale of production'.

We can break down economies of scale into two broad groups – these are internal and external.

Internal Economies of Scale:

These are advantages of scale as the firm expands due to reductions in average cost per unit of output because of increasing internal efficiencies.

Internal economies may be of the following types:

1. **Technical Economies**:
   Technical economies arise to a firm from the use of better machines and superior techniques of production. This increases efficiency and productivity, reducing average costs of output.

2. **Managerial Economies:**
   As businesses grow, they are able to employ specialist managers. This will increase efficiency and thereby reduce the average costs of producing goods and selling the goods or services on offer.

3. **Financial Economies**:
   The large firm is able to secure the necessary finances either for block capital purposes or for working capital needs more easily and cheaply. It can borrow from the public, banks and other financial institutions at relatively cheaper rates. It is in this way that a large firm reaps financial economies.

4. **Marketing Economies**:
   Every part of marketing has cost particularly promotional methods such as advertising and running a sales force. Many of these marketing costs are fixed costs and so as a business gets larger, it is able to spread the cost of marketing over a wider range of products and sales hence cutting the average marketing cost per unit.

5. **Purchasing Economies**:
   Large firms that buy raw materials in bulk and place large orders for capital equipment usually receive discounts. This means that they have paid less for each item purchased. They may receive a better treatment because the suppliers will be anxious to keep such large customers.

6. **Research Economies**:
   A large firm possesses larger resources and can establish its own research laboratory and employ trained research workers. The firm may even invent new production techniques for increasing its output and reducing cost.

7. **Welfare Economies**:
   A large firm can provide better working conditions in-and out-side the factory. Facilities like subsidized canteens, recreation facilities, cheap houses, educational and medical facilities tend to increase the productive efficiency of the workers, which helps in raising production and reducing costs.

8. **Risk-bearing Economies**:
   Larger firms are more likely to have wider product ranges and sell into a wider variety of markets. This reduces the risk in business.

External Economies of Scale:
The advantages of scale that benefit a whole industry and not just an individual business.
Business firm enjoys a number of external economies, which include:

1. **Economies of Information:**
   Firms in an industry share information from different sources e.g. information on market prices, new commodities, exchange rates and other business opportunities. It will benefit all firms and reduction in their costs

2. **Economies of Concentration:**
   When an industry is concentrated in a particular area, all the member firms reap some common economies like skilled labour, improved means of transport and communications, banking and financial services, supply of power and benefits from subsidiaries. All these facilities tend to lower the unit cost of production of all the firms in the industry.

3. **Welfare Economies**:
   An industry is in a better position to provide welfare facilities to the workers. It may establish public health care units, educational institutions both general and technical so that a continuous supply of skilled labour is available to the industry. This will help increase the efficiency of the workers.

4. **Supplier Economies:**
   A network of suppliers may be attracted to an area where a particular industry is growing. The setting up locally of supplier businesses, often in competition with one another, reduces buying costs and allows the use of systems such as Just-in-Time.

5. **Specialization/Linkage Economies**:
   Firms under one industry concentrate on different production stages such that their outputs are used as raw materials of other firms through forward and backward linkages.

Diseconomies of Scale:

These are disadvantages faced by a firm in form of increased average costs resulting from over expansion.

Internal Diseconomies of Scale:

These are disadvantages of a firm as it expands due to unfavorable conditions within the firm.
A firm that increases its scale of operation to a point where it encounters rising long run average costs is said to be experiencing internal diseconomies of scale.

1. **Financial Diseconomies:**
   For expanding business, the entrepreneur needs finance. However, finance may not be easily available in the required amount at the appropriate time. Lack of finance retards the production plans thereby increasing costs of the firm

2. **Managerial Diseconomies:**
   There are difficulties of large-scale management. Supervision becomes a difficult job. Workers do not work efficiently, wastages arise, decision-making becomes difficult, coordination between workers and management disappears and production costs increase.

3. **Technical Diseconomies**:
   Overexpansion of a firm increases the rate depreciation of machines that increases the costs of repair and maintenance hence increased average cost.

4. **Marketing Diseconomies**:
   Continuous expansion of a firm leads to limited domestic market forcing it to export her products and this increases average cost in terms of transport, advertising, trade tariffs, etc.

5. **Advertising Diseconomies**:
   As a firm expands, it tends to take on intensive advertising, which is very expensive.

External Diseconomies of Scale:
These are disadvantages faced by a firm due to the overexpansion of entire industry.

1. **Overcrowding in Industrial Areas:**
   Traffic congestion may occur resulting in late deliveries and staff arriving late for work. Local residents may resent this and public relations may suffer.

2. **Pollution**:
   Many firms in an area discharge too much waste and fumes which degrade the environment and this increases the average cost of waste management to each firm.

3. **Increased Price of Resources:**
   More businesses in an area means increased demand for labour to work in that industry and the best employees may be harder to recruit and keep. Land, services and materials may all become more expensive as the industry grows and demand for such resources increases.

MARKET STRUCTURES

INTRODUCTION:

Ordinarily, the term “market” refers to a particular place where goods are purchased and sold.

In economics the term 'Market' can be defined as any arrangement, system or organization whereby buyers and sellers of goods and services are brought into contact with one another for the purpose of transacting a business.

Characteristics of a Market:

1. Existence of buyers and sellers of the commodity.
2. The establishment of contact between the buyers and sellers. Distance is of no consideration if buyers and sellers could contact each other through the available communication system like telephone, agents, letter correspondence and Internet.
3. Buyers and sellers deal with the same commodity or variety. Since the market in economics is identified on the basis of the commodity, similarity of the product is very essential.
4. There should be a price for the commodity bought and sold in the market.

Definition of Market Structure:

Market structure refers to the nature and degree of competition in the market for goods and services. The structures of market both for goods market and service (factor) market are determined by the nature of competition prevailing in a particular market.

Classification of Market Structures:

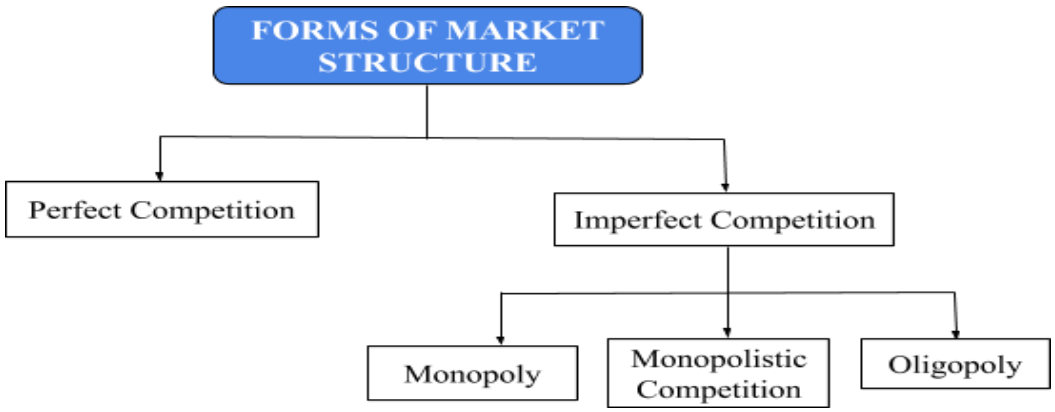
Market structures can be classified according to the following:

1. ***Number of sellers/firms.*** If the number is large, it implies perfect competition or monopolistic completion. If sellers are few, then it implies oligopoly and it is one seller, then it implies monopoly.
2. ***Degree of freedom of entry into production*****.** Free entry implies perfect completion or monopolistic competition while limited entry implies oligopoly and blocked entry implies monopoly.
3. ***Nature of products produced.*** Homogeneity implies perfect competition or perfect oligopoly; product differentiation applies to monopolistic competition or imperfect oligopoly and products without close substitutes apply to monopoly.
4. ***Level of profit in long run*****.** Normal profit implies perfect competition or monopolistic competition while abnormal profit implies monopoly or oligopoly.
5. ***Level of advertisement.*** High and persuasive advertising conforms to monopolistic or oligopoly while informative advertising applies to monopoly. Absence of advertising signifies perfect competition.
6. ***Availability of information*****.** If information is readily available and costless, then it’s a perfectly competitive market structure.

Type of market	*Number of firms*	*Entry of new firms*	*Nature of product*	*Demand curve*	*Level of advertisement*
Perfect competition	Very large	Free	Homogeneous	Perfectly elastic	None
Monopoly	One	Blocked	Unique	Inelastic	Informative
Monopolistic competition	Many	Free	Product differentiation	Elastic	Competitive
Oligopoly	Few	Restricted	Homogeneous/ differentiated	Kinked	Persuasive

Types of Market Structure

On the basis of competition, a market can be classified in the following ways:



Perfect Competition Market Structure

A perfectly competitive market is one in which the number of buyers and sellers is very large, all engaged in buying and selling a homogeneous product without any artificial restrictions and possessing perfect knowledge of market at a time.

Perfect competition is a market situation where there are infinite numbers of sellers that no one is big enough to have any appreciable influence over market price.

According to **R.G. Lipsey**, "Perfect competition is a market structure in which all firms in an industry are price- takers and in which there is freedom of entry into, and exit from, industry."

Characteristics of Perfect Competition:

1) Large Number of Buyers and Sellers
2) Freedom of Entry or Exit of Firms
3) Homogeneous Product
4) Absence of Artificial Restrictions/government interference

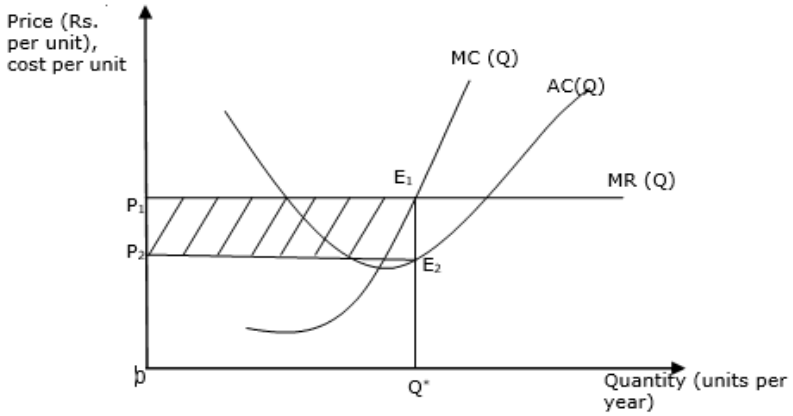
5) Profit Maximisation Goal
6) Perfect Mobility of Goods and Factors of Production
7) Perfect Knowledge of Market Conditions
8) Absence of Transport Costs
9) Absence of Selling Costs/advertising costs

Short Run Equilibrium Price and Output Determination under Perfect Competition

1. Since a firm in the perfectly competitive market is a price-taker, it has to adjust its level of output to maximize its profit. The aim of any producer is to maximize his profit.
2. The short run is a period in which the number and plant size of the firms are fixed. In this period, the firm can produce more only by increasing the variable inputs.
3. As the entry of new firms or exits of the existing firms are not possible in the short-run, the firm in the perfectly competitive market can either earn super-normal profit or incur loss in the short run period.

Short-Run Equilibrium with Super normal Profits

A perfectly competitive firm maximizes profits in the short run where MC=MR. this is illustrated as below;



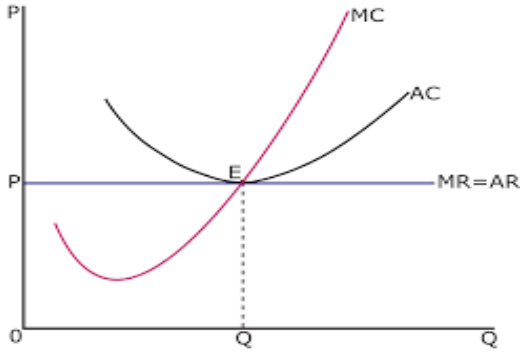
The firm is in equilibrium at point **E_1** where MR = MC and MC curve cuts MR curve from below at the point of equilibrium. Therefore, the firm will be producing O^* level of output. Costs are determined at point E_2 where the output line meets the average cost (AC) and Price is determined at point E_1 where the output line meets AR/demand curve.
The firm earns super normal profits in short run represented by the shaded area by **$P_2P_1E_1E_2$**. This is because AR is greater than AC at equilibrium.

Long run Equilibrium, Price and Output Determination

In the longrun, all factors are variable. The firms can increase their output by increasing the number and plant size of the firms. Moreover, new firms can enter the industry and the existing firms can leave the industry. As a result, all the existing firms will earn only normal profit in the longrun. If

the existing firms earn supernormal profit, the new firms will enter the industry to compete with the existing firms. As a result, the output produced will increase. When the total output increases, the demand for factors of production will increase leading to increase in prices of the factors. This will result in increase in average cost.

On the other side, when the output produced increases, the supply of the product increases. The demand remaining the same, when the supply of the product increases, the price of the product comes down. Hence, the average revenue will come down. A fall in average revenue and the rise in average cost will continue until both become equal **(AR = AC).** Thus, all the perfectly competitive firms will earn normal profit in the longrun.



From the above diagram, the firm is in equilibrium at point **E** where **LMC = MR = AR = LAC**. The long run equilibrium output is **OQ** and the longrun equilibrium price is **OP**. Therefore, the firm earns normal profit at point **E** because Average revenue equals average cost.

Imperfect Competition

Definition: Imperfect competition is a competitive market situation where there are many sellers, but they are selling heterogeneous goods as opposed to the perfect competitive market scenario. As the name suggests, competitive markets that are imperfect in nature.

Description: Imperfect competition is the real world competition. Today some of the industries and sellers follow it to earn surplus profits. In this market scenario, the seller enjoys the luxury of influencing the price in order to earn more profits.

Examples of imperfect markets include Monopoly, Oligopoly, Monopolistic competition, Monopsony, Duopoly.

Monopoly

Monopoly is a market situation where there is only one producer or supplier of a particular good or service that has no close substitute.

Literally, Monopoly implies ‘Mono’ means One and ‘Poly’ means seller. Thus, monopoly means ‘One Seller’ or ‘One Producer’ exist in a market.

Characteristics of Monopoly

The following are the main features or characteristics of monopoly market:

1. ***Single Seller or Producer***: There is only one seller; he can control either price or supply of his product. However, he cannot control demand for the product, as there are many buyers.
2. ***No Close Substitutes*:** There are no close substitutes for the product. The buyers have no alternatives or choice. Either they have to buy the product or go without it.
3. ***Price maker:*** A monopolist is the whole seller of the product with no close substitutes. Therefore, it is industry itself. He is a price-maker, not a price-taker.
4. ***Barriers to Entry****:* There is no freedom to other producers to enter the market as the monopolist is enjoying monopoly power. There are strong barriers for new firms to enter.
5. ***Firm and Industry****:* Under monopoly, there is no difference between a firm and an industry. As there is only one firm, that single firm constitutes the whole industry.
6. ***Inelastic Demand Curve:*** The demand curve (average revenue curve) of monopolist slopes downward from left to right. It means that he can sell more only by lowering price.
7. ***Price Discrimination*:** When a monopolist charges different prices for the same product from different buyers it is case of price discrimination. In monopoly seller can practice price discrimination, as he is single producer of the product.

Types of Monopolies

a) Monopsony:

Monopsony consists of a market condition with only one buyer. It is the opposite of monopoly. In monopsony, the buyer exerts a majority of control over the purchase of a good or a service, which gives them higher power during negotiations.

b) ***Pure or Absolute Monopoly:***

This is one where there is only one producer/seller of a commodity with no substitutes and entry of new firms is completely blocked

c) Bilateral Monopoly:

Bilateral monopoly refers to a market situation in which a single producer (monopolist) of a product faces a single buyer (monopsonist) of that product.

d) ***Statutory Monopoly*:**

Monopoly owned and operated by the government (e.g. military, water and sewage)

e) ***Natural Monopoly*:**

A natural monopoly is a type of monopoly that exists due to the high start-up costs or powerful economies of scale of conducting a business in a specific industry. An example of a natural monopoly is tap water.

f) ***Spatial (Geographical) Monopoly:***

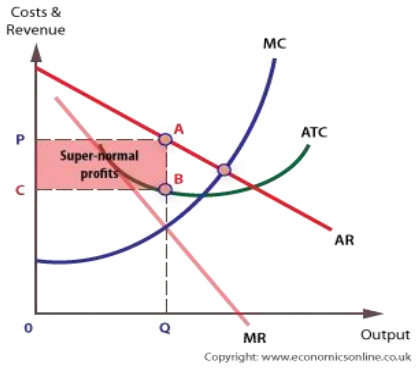
It is monopoly arising from long distance between producers of the product or based on absence of other sellers in a certain geographic area (e.g. gas station or drugstore in small town)

Sources of Monopoly Power

1. ***Control of natural resources***: A monopoly may arise on account of some natural causes. Some minerals are available only in certain regions. For example, South Africa has the monopoly of diamonds. This is natural monopoly.
2. ***Technical Superiority***: Monopoly power may be enjoyed due to technical reasons. A firm may have control over raw materials, technical knowledge, special expertise, scientific secrets and formula that enable a monopolist to produce a commodity. e.g., Coca Cola.
3. ***Large Amount of Initial Capital***: The manufacture of some goods requires a large amount of capital. Not all firms can enter the field because they cannot afford to invest such a large amount of capital. This may give rise to monopoly.
4. ***Act of Parliament***: This is a legal instrument by the government conferring special monopoly on some organization to produce or supply certain goods or services. E.g. public corporations
5. ***Patent rights:*** This law confers on a firm special privilege to protect its new invention.
6. ***Merging of producers***: The merging of producers will make them stronger to be able to eliminate other competitors in the business.
7. ***Protectionism:*** This shields domestic firms from foreign competition hence turning them into monopolists.
8. ***Long distance between producers***: This makes it difficult for customers to travel long distances in search for cheaper alternatives.

Profit Maximization under Monopoly (short run and long run)

A Monopolist maximizes profits by producing equilibrium output at a point where **MC = MR** and when average revenue is greater than average cost. In other words, prices are higher than per unit cost.



From the diagram above, a Monopolist produces the level of output **OQ** and charges price **OP**. At this price, average cost is **OC**. Therefore, the Monopolist earns super normal profits represented by the shaded area (CPAB) as average cost is less than average revenue at equilibrium output. Total Revenue = **OPAQ**, Total Cost = **OPBQ** and Super Normal Profit = **CPAB**.

Monopolist will earn super normal profits in long run because he is the single seller of the product. There is barrier to entry. It will not produce up to optimum capacity.

Advantages of Monopoly

1. Over production is reduced: The monopolist estimates demand more accurately and tries to produce the quantity required by the consumers.
2. Duplication of resources is avoided.
3. There may be greater efficiency and full utilisation of productive resources
4. Production costs and prices may be reduced: Since he is the only producer, he is likely to produce on a larger scale which would lead to lower cost per unit.
5. Monopoly firms have vast financial resources that could be used for research and development. This will enable the firms to innovate quickly.
6. Low-income earners benefit due to price discrimination

Disadvantages of Monopoly

1. Exploitation of consumers: This is made possible since he is the only seller of the commodity
2. It leads to hoarding: The desire for super normal profit by the monopolist may lead to restriction in output and hoarding
3. Decline in efficiency: Due to lack of competition the monopolist may become less innovative and enterprising
4. Restriction of consumers' choice: The monopolist is the only seller available so there are no other options of sellers or similar commodities available
5. Exertion of political interest: Large monopolies could pressurize the government to pass laws to protect their interests.
6. In a country dominated by monopolies, wealth is concentrated in the hands of a few. It will lead to inequality of incomes. This is against the principle of the socialistic pattern of society.

Methods of Controlling Monopoly

1. ***Legislative Method:*** Government can control monopolies by legal actions. Anti-monopoly legislation can been enacted to check the growth of monopoly.
2. ***Controlling Price and Output***: This method can be applied in the case of natural monopolies. Government would fix either price or output or both.
3. ***Taxation:*** Taxation is another method by which the monopolistic power can be prevented or restricted. Government can impose a lump-sum tax on a monopoly firm, irrespective of its level of output. Consequently, its total profit will fall.
4. ***Nationalization:*** Nationalizing big companies is one of the solutions. Government may take over such monopolistic companies, which are exploiting the consumers.
5. ***Consumers' Association***: The growth of monopoly power can also be controlled by encouraging the formation of consumers associations to improve the bargaining power of consumers.
6. ***Provision of substitute products***: Monopolist exist because their products have no substitute products.

7. ***Privatisation***: Private individuals should be encouraged to take over government corporation and agencies in order to eliminate monopoly.
8. ***Stoppage of issuance of patent law:*** The stoppage will encourage more people to compete with the inventor.

Price Discrimination

Price discrimination refers to a situation when a monopolist sells its same product at different prices to different buyers. For this seller can do slight product differentiation.

Forms of Price Discrimination:

1. ***Discrimination according to Income levels***. This is where producers/sellers charge different prices on rich and poor.
2. ***Discrimination according to Age brackets***. In some services adults are highly charged than children e.g. video shows, swimming, transport, etc.
3. ***Discrimination according to Gender or Sex***. In some services men are charged more than women e.g. discotheques.
4. ***Discrimination according to Time of service***. Peak periods are charged highly than the rest of the day e.g. film shows are cheaper in morning than evening, transport fares are high early morning and evening than for other times.
5. ***Discrimination according to Product Differentiation***. First class products are more expensive than lower class products e.g. in air travel first class tickets are more expensive than economy class tickets
6. ***Discrimination according to Geographical location***. Normally people in urban areas are highly charged than those is rural areas.

Conditions of Price Discrimination

Price discrimination is possible only if the following conditions are fulfilled:

1. There should be monopoly of a product or production technique to differentiate price.
2. The demand must not be transferable from the high priced market to the low priced market.
3. There should be consumer ignorance. This is to ensure that consumers do not feel cheated/exploited.
4. Monopolist should divide its market into two or more sub market for price differentiation. It is not possible to charge different price at a same market. It will break the trust of the consumers.
5. There should be low costs of separating markets to enable the monopolist deliver goods cheaply.
6. There should be no government intervention/price control to allow producer control over price.

Monopolistic competition

Monopolistic competition refers to a market situation where there are many firms selling a differentiated product. "There is competition which is keen, though not perfect, among many firms making very similar products." Thus, monopolistic competition refers to competition among a large number of sellers producing close but not perfect substitutes for each other.

Characteristics of Monopolistic Competition

The following are the main characteristics of Monopolistic Competition:

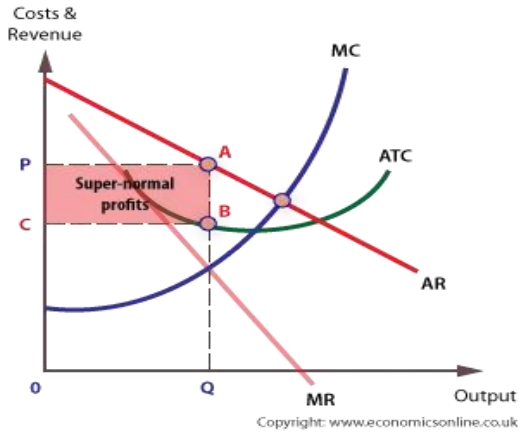
1) Large Number of Firms and Buyers
2) High levels of Persuasive Advertising.
3) Freedom of Entry and Exit of Firms
4) The Demand Curve is Fairly Elastic.
5) Product Differentiation.
6) Firms are Price Makers.
7) Brand loyalty.
8) Independent Behaviour

Short Run Equilibrium in Monopolistic Competition

In short run, an equilibrium of a firm will be in that situation in which (1) MC = MR and (2) MC curve will be cutting MR curve. There can be two conditions of firms in this duration of time: (1) Super Normal Profits, and (2) Minimum Losses.

Super Normal Profits

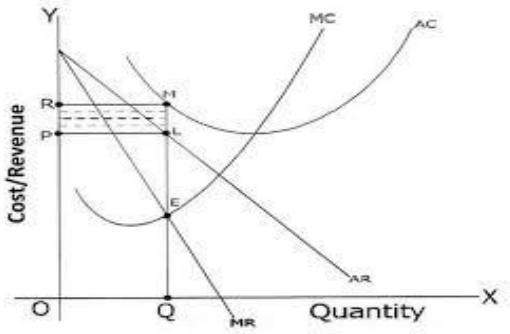
Monopolistic competitive firm maximises super normal profits while producing at equilibrium level of output at a point where Marginal Cost equals marginal Revenue (MC =MR) and when Average Revenue is greater than Average cost (AR > AC) as shown below:



Monopolistic competitive firm will produce OQ level of output and will charge OP price. At this price, average cost is QB = OC. Therefore, the monopolist earns super normal profits represented by the shaded area (CPAB) as average cost is less than average revenue at equilibrium output. Total Revenue = OPAQ, Total Cost = OPBQ and Super Normal Profit = CPAB.

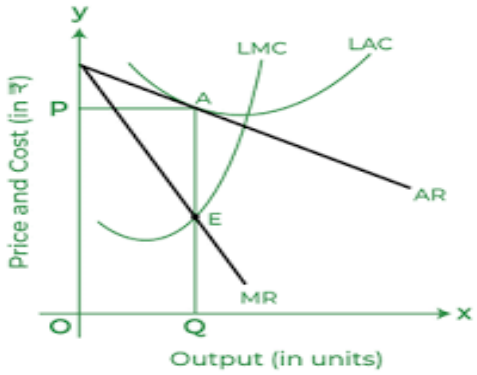
Losses in the Short run

A Monopolistic competitive firm can also incur losses in short-run. This is the minimum loss of firm. Firm will be in equilibrium at point E. At this point, MC = MR and MC curve cuts MR curve from the lower side. In the equilibrium condition, firm will produce output OQ and will charge price OP. The average cost of producing equilibrium quantity is OR. Short-run average cost of firm is more than average revenue (AC > AR). Therefore, the firm will incur losses represented by the shaded area PRML.



Profit Maximization under Monopolistic Competition in Long run

In longrun, firm of monopolistic competition earns normal profits while producing at the equilibrium level of output where Marginal Cost equals Marginal Revenue (MC = MR) and when Average Revenue equals Average cost.



A monopolistic competitive firm will be producing output OQ and will charge the price OP that is equal to average cost (OP). So, in the equilibrium condition, average revenue and long-run average cost (AR = LAC) are equal to each other. Therefore, firms are earning only normal profits. There will be maximum profits of LAC and AR at **'A'**, Point of Tangency. The reason is that on any other cost average cost (AC) is more than average revenue (AR) of long-run average cost curve

(AR) so firm will incur loss. Due to the normal profits obtained by the firm, there will be no encouragement for the entry of new firms in the group and no reason for exit of old firms from the group.

Advantages of Monopolistic Competition

1. Consumers enjoy a variety of products due to product differentiation
2. High quality products are produced due to competition
3. Leads to expansion of firms. This is because abnormal profits earned in short run are ploughed back.
4. Increased employment opportunities due to many firms in the industry
5. Increased resource utilization due to high output produced by many firms
6. Leads to economic growth/increased output due to many firms in the industry
7. Fair prices are charged due to competition
8. Firms are price makers because they have monopoly over their brands

Disadvantages of Monopolistic Competition

1. *Advertisement:* There is a lot of waste in competitive advertisements under monopolistic competition. The wasteful and competitive advertisements lead to high cost to consumers.
2. *Leads to resource wastage*: Introducing too many varieties of a good is another waste of monopolistic competition. The goods differ in size, shape, style and colour.
3. *Leads to unemployment*. Under monopolistic competition, the firms produce less than optimum output. As a result, the productive capacity is not fully utilised.
4. *Inefficient Firms*: Under monopolistic competition, inefficient firms charge prices higher than their marginal cost. Such type of inefficient firms should be kept out of the industry. However, the buyers' preference for such products enables the inefficient firms to continue to exist.
5. *Excess capacity*: In the long run, a monopolistic firm produces an output that is less than the optimum output. This leads to excess capacity that is regarded as waste in monopolistic competition.

Product Differentiation

Product differentiation is the creation of artificial differences among products of the same kind to make them appear different to consumers.

Product differentiation is the main feature of monopolistic competition. Product differentiation means that product of different types, brands, and qualities will be available to customers in a given time period. Product differentiation occurs when buyer of product can differentiate between two products. In this, firms are in large number but their products are different from each other in anyway, but these products are close substitutes of each other. Product differentiation is obtained due to characteristic of product like shape, measurement, colour, durability, quality, packaging, brands, tastes, flavors etc. Dettol,

Oligopoly Market Structure

Oligopoly is a market situation in which there are a few firms selling homogeneous or differentiated products. It is difficult to pinpoint the number of firms in 'competition among the few.' With only a few firms in the market, the action of one firm is likely to affect the others. An oligopoly industry produces either a homogeneous product or heterogeneous products.

Perfect (Pure) Vs. Imperfect (Differential) Oligopoly:

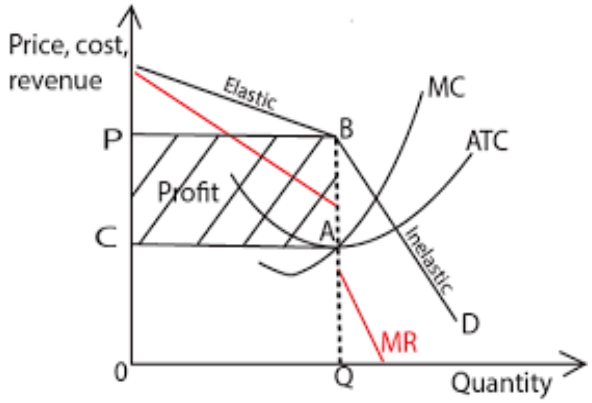
The Oligopoly is perfect or pure when the firms deal in the homogeneous products. Whereas the Oligopoly is said to be imperfect, when the firms deal in heterogeneous products, i.e. products that are close but are not perfect substitutes.

Characteristics of Oligopoly Market Structure

1) Small number of firms/sellers due to limited entry into industry
2) Products produced are either homogenous or differentiated.
3) High level of interdependence in decision-making.
4) Restricted entry into industry.
5) There is intensive use of sales promotion/non-price competition.
6) Price rigidity due to high level of uncertainty and interdependence amongst firms
7) High level of uncertainty
8) Lack of uniformity: Firms differ considerably in size

Output, Price and Profit Maximization under Oligopoly

An Oligopolistic firm maximises profits while producing at the equilibrium level of output where Marginal Cost equals Marginal Revenue (MC = MR) and when Average Revenue equals Average cost. This is illustrated below:



An Oligopolistic firm will produce **OQ** level of output and will charge **OP** price, which is higher than the average costs (OC). Therefore, the oligopolistic earns super normal profits represented by the shaded area (CPBA) as average cost is less than average revenue at equilibrium output. Total Revenue = **OPBQ**, Total Cost = **OCAQ** and Super Normal Profit = **CPBA.**

Advantages of Oligopoly

- Consumers gain from non-price competition. This is because they are given gifts, samples, after sales services, etc
- Lower prices are enjoyed by consumers due to economies of scale enjoyed by oligopoly firms
- Widens consumer choices due to a variety of products produced under imperfect oligopoly
- High quality products are produced due to competition amongst firms
- Creates employment opportunities due to large-scale production.
- Contributes to government revenue through taxation of firms
- Leads to innovations and inventions/technology development. This is due to competition in the market

Disadvantages of Oligopoly

- Distorts consumer choice due to intensive persuasive advertisement.
- High costs of production are incurred due to intensive sales promotion activities.
- Leads to income inequality. This is due to restricted entry as few producers enjoy super normal profits.
- Leads to collapse of inefficient firms due to high level of competition in the market.
- Leads to underutilization of resources because of production at excess capacity.
- Increases resource wastage due to duplication of products.

Non-Price Competition

This is competition amongst rival firms which does not involve changes in prices of goods

Forms of non-price competition used by oligopoly firms

- Use of persuasive advertising.
- Offering free samples.
- Use of attractive packaging.
- Offering gifts.
- Offering of credit facilities/installment selling.
- Quality improvement.

MACROECONOMICS

INTRODUCTION:

Macro Economics is a branch of economics that deals with the performance, structure, and behavior of a national economy as a whole. Macroeconomists seek to understand the determinants of aggregate trends in an economy with particular focus on national income, unemployment, inflation, investment, and international trade. In contrast, microeconomics is primarily focused on the determination of prices and the role of prices in allocating scarce resources.

Definition: Macro Economics is the branch of economics that studies the behavior and performance of an economy as a whole. It focuses on the aggregate changes in the economy such unemployment, growth rate, gross domestic product and inflation.

Note; The most important problems of national economies include-*Unemployment, Inflation,* and *Stagnant production* (GDP) and these relate to the three macroeconomic goals;

- ***To achieve full employment.***
- ***To achieve price stability.***
- ***To achieve sustainable economic growth rate.***

The modern study of macroeconomics is an explanation of and remedy for, economic problems through economic policies. The two most common macroeconomic policies are *Fiscal policy* and *monetary policy*. Fiscal policy seeks to stabilize the business cycle using government expenditures and taxes. Monetary policy seeks to stabilize the business cycle using the money supply and interest rates.

BUSINESS CYCLES

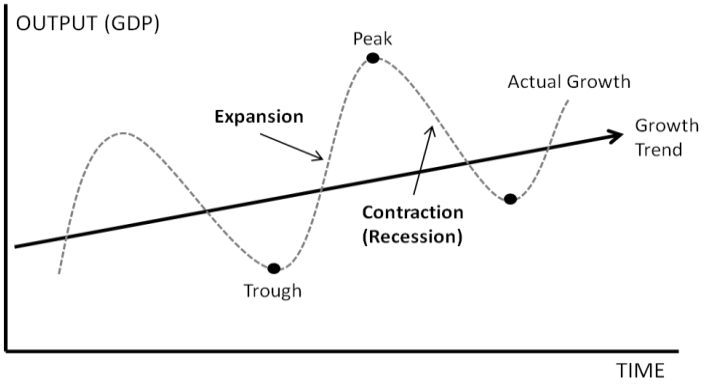
Business cycles or Trade cycles refer to the continuous fluctuations in economic activity in the economy as a whole.

In other words, Business cycle is an alternate expansion and contraction in overall business activities. It is regular fluctuations in income, output and employment, which tend to be self-reinforcing.

A typical business cycle has four distinct phases. These are:

1. Expansion [also Upswing]
2. Peak or Boom
3. Contraction or Recession
4. Trough or Depression

These phases are shown in the following figure:



1. Expansion or Recovery:

The expansion phase is characterized by increase in national output, employment, aggregate demand, capital and consumer expenditure, sales, profits, rising stock prices and bank credit.
This state continues until there is full employment of resources and production is at its maximum possible level using available productive resources.

2. Peak:

A peak is the top of a cycle. At the peak, existing capacity is used to a high degree; labor shortages may even develop especially for labor with key skills. There could be shortages of essential raw materials as well. As shortages develop in more and more markets, a situation of general excess demand develops. Costs rise, but because prices rise too, business remains profitable.

3. **Recession or Contraction:**

A recession, or contraction, is a downturn in economic activity. It commonly defined as a fall in output for two successive quarters. Demand falls and as a result, production and employment fall too. As employment falls so do households' incomes. Profits reduce and some firms encounter financial difficulties. Investments that looked profitable with the expectation of continually rising demand now appear unprofitable.

4. Trough (Depression)

This is the lowest turning point of a business cycle. When the economy is at a trough, there is high unemployed of resources and prices are low; the level of output is low in relation to the economy's capacity to produce. There is therefore a significant amount of unused productive capacity. Business profits are low or negative for some individual companies.

Features of Business Cycles:

Different business cycles differ in duration and intensity. But there are certain features which they commonly exhibit:

a) ***Occur Periodically***

Business cycles occur periodically although they do not exhibit the same regularity. The duration of these cycles varies. The intensity of fluctuations also varies.

b) ***Distinct Phases:***
Business cycles have distinct phases of expansion, peak, contraction and trough. These phases seldom display smoothness and regularity. The length of each phase is also not definite.

c) ***All Sectors are Affected****:*
All major sectors of the economy will face the adverse effects of a business cycle. Some industries like the capital goods industry, consumer goods industry may be disproportionately affected.

d) ***Business Cycles are Synchronic***:
That is, they do not cause changes in any single industry or sector but are of all-embracing character. For example, depression or contraction occur simultaneously in all industries or sectors of the economy.

e) ***Business Cycles are exceedingly Complex Phenomena*****:**
They do not have uniform characteristics and causes. They are caused by varying factors. Therefore, it is nearly impossible to predict or prepare for these business cycles.

f) ***International in Character****:*
Business cycles are contagious and are international in character. They begin in one country and mostly spread to other countries through trade relations.

CAUSES OF BUSINESS CYCLES:

a) Internal Causes

- Fluctuations in Effective Demand
- Fluctuations in investment
- Variations in government spending
- Macroeconomic policies
- Money Supply

b) External Causes

- Wars
- Post War Reconstruction
- Technology shocks
- Natural Factors
- Population growth

NATIONAL INCOME

National income refers to the total monetary value of goods and services produced by an economy in a given time period usually one year. National income may also be defined as aggregate earnings by the different factors of production in form of rent, interest, salaries & wages and profits in a given period usually one year.

SECTORS OF AN ECONOMY

The aggregate sectors of the macro economy reflect key macroeconomic functions. Four aggregate macroeconomic sectors form the foundation for macroeconomic analysis: the *household sector*, the *business sector, government sector,* and *foreign sector*.

Each sector is responsible for a different expenditure on *gross domestic product: Consumption Expenditures* by the household sector, *Investment expenditures* by the business sector, *Government expenditure* by the government sector, and *Foreign sector expenditure (net exports*) by the foreign sector.

- ***Household Sector***: This sector includes the entire, wants-and-needs-satisfying and consuming population of the economy. In a word, it includes everyone, all consumers, all people, and every member of society. It deals with consumption (C).
- ***Business Sector***: This sector contains the *private and profit*-seeking firms in the economy that combine scarce resources to the produce of goods and services. It includes *proprietorships, partnerships, and corporations*. This combines resources for production of goods and services i.e., it deals with investment (I).
- ***Government Sector***: This sector includes all government entities that impose resource allocation decisions, on the rest of the economy. It consists of the three primary levels of *central and local government divisions* responsible for passing and enforcing laws. It deals with regulation (G), controls rules of game and regulates allocation of resources.
- ***Foreign Sector:*** This sector is comprised of everyone and everything transacting business outside the political boundaries of the domestic economy. It includes households, businesses, and governments in other countries engaged in *export and import* business.

MACROECONOMIC MARKETS

There are three sets of markets that make up the macro economy – *product*, *financial* and *resource markets*. These markets exchange three primary types of macroeconomic commodities that include; gross production, legal claims, and factor services. The four macro-economic sectors-household, business, government, and foreign interact through these three sets of markets.

- ***Product Markets***: The product markets also termed as goods or output markets exchange the Production of final goods and services generally referred to as gross domestic product.

The buyers of this production are the four macroeconomic sectors-household, business, government and foreign. The seller of this production is primarily the business sector.

- ***Financial Markets****:* The commodity exchanged through financial markets is legal claims. Legal claims or financial instruments represent ownership of physical assets (capital and other goods). Because the exchange of legal claims involves the counter flow of income, those seeking to save income buy legal claims and those wanting to borrow income sell legal claims.
- ***Resource Markets***: The services of the four factors of production are traded through resource markets. Resource markets, also termed as factor markets are used by business sector to acquire the factor services needed for production. Payment for these factor services then generates income received by the household sector which owns the resources.

BASIC CONCEPTS USED IN NATIONAL INCOME

a) Gross Domestic Product (GDP): This is the total monetary value of goods and services produced within a country's borders in a given period of time usually a year.

GDP = C + I + G

Where **C**: the household sector

I: The business sector

G: The government sector

b) Gross National Product (GNP): This is the total monetary value of goods and services produced by nationals irrespective of where they are located excluding output by foreign nationals in the domestic economy.

GNP = GDP + Net foreign factor income from abroad.

c) Net National product (NNP)

Net national product refers to gross national product, i.e. the total market value of all final goods and services produced by the factors of production of a country during a given time period, minus depreciation. I.e. NNP = GNP – Depreciation.

d) Disposable Income (Y_d)

It is the amount of income available for an individual or household to spend after Tax plus Transfer payments.

$Y_d = Y – T + T_R$

Y_d = Disposable income **Y** = Gross income **T** = Taxes

T_R = Transfer payments.

e) Gross Income:

It is the amount of income available for an individual before Tax plus Transfer payments.

g) Personal Income:

Personal Income is the total money income received by individuals and households of a country from all possible sources before direct taxes.

MEASUREMENT OF NATIONAL INCOME

i) The Income Approach

Under this approach, national income is calculated by adding up all the incomes accruing to basic factors of production used in production of goods and services. The income method records all the incomes received by each sector as a result of transactions that take place over the period of time. This will include incomes received as wages and salaries of employees and the self-employed, money earned by corporations, money received by the government from its activities, interest payments received, and payments from rent and so on. i.e., NY = Rent + Wages + Interest + Profit in respect of the four sectors of the economy. Therefore, ***NY*= C+I+G+X-M.** All transfer payments are excluded in national income measurement to avoid double counting for example, gratuity and pocket money.

ii) The Expenditure Approach

This measures national income at the final expenditure stages. Expenditures include all money spent on goods and services at market prices. These expenditures are computed and added to obtain the total value of products finally sold. Hence, the expenditure approach involves aggregation of the household sector expenditure ***(****consumption*), business firms' expenditure (*investment*), government expenditure (*provision of social services*) including net expenditure in the foreign sector *(X-M).*

***N E* = C + I + G + X – M**

iii) The Value-Added (Output) Approach

Using this approach, the value of national output is obtained as the sum of values added by different firms at successive stages of production. This means that the value added by the firm is equal to the value of the firm's sales minus the value of purchases for its inputs. This difference is equal to its payment to its factors of production.

PROBLEMS OF NATIONAL INCOME MEASUREMENT

1. Definition of income: It is difficult to separate income that accrues to factors of production arising from economic activity and the transfer payments.
2. The problem of double counting: Difficulty of differentiating between intermediate and final goods especially in the product approach.
3. Errors of Omissions: This is due to insufficient statistical data. Some economic activities are not considered (domestic related activities).

4. Errors of Commission: These arise because values of certain activities are not estimated for example, effect of pollution and rate of exploitation of resources. These affect national income figures.
5. Some of the transactions are informal and not recorded for example, smuggling
6. Large subsistence sector (barter exchange)
7. It is a very expensive venture (inadequate funds)
8. Inadequate qualified personnel (statisticians, economists, etc.)

IMPORTANCE OF NATIONAL INCOME

- Used for policy analysis for example, policy on inflation, unemployment, exports and imports.
- For comparison purposes in respect of economic performance between two periods in time.
- For purposes of estimating Per-Capita Income
- The information helps us to show the distribution of income among different sectors of the economy for example, the Household Sector, the Business Sector, government etc.
- For budgeting purposes, allocation of resources to different sectors
- Comparison in standard of living over time
- Comparison of standard of living between two countries
- To compare sector contribution to national economy.

NATIONAL INCOME AND WELFARE

Per-capita income refers to the average income per person in a specific country in a given time period.

Per capita income = $\frac{Total\ national\ income}{Total\ population}$

It may be used to determine the standard of living (welfare) of a given population.

Limitations of Using Per-Capita Income as a Measure of Standards of Living

- Does not take into account the type of goods produced. Some goods such as alcohol, cigarettes, do not directly improve on human welfare but increase national income and hence per capita income.
- Per-capita GDP does not take into account the efforts applied in producing output. Employees could be over worked for example, working twice the normal 8 hours of work.
- Similarly, the impact of economic activity on the environment is not directly taken into account in calculating GDP for instance oil drilling may have negative impact on the environment.
- Per-capita GDP does not take into account many factors that may be important to quality of life, such as the quality of water, sanitation and security from crime which distortions the measure of welfare.
- The per-capita GDP statistics do not consider income distribution.

- Nominal GDP per capita does not account for inflation which is an important determinant of welfare difficult.
- Wrong /inaccurate data from people /income may give wrong /false exaggerated information of the standard of living.
- Difficult to measure welfare as people's wants aspirations /task keeps on changing it time hence this method not best to measure.
- Movements in exchange rates may distort comparison of Per Capita Income from one country to another.
- The black economy and non-monetized sectors contribute to income but their contribution is not recorded.

THE CIRCULAR FLOWS OF INCOME

The circular flow of income describes the movement of goods or services and income among the different sectors of the economy. It illustrates the interdependence of the sectors and the markets to facilitate both real and monetary flow.

The Circular Flow of Income in a Two-Sector Model

The simple circular flow of income shows the relationship between the household sector and Business sector. Specifically, it explains the flow of factors of production from the household Sector to the business sector, goods and services from the business sector to the household Sector and payments for them.

Assumptions of Simple Circular Flow of Income

- No savings by either the household of business sectors
- Assumes that there are only two sectors in the economy
- No government interference in the working of the economy
- It assumes a closed economy (No exports and no imports).
- Whatever is produced by business is consumed by the household
- The households own all factors of production.
- All factor prices are constant.

The circular flow of income in a two-sector model is explained with the help of the following diagram:

The *real flow* refers to the flow of factor services and flow of goods and services. The flow of factor services from the households to the firms and the flow of goods and services from firms to the household is the real flow. The flow of factor services generates money flows in the form of factor payments, which the firms pay the household and similarly the household need to pay the firms for the flow of goods and services. The movement to the money/cash payment from one sector to the other sector corresponding to the real flow is referred to as the *monetary flow*. Thus, the income of one sector becomes the expenditure of the other and the supply of goods and services by one sector becomes the demand of the other sector. The real flow and monetary flow move in a circular manner in an opposite direction.

Keynesian Theory of National Income Determination

According to Keynes, there are different sources of national income, such as government, foreign trade, individuals, businesses and trusts.
For determining national income, Keynes divided the different sources of income into four sectors namely' household sector, business sector, government sector, and foreign sector.

Three models for the determination of national income are shown below.

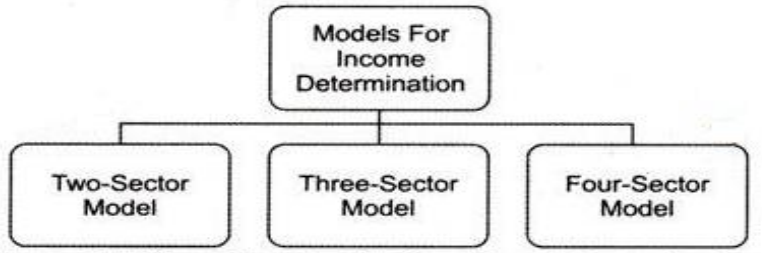


Figure-1: Different Models of National Income Determination

Determination of National Income in Two-Sector Economy:

The determination of level of national income in the two-sector economy is based on an assumption that two-sector economy is an economy where there is no intervention of the government and foreign trade.
Keynes noted that there are two major factors that determine the national income of a country. These two factors are Aggregate Supply (**AS**) and Aggregate Demand (**AD**) of goods and services. In addition, the equilibrium level of national income can be estimated when ***AD=AS***. Before representing the relationship between AS and AD on a graph, let us understand these two concepts in detail.

Aggregate Supply
Aggregate supply refers to the total value of goods and services produced and supplied at particular point of time. It comprises consumer goods and producer goods.

The Keynesian AS curve is drawn based on an assumption that total income is equal to total expenditure. In other words, the total income earned is fully spent on different types of goods and services.

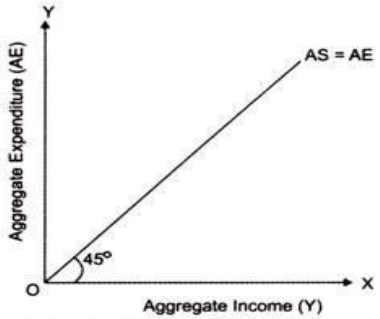


Figure-2: Aggregate Supply Curve

According to Keynesian theory of national income determination, the aggregate income is always equal to consumption and savings.

The formula used for aggregate income determination:

Aggregate Income = Consumption(**C**) + Saving (**S**)

Therefore, the AS schedule is usually called C + S schedule. The AS curve is also named as Aggregate Expenditure (AE) curve.

Aggregate Demand

Aggregate demand refers to the total value of goods and services purchased in a given economy at particular point of time.

AD involves two concepts, namely, AD for consumer goods or consumption (**C**) and aggregate demand for capital goods or investment (**I**).

The aggregate demand function can be expressed as ***AD = C + I***

Where**, C =** Aggregate demand for consumers goods by the household sector

I = Aggregate demand for investment goods by the business sector

Therefore, AD schedule is also termed as C+I schedule. According to Keynes theory of national income determination in short-run investment (I) remains constant throughout the AD schedule, while consumption (C) keeps on changing. Therefore, consumption (C) acts as the major determinant or function of income (Y).

Consumption Function

The consumption function refers to an economic formula that represents the functional relationship between total consumption and income.

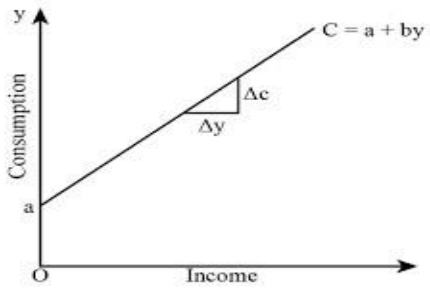
In Keynesian theory framework, consumption is a function of income **C =f(Y).**

However, the consumption function may be denoted as **C = a + bY**

Where ***a*** = Consumption at zero income i.e. autonomous consumption

b = Marginal propensity to consume.

Y= Income



Marginal Propensity to Consume (MPC)

The slope of the consumption function is referred to as MPC. Consumption function is based on the assumption that there is a constant relationship between consumption and income as denoted by **b,** which is marginal propensity to consume. The concept of MPC describes the relationship between the change in consumption and the change in income.

MPC is the proportion of additional income spent on consumer goods and services.

$$MPC = \frac{\Delta C}{\Delta Y} = b$$

Average Propensity to Save (APC)

APC is the ratio of total consumption to total income.

$$\boldsymbol{APS = \frac{C}{Y}}$$

Investment Function

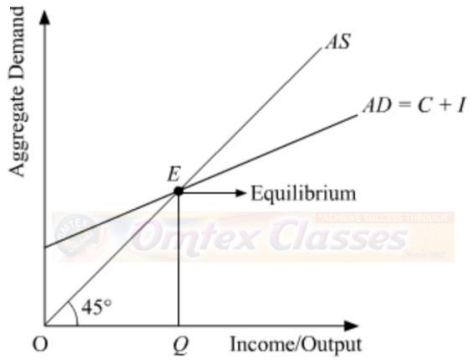
The investment function is a summary of the variables that influence the levels of aggregate investments.

According to Keynes, investment is autonomous. I.e. The level of investment does not depend upon the level of income. $\mathbf{I = I_0}$

Illustration:

Fig. 11.1. *Autonomous Investment*

The Keynesian equilibrium using (AD =AS) is the point of intersection of the aggregate demand and aggregate supply curves as illustrated below:



Saving-Investment Approach

Saving-investment approach refers to the method in which the saving (S) and investment (I) are used for the determination of national income. The condition for achieving equilibrium with the help of saving-investment approach is that the saving and investment are equal (I = S).

According to Keynes, an economy also attains equilibrium when the level of savings equals that of investments. **S = I**

The Saving Function

The savings function shows the level of savings(**S**) at each level of disposable income(**Y**).

The intercept for the saving function (-a) is the negative level of saving at zero level of disposable income. Saving is defined as the part of income, which is not consumed. This is because disposable income is either consumed or saved.

Derivation of the Saving Function

Y = C + S

S = Y – C

Where; Y = Disposable income, C = Consumption, S = Saving

Saving is a function of income. Thus, saving function can be written as S= f(Y)

Let us take the Keynesian consumption,

C = a + bY.

We can derive saving function corresponding to it.

Since Y = C + S

S = Y – C

Now, substituting the above Keynesian function for C in the previous equation

S = Y – (a + bY)

= Y – a – bY

= – a + Y – bY

= **– a + Y(1 – b)**

-a implies that consumption at zero income leads to a reduction in level of past savings.

1-b is the MPS.

Marginal Propensity to Save (MPS)

The slope of the saving function is called MPS. If a one-unit increase in disposable income leads to b units in consumption, the remainder (1-b) is the increase in savings. The increment of saving per unit increase in disposable income (1-b) is called the Marginal propensity to save.

MPS is the additional saving resulting from an additional unit of income.

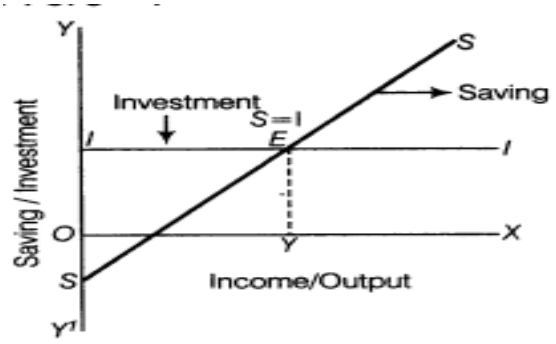
$$\boldsymbol{MPC} = \frac{\Delta S}{\Delta Y} \boldsymbol{= 1\text{-}b}$$

Average Propensity to Save (APC)

APS is the fraction of total income that is saved OR the ratio of total savings to total income.

$$\boldsymbol{APS} = \frac{S}{Y}$$

The Keynesian equilibrium using savings and investment approach is obtained at the point of intersection of the investment and saving functions (illustration)



The Concept of Inflationary and Deflationary Gaps

An inflationary gap refers to an economic situation where output at full employment falls short of output at equilibrium.ie a situation where the economy experiences unemployment above equilibrium level of output **AD > AS** at $\mathbf{Y_f}$

Note: Income at full employment **(Y_f)** refers to a situation when all resources are being fully utilised i.e. AD = AS

Illustration

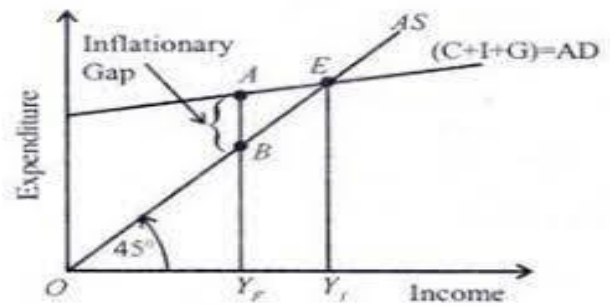
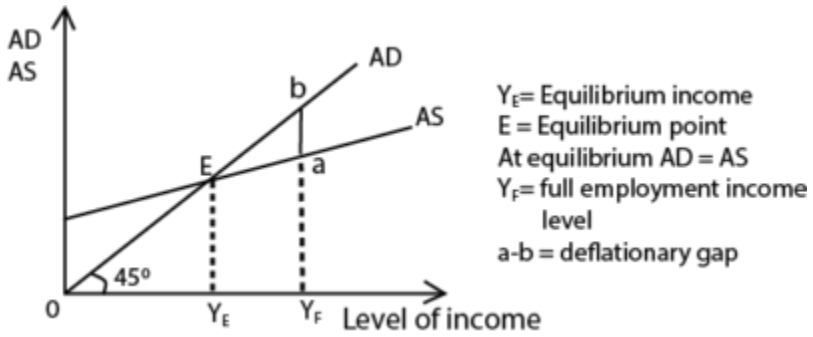


Fig. 5

A deflationary gap refers to an economic situation where output at full employment is greater than of output at equilibrium. Economy experiences unemployment below equilibrium level of output is AS > AD at Y_f

Illustration



Qn*:* Discuss the policy measures that can be undertaken by the government to close inflationary and deflationary gaps.

Derivation of Equilibrium Income in the Two-Sector Model

At equilibrium;

AD=AS…….. (i)

But AD=C+I……. (ii)

AS=Y…….. (iii)

Substituting (iii) and (ii) into (i)

C+I=Y……. (iv)

But C=a+bY…… (v)

I=Io…… (vi)

Substituting v and vi into iv.

a+bY+Io=Y……. (vii)

Collecting like terms.

a+Io=Y-bY…… (viii)

$\frac{a+Io}{1-b} = \frac{Y(1-b)}{1-b}$…….. (ix)

$$\mathbf{Y_e} = \frac{a+Io}{1-b}$$

Example:

In a small economy, the consumption function is given as **C = 20 + 0.4Y** and Investment **(I) = 10**, determine the following;

i. Equilibrium level of national Income

ii. Level of Saving

iii. Level of consumption

iv. Average propensity to consume

v. Investment Multiplier

Assignment:

Uganda's economy is still challenged by low levels of capital accumulation characterized by the culture of consumerism. Recent studies have revealed that Uganda's Marginal Propensity to Consume (MPC) is very high which deprives Ugandans of the ability to save. Suppose that Uganda is a two-sector economy described by $\boldsymbol{S = -100 + 0.2Y}$ and $\boldsymbol{I = 500}$ (numbers in US Dollars). Where $\boldsymbol{S}$ is the Savings, $\boldsymbol{I}$ is investment and $\boldsymbol{Y}$ is National Income. Use the information above to:

i. Derive the Consumption Function.

ii. Find the equilibrium level of National income.

iii. Find Marginal Propensity to Consume and Marginal Propensity to Save.

THE THREE-SECTOR MODEL

The three sector model analyses aggregate demand and supply issues comprising of the House hold sector (c), the Business sector (I) and the Government sector (G). Including the government sector in the model affects the level of aggregate demand through taxation and deficit financing (government expenditure). However, government expenditure is said to be autonomous (***Go***). While taxes are partly autonomous (***To)*** and partly as a result of the proportion of change in income that is taxed (***tY***)

Hence $\mathbf{T = T_0 + tY}$

Where;

T= Total Tax revenue to Government.

To = Tax revenue to Government from other sources other than income.

t= Marginal propensity to tax (MPT).

Further, in the three-sector model, consumption expenditure is subject to disposable income

Ie. $\mathbf{C = a + bY_d}$

Derivation of Equilibrium Income in the Three-Sector Model.

At equilibrium;

AS = AD

But AS = Y

AD = C + I + G

Y = C + I + G

But $\mathbf{C} = a + bY$, $\mathbf{Y_d} = Y - T + TR$, $\mathbf{T} = T_0 + tY$, $\mathbf{TR} = TR_0$, $\mathbf{I} = I_0$, $\mathbf{G} = G_0$.

$Y = a + b(Y - T_0 - Ty + TR_0) + I_0 + G_0$

$Y = a + bY - bT_0 - btY + bTR_0 + I_0 + G_0$

$Y - bY + btY = a - bT_0 + bTR_0 + I_0 + G_0$

$Y(1-b+bt) = a - bT_0 + bTR_0 + I_0 + G_0$

$$\mathbf{Y_e = \frac{a - bTo + bTRo + Io + Go}{1 - b + bt}}$$

THE CONCEPT OF MULTIPLIERS

A multiplier is the number of times an initial change in autonomous expenditure multiplies itself to generate a given level of national output/income. In other words, it measures how national output changes due to a given change in autonomous spending.

Multipliers in a Two-Sector Economy

In a two-sector model, we have the investment multiplier. It refers to the number of times investment expenditure multiplies itself to generate a given level of income

Formula; $\boldsymbol{\frac{\Delta Y_e}{\Delta I_o} = \frac{1}{1-b}}$

Note: An investment multiplier is positive and this is because an increase in investment expenditure leads to an increase in national income

E.g., C=200+ 0.8Y, I=250

a. Determine the investment multiplier
b. The APC and APC
c. The MPC and MPS

Multipliers in a Three-Sector Economy

There are four common measures of multipliers in a three-sector model i.e. the government multiplier, tax multiplier and transfer payments multiplier

The Government Multiplier

It refers to the number of times a change in autonomous government expenditure multiplies itself to generate a given level of income.

Formula $\boldsymbol{\frac{\Delta Y_e}{\Delta G_o} = \frac{1}{1-b+bt}}$

The Tax Multiplier

It refers to the number of times an initial change in autonomous tax multiplies itself to generate a given level of income-***(***reduce taxes to stimulate consumption and expenditure thus increase national income)

Formula; $\boldsymbol{\frac{\Delta Y_e}{\Delta T_o} = \frac{-b}{1-b+bt}}$

The Transfer Payments Multiplier

It refers to the number of times an initial change in autonomous transfer payment multiplies itself to generate a given level of income

Formula; $\frac{\Delta Y_e}{\Delta TR_o} = \frac{b}{1-b+bt}$

Examples

1. Given the macroeconomic model of a closed economy below;
   C = 400 + 0.8Yd, I = 500, T = 100+0.25Y and G = 980. Where C is consumption expenditure, Yd is disposable income, I is investment expenditure, T is tax revenue and G is your government spending on goods and services.
   Determine the following;
   i) Equilibrium level of national income
   ii) Disposable income
   iii) Level of consumption expenditure
   iv) Autonomous spending
   v) Tax multiplier
   vi) Government budget position

2. Given that **C = 4500 + 0.2Y^d, Io = 3000, Go = 2500, TR_0 = 1500** and Tax revenue **T = 3000 + 0.3Y**, all values in billions of shillings.
   Determine the following;
   i) Equilibrium level of income
   ii) Consumption expenditure
   iii) Amount of saving
   iv) Disposable income
   v) Government revenue
   vi) Government budget position
3. An economy is characterized by the following three sector macroeconomic equations

   $\mathbf{C = 600 + \frac{4}{5}Y^d}$

   $\mathbf{I = 400}$

   $\mathbf{G = 200}$

   $\mathbf{T = 300+\frac{1}{3}Y}$

   Using the information above answer the following questions.
   i) Compute the equilibrium national income
   ii) Calculate the consumption expenditure
   iii) What is the value of marginal propensity to consume
   iv) What is the value of the tax multiplier

MONEY AND BANKING

MONEY

Money is defined as an asset that is widely accepted in payment in the exchange of goods and services or repayment of debts.

Functions of money:

1. *Money acts as a medium of exchange or means of payment*. Without money, transactions would rely on barter trade.
2. *It serves as a unit of account*: a unit of account is how we measure price (value) of goods. This allows for a quick comparison of prices across goods.
3. *It is a standard of deferred payment* i.e.; it facilitates payment of debts and transactions at a future date.
4. *It is a store of value*. If money is to be valuable for transactions, it must retain value over time.

QUALITIES OR CHARACTERISTICS OF GOOD MONEY

a. ***Acceptability***; money must be generally accepted i.e. People should have confidence in it.

b. ***Durability***; money must be long lasting. This implies therefore that perishable items are vulnerable to deterioration in physical quality and value and they cannot as such serve as money.

c. ***Divisibility***; money should be divisible into smaller denominations or units in order to enable the payment of smaller debts or financial obligations.

d. ***Portability***; money should be easily carried (portable) or transferable from one place to another.

e. ***Homogeneity***; money should be similar in looking and nature in order to enable it to be easily recognized. Change of materials out of which money is made can encourage forgery for money.

f. ***Scarcity;*** items used, as money must be generally scarce and difficult to obtain. This will make money retain its value and services as a store of wealth.

g. ***Legal tender***: If anything is to be called money, it should be issued by the central bank in order to remain legal tender. It is money because gov't says so.

Evolution of Money:

1. Barter trade

Before money, there was barter trade or exchange—the exchange of goods and services for goods and services.

Limitations:

Lack of double coincidence of wants
Barter transactions can be possible only when two persons desiring exchange of commodities should have such commodities that are mutually needed by each other. However, it is very difficult to find such persons where there is coincidence of wants.

Lack of division:
The second difficulty of barter exchange relates to the exchange of such commodities that cannot be divided.

Lack of a common measure of value:
The biggest problem in the barter exchange was the lack of common measure of value i.e., there was no such commodity in lieu of which all commodities could be bought and sold. In such a situation, while facilitating the exchange of a commodity its value was to be expressed in all commodities. It was a very difficult proposition and made exchange virtually impossible.

Lack of Store of Value:
In a barter economy, the store of value could be done only in the form of commodities. However, commodities are perishable and they cannot be kept for a long time in the store. Because of this difficulty, the accumulation of capital or store of value was very difficult.

2. **Commodity money:**

This is a means of payment in terms of an actual good. In the early days, commodity included;

- Silk, ivory, fur, beads, butter, pieces of silver and gold etc according to different places and time.
- Commodity money in form of silver and gold coins.

Commodity money is unique because it has an intrinsic value. However, all the above had uses other than money and thus people could consume them. To prevent this, government made fiat money.

3. **Fiat money (currency):** fiat money is money in form of coins or paper and it has little or no intrinsic value but its purchasing power depends of the backing by government hence legal tender.
4. **Deposit money:** This is money kept in banks and against which cheques can be drawn or credit and debit cards used. They serve as money because through drawing cheques on them or ordering a transfer, they can be used to make payments for goods and services
5. **Electronic money:** or e-money is money that exists only in banking computer systems and is not held in any physical form e.g., money on debit and credit cards and other electronic funds transfers.

DEMAND FOR MONEY:
Demand for money is the desire to hold money in cash other than other forms. It is based on the following theories:

- The classical theory or quantity theory of money
- The Keynesian or liquidity preference theory

The Quantity Theory of Money

People hold money to buy goods and services. The more money they need for such transactions the more money they hold. Thus, the quantity of money in the economy is closely related to the number of shilling exchanges in transactions.

The quantity theory of money states that; "a change in the quantity of money leads to an equal proportional change in the level of prices."
The link between transactions and money is expressed in the quantity equation:
MV = PT
Where:
M = Money stock i.e. the amount of money in circulation
V = Velocity of money i.e. the speed at which money change hands
P = Price level prevailing in an economy
T = Level of transaction in a given time period.
Advanced by Irving Fisher, the quantity theory of money assumes **M** and **P** to be variables while **V** and **T** are assumed to be constants. As a result: $M = \frac{PT}{V}$
Fisher estimated that M = P when V and T are held constant.

Assumptions of the theory

- Assumes that velocity of money (V) remains constant.
- Assumes that the price level (P) does not change by itself.
- T also remains constant and is independent of other factors such as M and V.
- Assumes 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.

Criticisms of the Theory

- This theory was criticized by modern economists led by A.C Pigou. They believe that money demand is a function of wealth i.e., the more one becomes wealthier the more he/she demands for money. This fact was ignored by the quantity theory.

- The theory ignores the effect of interest rates on money demand. Money demand is a function of interest rate and the rate of time preference. When the interest rate is high people are compelled to keep money in bank and thus there will be low demand for money while when the rate of interest is low money will be highly demanded. High time preference one wants to spend now.

- The theory assumes the velocity of circulation of money to be constant, when in fact it is not. The velocity of circulation of money fluctuates quite a lot.
- In Fisher's version, money is needed only for transaction purposes. It ignores the fact that money is also used as a store of value and for speculative activities.
- Fisher only explains that change in M results in a change in P. However, he does not explicitly specify the process by which M affects P.

Keynesian Theory of Money Demand

This theory is at times referred to as the Liquidity Preference Theory. It was advanced by John Keynes who identified three motives of keeping money in liquid (cash) form. These include;

- ***The transactions motive*;** Money under this motive is demanded for day-to-day transactions e.g. transport costs, food requirements, purchase and sale of goods and services etc. This motive is divided into income motive (for households) and business motive (for firms).
- ***The precautionary motive*:** Under this motive, money is demanded to provide security against future uncertainties e.g. sickness, accidents. To the side of business firms; they may need cash unexpectedly to finance certain increases in the price of certain inputs they use. The money needed for precautionary motive is also a function of one's income.
- ***Speculative motive*;** under this motive, people demand money to make profit for holding money. This motive depends on interest rate prevailing in the economy at a time.

MONEY SUPPLY

This is the sum of currency (coins and paper money) held by the public and deposits at banks.

Measures of money supply

Broadly, money is measured as narrow money and Broad money.

(i) **Narrow money:** This is measured by M1. Narrow money consists of the most liquid assets: currency in circulation, demand deposits (checking accounts) and travelers' checks. All these assets can be immediately converted into money.

Therefore **M1 = CC + DD+TC**

Where CC = currency in circulation

DD = Demand deposits held by commercial banks

TC=Travelers' checks

(ii) **Broad money**: This is measured by M2 and sometimes M3. *M2* consists of M1 plus other less-liquid assets, such as time deposits and savings. Thus **M2 = M1 + TD + SD**

Where M1 is narrow money

TD = Time deposits

SD = Savings deposits

In the case of developed economies, money is defined as **M3 = M2 + FD,** where FD = Foreign Deposits.

THE CENTRAL BANK AND ITS FUNCTIONS

The central bank is the monetary authority of a country and aims at promoting economic stability and development. The CB enjoys special status in the banking structure of the economy. The principles on which it is run differ from ordinary banking principles. As ordinary banks are run for profits, the central bank is primarily meant to promote financial and economic stability in the country. The guiding principle of a central bank is that it should act only in the public interest and for the welfare of the country without regard to profit as the primary consideration. Earning profits by the central bank is thus a secondary consideration.

Functions of Central Banks

- Issuing currency
- Stabilizes the economy through its monetary policies
- Acts as a banker to the government
- It acts as a banker to other banks
- It is a lender of last resort i.e., to commercial banks and government.
- It regulates the interest rate through central bank rate/ bank rate
- It controls credit through setting cash ratio/cash reserve requirement
- Acts as adviser to government on the monetary policy
- Regulates the financial system and enforces regulation on financial institutions.
- Promotes development of the financial sector e.g., establishes stock markets and financial institutions.
- Manages the country's foreign exchange.

Monetary Policy

Monetary policy entails regulation of money supply and interest rates by the central bank to attain monetary policy objectives such as stabilization of output and prices. The CB uses its monetary policy tools/instruments to stabilize the economy. The various tools/instruments of monetary policy include:

1) **Bank Rate**: This is the minimum interest rate at which the central bank provides loans to commercial banks. Increase in bank rate increases the interest rates, and demand for credit gets reduced. On the other hand, decrease in bank rate lowers the rate of interest and credit becomes cheap, and demand for credit expands.

2) **Open Market Operations OMO**: This refers to the purchase and sale of government securities (treasury bills and bonds) by the central bank. Selling securities to the market is a Contractionary monetary policy i.e. reduces the aggregate demand. When the central bank buys securities from the market, the policy is an expansionary monetary policy. This increases money supply in the market and therefore aggregate demand.

3) **Legal Reserve Requirement:** This is the amount of money commercial banks are supposed to deposit with the central bank. A reduction in the reserve ratio will lead to an increase in the number of deposits held by the bank and vice versa.

4) **Minimum Reserve Ratio:** Minimum reserve ratio refers to the minimum percentage of a bank total deposit which is required to be kept with the central bank. The central bank has the authority to vary the cash ratio depending on what it wants to achieve, e.g., lower the cash ratio to increase money available to borrowers and vice versa.

5) **Selective Credit Control**

The policy dwells on the selection of those sectors in the economy that are responsible for economic instability or those that need assistance economically. It undertakes directives given by the central bank on to commercial banks to extend or not to extend or if they must, it should be on a discriminatory basis with regard to priority sectors (Productive sectors) and unproductive sectors. Discriminatory credit extension is also called credit rationing.

6) **Margin Requirement**

Margin is the difference between the market value of a security and its maximum loan value. If central bank wants to reduce money supply, it increases the margin requirement thereby discourages borrowing. This leads to reduction is money supply for undertaking speculative activities and thus inflationary situation is controlled. On other contrary, central bank can encourage borrowing from the commercial banks by reducing the margin requirement.

7) **Moral Suasion**:

Moral suasion means persuasion and request. To arrest inflationary situation central bank persuades and request the commercial banks to refrain from giving loans for speculative and non-essential purposes. On the other hand, to counteract deflation central bank persuades the commercial banks to extend credit for different purposes.

8) **Direct Action:**

This method is adopted when a commercial bank does not co-operate with the central bank in achieving its desirable objectives. Direct action may take any of the following forms:

- Central banks may charge a penal rate of interest over and above the bank rate upon the defaulting banks.
- Central bank may refuse to rediscount the bills of those banks which are not following its directives.

COMMERCIAL BANKS

Commercial banks are business organizations that seek to maximize profit by essentially dealing in credit or borrowing funds. They accept deposits from the surplus spending units and make profits through lending to the deficit spending unit.

Functions of Commercial Banks

- They accept and provide custody of deposits from customers
- Advances loans and overdrafts to customers. These loans can be short term, medium term or sometimes-long term. It is out of these loans that commercial banks create credit.
- Facilitates easy and quick means of settling obligations by use of cheques, standing orders, bank drafts etc.
- All commercial banks perform the important functions of creating credit.
- Provides custody for customers valuable possessions
- They provide employment opportunities.

Credit Creation

This is the process by which the money supply of a country is expanded. Credit creation is the multiple expansions of banks demand deposits.

Assumptions:

- *Four bank branches. A, B, C & D*
- *Initial deposit of 500,000/=*
- *Commercial banks are subjected to cash reserve requirements (cr) = 20%*
- *All transactions take place in banks.*
- *There is no hoarding of money to the non-bank public i.e., no leakages from the banking system.*

How is credit created at the end of the is determined as follows;

Illustration of the credit creation process

Bank branches	***New deposit***	***Cash ratio (20%)***	***New loan***
A	500,000	100,000	400,000
B	400,000	80,000	320,000
C	320,000	64,000	256,000
D	256,000	51,200	204,800

a) Compute the final deposit and actual deposit.

$$\text{Final Deposit} = \frac{\textit{Initial deposit}}{\textit{cash ratio}}$$

$$\text{FD} = \frac{500{,}000}{0.2}$$

$$= \underline{\mathbf{2{,}500{,}000}}$$

Actual deposit = Final deposit (FD) – Initial deposit (ID)

= 2,500,000 -500,000

=2,000,000

NB: Credit multiplier is the number of times the initial deposit multiplies itself to give the final deposit.

Assignment:

Assuming a particular bank has branches A, B, C, D and E with initial deposit of $20,000 cash ratio (Cr) of 10% and that all transactions take place in the banks. Illustrate the credit creation process and compute the Actual credit created at the end of the process.

Factors limiting credit creation in Uganda.

- The reserve ratio requirement; if it is high, credit creation is limited.
- Liquidity preference: If it is high, less credit will be created
- Credit worthiness: If banks are lending to individuals who are not able to pay back, less money will be created.
- Availability and accessibility of banking system in a country.
- Many people are poor hence low level of savings with banks.
- Low interest rates offered on customers deposits. This discourages saving and thus less initial deposits are available to facilitate credit creation process.
- Most people lack information on commercial banks services, so they don't use them.
- Large subsistence sector which is not monetized hence exchange is still effected through barter trade limiting bank services.
- Unstable political climate discourages investors; hence low demand for loans from commercial banks.

INTERNATIONAL TRADE

International trade is trade that takes place between two different nations, as opposed to *intra-country* trade (trade within the country). It involves the buying and selling of goods and services across national borders. In this case, there is interdependence among nations.
An economy that engages in international trade is an *open economy*. A country that does not involve in trade is called *closed economy* and situation in which a country conducts no foreign trade is called *autarky*. The advantages, which are gained from trade with other country called the *gains from trade*.

THE THEORIES OF INTERNATIONAL TRADE

The Theory of Absolute Advantage (by Adam Smith)

Adam Smith argued that a country has an absolute advantage in the production of a product when it is more efficient than any other country producing it.
The theory of absolute advantage states that; "a country should specialize in ***production and export*** of that commodity in which it is more ***efficient*** compared to others". Countries should therefore specialize in production of commodities in which they have absolute advantage in cost of production.
In economics, principle of absolute advantage refers to the ability of a party (an individual, or firm, or country) to produce more of a good or service than competitors, using the same amount of resources.

Assumptions of the Theory:

- Trade is between two countries
- Only two commodities are traded
- Free Trade exists between the countries
- The only element of cost of production is labour

For Example:
The table below shows production of coffee and cotton in tones, in both Uganda and Tanzania.
Assume 1 hour of labor is employed to produce each output of each commodity in the two countries.

Assume 1 hour of labour input

Commodity	***Uganda***	***Tanzania***
Coffee	8	2
Cotton	4	6

According to the table above, ***Uganda*** is more efficient in production of ***coffee*** compared to Tanzania, whereas ***Tanzania*** is more efficient in production of ***cotton*** compared to Uganda.

Therefore, Uganda should specialize in production of ***coffee*** in which it has absolute advantage and Tanzania in cotton and the two can gainfully trade with one another.

The Theory of Comparative Advantage:

The theory was developed by a classical economist David Ricardo. According to this theory, the international trade between two countries is possible only if each of them has comparative cost advantage in the production of at least one commodity

It states; "each country should specialize in the production and export the commodity in which it incurs the least opportunity cost compared to the trading partner nation".

Therefore, when a country enters into trade with some other country, it will export those commodities in which its comparative production costs are less, and will import those commodities in which its comparative production costs are high.

Assumptions of the Theory:

- There are only two countries and they produce two commodities
- Labour is the only factor of production and cost of production is measured in terms of labour units
- All units of labour are homogenous
- There is free trade between the nations
- Production is subject to law of constant returns or costs
- There is full employment in countries engaged in international trade
- No transport costs are involved in carrying trade between the two countries.
- There is perfect competition both in the goods market and factor market
- There is perfect mobility of labor within each country but immobility between the two nations
- Trade between the two countries takes place on the basis of the barter system.

The Table below indicates that Uganda has a clear Absolute advantage in production of *coffee* and *cotton* and there would be no need for specialization and trade according to Adam Smith. However, Ricardo's theory of comparative advantage postulates that specialization and trade between two countries can take place.

Table below shows production of Coffee and Cotton in tones, in both Uganda and Tanzania.

Assume 1 hour of labor is employed to produce each output of each commodity in the two Countries.

Assume 1 hour of labour input

	Uganda	**Tanzania**
Coffee	8	2
Cotton	6	4

Uganda has a comparative advantage in the production of coffee in which it incurs less opportunity cost and Tanzania has comparative advantage in the production of cotton. Therefore, Uganda should specialize in coffee and Tanzania in cotton.

Advantages of International Trade

1. **Optimal use of Natural Resources**:
   International trade helps each country to make optimum use of its natural resources. Each country can concentrate on production of those goods for which its resources are best suited.

2. **Availability of a Variety of Goods**:
   It enables a country to obtain goods which it cannot produce or which it is not producing due to higher costs, by importing from other countries at lower costs.

3. **Specialisation:**
   Foreign trade leads to specialisation and encourages production of different goods in different countries. Goods can be produced at a comparatively low cost due to advantages of division of labour.

4. **Economies of Scale:**
   Due to international trade, goods are produced not only for home consumption but for export to other countries also. Nations of the world can dispose of goods which they have in surplus in the international markets. This leads to production at large scale and the advantages of large-scale production can be obtained by all the countries of the world.

5. **Exchange of technical expertise and establishment of new industries:**
   Underdeveloped countries can establish and develop new industries with the machinery, equipment and technical expertise imported from developed countries. This helps in the development of these countries and the economy of the world at large.

6. **Increase in Efficiency:**
   Due to international competition, the producers in a country attempt to produce better quality goods and at the minimum possible cost. This increases the efficiency and benefits to the consumers all over the world.

7. **Surplus Production:**
   International specialization enables every country to dispose off its surplus production. Some countries produce more goods than their own requirement. They sell this surplus production in other countries and they avoid the occurrences of deflationary pressures in the domestic economy.

8. **International Co-operation and Understanding:**
   The people of different countries come in contact with each other. Commercial intercourse amongst nations of the world encourages exchange of ideas and culture. It creates co-operation, understanding, cordial relations amongst various nations.

Disadvantages of International Trade

1. **Impediment in the Development of Home Industries**:
   International trade has an adverse effect on the development of home industries. It poses a threat to the survival of infant industries at home. Due to foreign competition and unrestricted imports, the upcoming industries in the country may collapse.

2. **Economic Dependence**:
   The underdeveloped countries have to depend upon the developed ones for their economic development. Such reliance often leads to economic exploitation. For instance, most of the underdeveloped countries in Africa and Asia have been exploited by European countries.

3. **Political Dependence**:
   International trade often encourages subjugation and slavery. It impairs economic independence which endangers political dependence.

4. **Overutilization of Natural Resources:**
   Excessive exports may exhaust the natural resources of a country in a shorter span of time than it would have been otherwise. This will cause economic downfall of the country in the long run.

5. **Import of Harmful Goods:**
   Import of spurious drugs, luxury articles, etc. adversely affects the economy and well-being of the people.

6. **Storage of Goods:**
   Sometimes the essential commodities required in a country and in short supply are also exported to earn foreign exchange. This results in shortage of these goods at home and causes inflation.

7. **Danger to International Peace:**
   International trade gives an opportunity to foreign agents to settle down in the country which ultimately endangers its internal peace.

Concepts used in International Trade

Imports are goods (or services) purchased by the domestic economy from other countries. These goods (or services) flow into the domestic economy. Uganda's imports include; capital equipment, vehicles, petroleum, medical supplies, cereals etc.

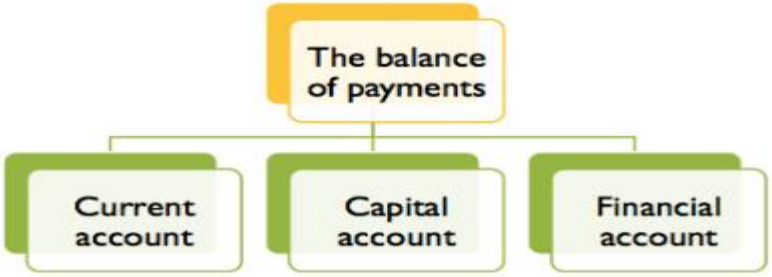
Exports are goods (or services) produced by the domestic economy and purchased by the foreign sector. These goods flow out of the domestic economy. Uganda's exports include coffee, fish and fish products, tea, cotton, flowers, horticultural products, gold.

Net exports are the differences between exports and imports. This is the differences between goods flowing out of the domestic economy and goods flowing into the domestic economy.

Balance of Payments

This is a systematic record of all economic transactions between the residents of the reporting country and residents of foreign countries during a given time period.

The Balance of Payments (BOP) is structured into three primary categories, namely the current account, the capital account, and the financial account. Each of these categories includes various subcomponents, representing distinct types of international financial transactions.



i) Current Account

This measures a country´s trade in goods and services currently produced plus unilateral transfers between countries. We can divide into three parts: net exports of goods and services, net income from abroad, and net unilateral transfers.

ii) Capital Account

This involves transactions that increase or decrease a country's total stock of foreign assets and international flows of capital**.** This is an account which records the movement of capital between a given country and the rest of the world i.e., capital inflows and outflows.

iii) ***Financial Account***

This is the balancing item of the balance of payment gives a record of the available foreign currency in response to the combined currently current and capital accounts. The financial account records international monetary flows associated with investments in various financial instruments, including business ventures, real estate, bonds, and stocks. It also includes government-owned assets like foreign reserves, gold holdings, and special drawing rights (SDRs) held in the International Monetary Fund (IMF)

Balance of Trade (BOT)

Balance of Trade refers to the total value of a country's exports of commodities and total value of imports of commodities. Only export and import of commodities are included in the statement of Balance of Trade of a country. Movements of goods (export and imports of commodities) are also known as 'visible trade', because the movement of commodities between countries can be seen by eyes and felt by hands and can be verified physically by custom authorities of a country.

Terms of Trade

Terms of trade refers to the rate at which the goods of one country are exchanged for the goods of another country. It is represented by the ratio of the average price of a country's exports to the average price of its imports.

$$TOT = \frac{index of \exp ort price}{index of imp ort price} x100$$

Free Trade

Free trade is the act of trading between nations without protectionist barriers, such as tariffs, quotas or regulations.

Trade Protectionism

Protectionism is the economic policy of restraining trade between countries through methods such as tariffs on imported goods, restrictive quotas, and a variety of other government regulations.

Tools / Instruments of protectionism

These refer to policies used to regulate / restrict the volume and flow of international trade. They include:

Tariffs

A tariff is a tax on imports, which can either be specific (so much per unit of sale) or ad valorem (a percentage of the price of the product). Tariffs reduce supply and raise the price of imports.

Quotas

Quotas have the effect of restricting the maximum amount of imports allowed into an economy. Once again, they reduce the amount of imports entering an economy and increase the equilibrium price within the market.

Exchange controls

The government could limit the amount of foreign currency available for paying for imports.

Administrative obstacles - countries can set administrative hurdles. For example, they may require significant levels of paperwork and then deal with these processes slowly making it difficult for importers to compete on a level playing field with other firms.

Health and safety standards - countries may set high health and safety standards for goods that are imported, once again making life difficult for importers.

Environmental standards - countries can set high environmental standards that they know only domestic firms are likely to be able to achieve, once again making life difficult for importers. e.g. ban on environmentally damaging products—old vehicles and fridges, canned products etc.

Total ban / trade embargo – This is where a law is passed to totally prohibit the importation of certain commodities into the country.

Licensing policy – This involves regulating the number of licenses issued to traders to control excessive importation.

Quality control measures – This is where the importing country put certain standards which must be satisfied in terms of quality hence limiting certain imports that don't meet the standards.

Subsidization of domestic industries – The government extends subsidies to domestic industries to reduce on production costs and final prices of domestically produced products to outcompete foreign goods.

Review Question;

a) Suppose the information in the table below relates to Gambia and Sudan's output per unit of labor used in producing Mattresses and Jackets. Use it to answer question from i-ii.

	Countries		
		Gambia	Sudan
Goods	Mattresses	8	6
	Jackets	6	3

i. In what good does Sudan have Absolute cost advantage?

ii. In what commodity does Gambia have comparative advantage? (show your working)

b) Present any ***six (6)*** arguments for international trade to a country like Uganda.

c) Write short notes on each of the following terms as used in protectionism policy under international trade.

i) Imports
ii) Exports
iii) Terms of trade
iv) Import quotas
v) Gains from trade

d) International trade does not always amount to blessings; there are a number of setbacks relating to this kind of trade. Explain ***five (5)*** disadvantages that come with this kind of trade**.**