

Unit I: Introduction of Economics - Applied Economics

Concept of Micro Economics and Macro Economics:

Microeconomics:

Microeconomics may be defined as the branch of economic analysis which studies the economic behavior of an individual economic unit may be a person, a particular households, a particular firm and an industry.

The main objective of microeconomics is to explain the principles, problems and policies related to the optimum allocation of resources.



According to **K. E. Boulding**, "Microeconomics is the study of a particular firm, particular households, individual price, wage, the income of the industry and particular commodity."

According to **Mc. Connell**, "In microeconomics we examine the trees, not the forests."

Similarly according to **A.P. Lerner**, "Microeconomics consists of looking at the economy through a microscope."

Hence, microeconomics tries to explain how an individual allocates his income among various needs as well as how an individual maximizes satisfaction level from the consumption of available limited resources.

Microeconomics also explains the process of determination of individual price with the interaction of demand and supply. It helps to determine the price of the product and factor inputs.

Therefore, it is also called as price theory or demand and supply theory. Simply microeconomics is a microscopic study of the economy.

Types of Microeconomics:

1. Micro-Statics:

It is the economic model which studies different microeconomic variables and their relationships at a given point of time under the condition of equilibrium, other things being equal.

In the micro-static models of price determination, the relationship between two market forces demand and supply determine the price in the market at a point in time which is also constant through time.

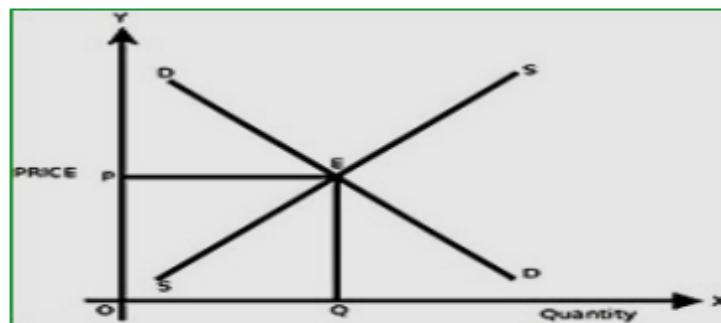


Fig. Simple Micro statics

In the figure, quantity and price are measured on X-axis and Y-axis respectively. The figure shows DD and SS the demand and supply curves respectively. The equilibrium price of a commodity is established at a point E, where quantities of demand and supplied equals to OQ at price OP.

This is a static analysis of price determination, for all variables such as quantity supplied, quantity demanded and price refers to the same point or period of time.

2. Comparative Micro-Statics:

A Comparative Micro-Static analysis compares one equilibrium position with another when data have changed and the system has finally reached another equilibrium position.

It does not show how the system has reached the final equilibrium position with a change in data. It merely explains and compares the initial equilibrium position with the final one reached after the system has adjusted to a change in data.

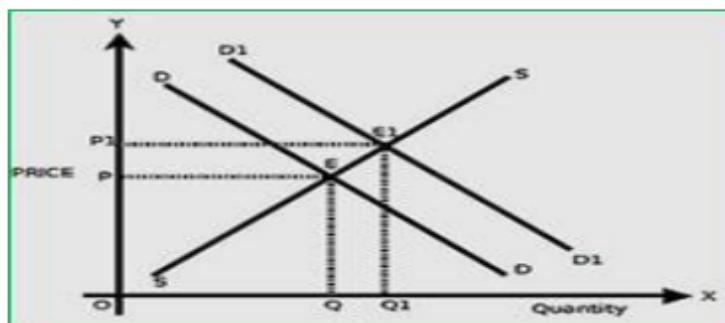


Fig. Comparative Micro statics

In the figure, quantity and price are measured on X-axis and Y-axis respectively. The initial equilibrium point between DD the demand curve and SS the supply curve is at E.

When demand function shifts upward to D₁D₁ due to change in some independent variable (such as income), the new equilibrium is at E₁ where quantities of demand and supplied equals to OQ₁ at the price OP₁.

In a comparative static analysis, we are concerned only with explaining the new equilibrium position at point E₁ and comparing it with E. We are not concerned with the whole path the system has travelled from E to E₁.

3. MicroDynamics:

It explains lagged relationship between the macroeconomic variables. It throws full light on what is happening in the market during the period of transition from one static equilibrium point to another.

More specifically, it studies the process through which the new equilibrium in the market is established after breaking the initial equilibrium. It explains all types of changes occurred between the two equilibrium.

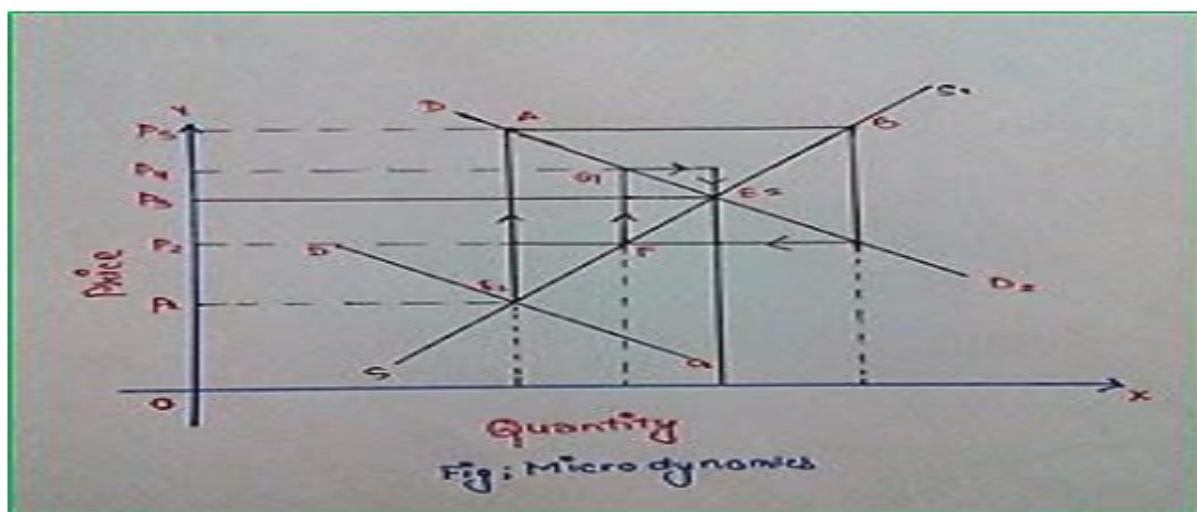
It provides answers to the following questions:

- ❖ What is the cause of breaking the initial equilibrium or establishing a new equilibrium?
- ❖ What types of other changes occur between two equilibriums?

But it does not provide answers to the following questions:

- ❖ What shows initial equilibrium or new equilibrium?
- ❖ What is the comparative difference between them with respect to economic variables?

So, microdynamics is the study of the process which shows how the initial equilibrium breaks and attains new equilibrium.



In the figure, the initial price of a commodity is fixed at OP_1 where the quantity demanded as well as supplied is OQ_1 . Now due to a change in some independent variable, the demand curve DD_1 shift upward to DD_2 .

As a result, disequilibrium occurs in the market. This is followed by a series of disequilibrium before the final equilibrium until the new equilibrium price takes place. Even though demand increases, supply cannot be increased at the same movement.

Therefore, the immediate effect of the upward shift in the demand curves is that the suppliers enjoy higher price P5. It is due to the fact that the supply is perfectly inelastic at a given point of time.

This sharp increase in price in the market period will attract the suppliers to increase their supply in the short run. This leads to an increase in the supply at the level of OQ4. It will result in a decrease in price by P5 to P2. This process is continuing until the new equilibrium is established at point E2.

Macroeconomics:

Macroeconomics is derived from the Greek word "Makros", which means "big". Hence, macroeconomics studies, not individual units but all the units combined together or the economy as a whole.

Since it studies the economy in aggregate. It studies national income, national output, general price level, total employment, total savings, and total investment and so on. It is also called "aggregate economics" or the "income theory".



According to K.E. Boulding, "Macroeconomics deals not with individual quantities but with an aggregate of these quantities, not with individual incomes, but with national income, not with individual prices but with price level, not with individual output but with national output."

According to Gardner Ackley, "Macroeconomics deals with the economic affairs in the large. It concerns the overall dimensions of economic life. It studies the character of the forest independently of trees which compose it."

Since the main objective of macroeconomics is to study the principles, problems and policies related to full employment and growth of resources. J.M. Keynes made an outstanding contribution to the development of macroeconomics. It is also known as Keynesian Phenomenon.

Types of Macroeconomics:

1. Macro statics:

It explains the total elements of the economy and their relation to the equilibrium state of the whole economy at a particular point in time. In other words, macro static economy explains the static equilibrium position of the economy.

The following equation reflects the final position of equilibrium:

$$Y = C + I$$

Where,

Y = aggregate income,

C = aggregate consumption

I = aggregate investment

The concept of macro statics can be further explained with the help of the following figure:

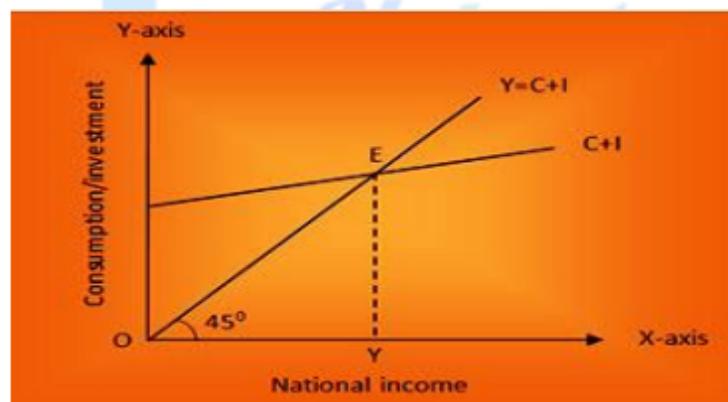


Fig: Macro Statics

In the above diagram, national income is measured along X-axis whereas consumption and investment along Y-axis. The aggregate demand curve ($C+I$) and aggregate supply curve (45^0 lines, $Y=C+I$) of an economy are intersected at a point E.

Point E is the equilibrium point where the equilibrium level of national income is OY. As aggregate demand and aggregate supply refer to the same point of time at equilibrium point E, it is static analysis.

Consumption and investment curve (C+I) is an aggregate demand curve because the demand for all goods and services in an economy arise from either the consumption or investment made by all the individuals of that particular economy.

Similarly, $Y = C+I$ curve which refers to national income curve is aggregate supply curve. It is because, from the total supply of goods and services made by all individuals, income is generated which is called national income of an economy. Thus we can term total supply of an economy as national income.

2. Comparative Macro Statics:

Comparative macro statics is concerned with the comparative study of different equilibrium positions attained in an economy resulted by macro variables. It is concerned with the comparison of two or more successive equilibrium positions. But it tells nothing about how the system moves from one position to another. The comparative macro static diagram can be illustrated as follows:

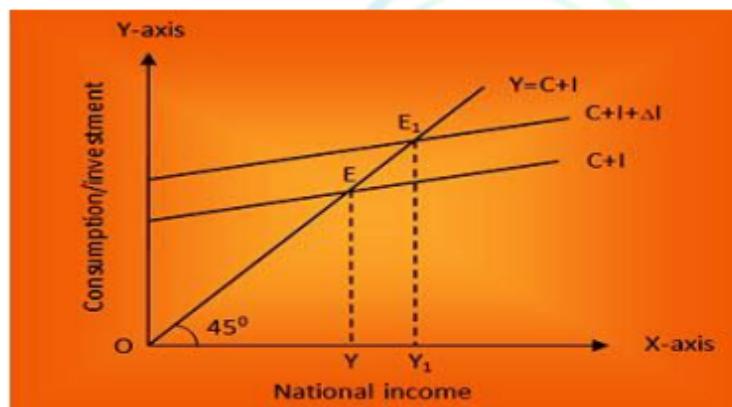


Fig: Comparative Macro Statics

In the above diagram, national income is measured along X-axis whereas consumption and investment along Y-axis. E indicates the original equilibrium point where the aggregate demand curve ($C+I$) and aggregate supply curve (45° lines) are intersected.

OY is the equilibrium level of national income. When there is an increase in the level of investment, the aggregate demand curves shift from $C+I$ to $C+I+\Delta I$. Consequently, the new equilibrium level of national income is OY₁ and the point of equilibrium is E₁.

So, comparative macro statics is concerned with the comparison of these two equilibrium points E and E₁ that are obtained in an economy.

3. Macro Dynamics:

Macro dynamics analyses the process by which the economy moves from one equilibrium point to another as a result of the change in macroeconomic variables. It explains each and every step of change involved in attaining new macroeconomic equilibrium point.

Macro dynamics studies all the changes, changing the path, the equilibrium position of an economy before and after the change. Macro dynamics can be explained further with the help of the following diagram:

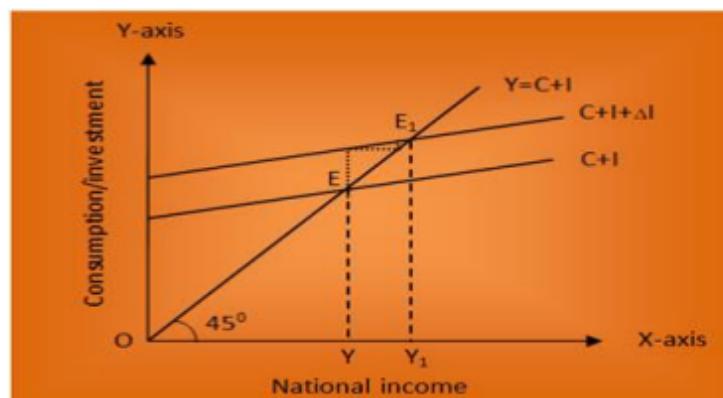


Fig: Macro Dynamics

In the above diagram, national income is measured along X-axis whereas consumption and investment along Y-axis. The original equilibrium point is E where the level of income is OY.

With the increase in the level of investment i.e. DI, equilibrium point shifts from E to E₁ and the level of national income increased from Y to Y₁. Thus macro-dynamics studies the process by which the equilibrium point shifts from point E to E₁.

The process of the shift of equilibrium is as: Due to the increase in autonomous investment, aggregate demand increases. This increase in aggregate demand puts pressure to increase supply thereby increases national income.

If this demand and supply curve reaches its new equilibrium point then it is settled if not then the same process continues and the income goes on increasing till the final equilibrium point E₁ is reached.

Thus macro-dynamics deals with the path taken by the economy to move from point E to E₁. In the diagram, the path taken is shown with the short dotted line which is in between point E and E₁.

Interdependencies between Microeconomics and Macroeconomics:

Macroeconomics theory has a foundation in microeconomics theory and microeconomic theory has a foundation in macroeconomics theory.

Microeconomics and Macroeconomics are just like the two sides of the same coin. We cannot analyze the individual behavior without the assuming to aggregate and likewise aggregate cannot be effective unless individual variables are kept under consideration.

Microeconomics is the study of individual parts of the economy whereas macroeconomics is the study of the economy as a whole. But these two approaches are not competitive but complementary to each other.

The interdependence between these two branches of economics can be explained in following two topics:

Dependence of Microeconomics on Macroeconomics:

Microeconomics matters deeply dependent upon the macroeconomic activity. For example, price, rate of interest, rate of profit, wages etc. all are known as microeconomic topics. But all they depend upon macroeconomic behavior.

Price, rate of interest, wage are determined by their demand and supply in a country, not by individual demand and supply. Same way, the profit of any firm depends upon the nature of the market, aggregate demand, national income, and general price level in the economy.

Aggregate demand, price level, national income, employment etc. are deeply affected by macroeconomic fluctuations. Thus, change in macroeconomic indicators brings the change in microeconomic activities.

Dependence of Macroeconomics on Microeconomics:

Macroeconomics is the overall study of microeconomic units. For example, the employment of the country is the sum of all individual employees in different sectors. National income and national output is the sum of income and output of thousands of person and firms. Price level shows the average price, which comes through the appropriate calculation of prices of all transected commodities in the country in a fiscal year.

The same way many theories of macroeconomics are derived from microeconomics theories. For example, total consumption function and total investment function are based on the behavior of individual consumers and firms respectively.

Thus, as a conclusion, it can be said that the study of macroeconomics comes throughout of microanalysis.

Being two broad branches of economics, each is paralyzed in the absence of others. P.A. Samuelson has clearly mentioned, "There is really no opposition between micro and macroeconomics. Both are absolutely vital. You are less than half-educated if you understand the one while being ignorant of the other."

Difference between Micro-economics and Macro-economics:

Microeconomics	Macroeconomics
Micro is derived from the Greek word 'Mikros' which means small.	Macro is derived from the Greek word 'Makros' which means large.
Microeconomics is a study of individual economic variables like demand, supply, price etc.	Macroeconomics is a study of aggregate economic variables like aggregate demand, aggregate supply, price level etc.
Micro economics is based on partial equilibrium analysis, other things remaining the same.	Macroeconomics is based on general equilibrium analysis.
Laws and principles are based on assumptions.	Laws and principles are far from assumptions.
Evolution of microeconomics took place earlier than macroeconomics.	It evolved only after the publication of Keynes book 'The General Theory of Employment, Interest and Money'.
Equilibrium is determined by market demand and supply.	Equilibrium is determined by aggregate demand and supply.
The main objective of Microeconomics is how to allocate scarce resources.	The main objective of microeconomics is how to achieve full employment.
Microeconomics is also called price theory or value theory.	Macroeconomics is also called theory of income and employment or Keynesian theory.
The subject matter of microeconomics is mortal because it deals with individuals. An individual will die one day.	The subject matter of macroeconomics is immortal because it deals with society as a whole and society never ends.
Classical and neo-classical economists developed microeconomics.	The renowned economist J.M. Keynes specially developed macroeconomics.
It has a very narrow scope.	It has a very wide scope.

Economic Inequality:

Economic Inequality



Economic inequalities are most obviously shown by people's different positions within the economic distribution income, pay, and wealth. However, people's economic positions are also related to other characteristics, such as whether or not they have a disable, their ethnic background, or whether they are a man or a woman.

Types of Economic Inequality:

1. Income Inequality:

Income inequality is the extent to which income is distributed unevenly in a group of people. Income is not just the money received through pay, but all the money received from employment (wages, salaries, bonuses etc.), investments, such as interest on savings accounts and dividends from shares of stock, savings, state benefits, pensions (state, personal, company) and rent.

Measurement of income can be on an individual or household basis the incomes of all the people sharing a particular household. Household income before tax that includes money received from the social security system is known as gross income. Household income including all taxes and benefits is known as net income.

2. Pay Inequality:

A person's pay is different from their income. Pay refers to payment from employment only. This can be on an hourly, monthly or annual basis, is typically paid weekly or monthly and may also include bonuses. Pay inequality, therefore, describes the difference between people's pay and this may be within one company or across all payments received in the UK.

3. Wealth Inequality:

Wealth refers to the total amount of assets of an individual or household. This may include financial assets, such as bonds and stocks, property and private pension rights. Wealth inequality, therefore, refers to the unequal distribution of assets in a group of people.

Measurement of Inequality:

There are various ways of measuring economic inequality. The choice of measure does not change what inequality looks like dramatically. However, changes in inequality over time within individual countries can look different if different measures are used.

1. Gini Coefficient:

The Gini coefficient measures inequality across the whole of society rather than simply comparing different income groups. The UK's Gini is 0.35.

If all the income went to a single person (maximum inequality) and everyone else got nothing, the Gini coefficient would be equal to 1. If income was shared equally, and everyone got exactly the same, the Gini would equal 0. The lower the Gini value, the more equal a society.

Most OECD countries have a coefficient lower than 0.32 with the lowest being 0.24. The UK, a fairly unequal society, scores 0.35 and the US, an even more unequal society, 0.38. In contrast, Denmark, a much more equal society, scores 0.255.

The Gini coefficient can measure inequality before or after tax and before or after housing costs. The Gini will change depending on what is measured.

2. Ratio Measures:

Ratio measures compare how much people at one level of the income distribution have compared to people at another. For instance, the 20:20 ratio compares how much richer the top 20% of people are, compared to the bottom 20%.

Common Examples:

- a. 50/10 ratio: describes inequality between the middle and the bottom of the income distribution
- b. 90/10: describes inequality between the top and the bottom
- c. 90/50: describes inequality between the top and the middle
- d. 99/90: describes inequality between the very top and the top

3. Palma Ratio:

The Palma ratio is the ratio of the income share of the top 10% to that of the bottom 40%. In more equal societies this ratio will be one or below, meaning that the top 10% does not receive a larger share of national income than the bottom 40%.

In very unequal societies, the ratio may be as large as 7. The Palma ratio addresses the Gini index's over-sensitivity to changes in the middle of the distribution and insensitivity to changes at the top and bottom.

The UK Palma ratio is 1.07. The Palma ratio is commonly used in international development discourse. The ratio for Brazil, for example, is 2.237.

Equilibrium:

Economic equilibrium is a state where economic forces such as supply and demand are balanced and in the absence of external influences the (equilibrium) values of economic variables will not change.

For example, refers to a condition where a market price is established through competition such that the number of goods or services bought by buyers is equal to the number of goods or services produced by sellers. It is the point at which quantity demanded and quantities supplied are equal.

Types of Equilibrium:

1. Static Equilibrium:

According to Prof. Mehta, "Static equilibrium is that equilibrium which maintains itself outside the period of time under consideration ". It is a state of bliss (complete happiness) which every individual firm, industry or factor wants to attain and once reached, would not like to leave.

The consumer is in equilibrium when he gets maximum satisfaction from a given expenditure on different goods and services. Any move on this part to reallocate his expenditure among his purchases will decrease rather than increase his total satisfaction.

A firm is in equilibrium when its profit is the maximum and it has no incentive to expand or contract its output. It is a position in which neither the adjusting firms have any tendency to live nor for new firms to enter the industry.

In other words, an industry is in equilibrium when all firms are earning only normal profits. For example: The position of final equilibrium can be shown by Keynesian Equation:

$$Y = C + I$$

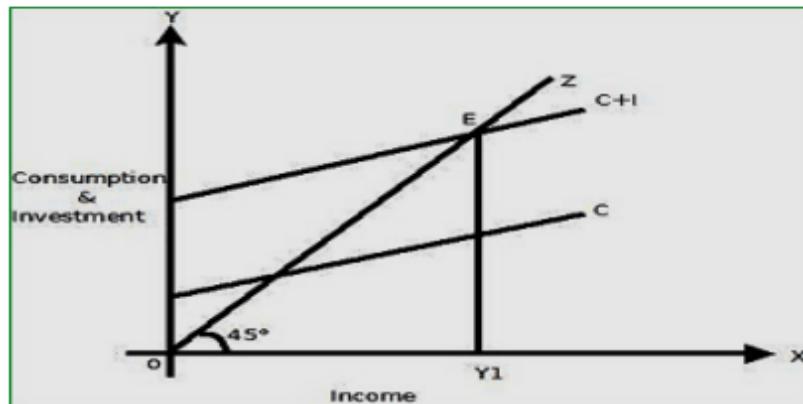
Where,

Y = Total Income,

C = Total consumption expenditure,

I = Total Investment expenditure

The above equation explain the relationship of three macroeconomics variables i.e. Y, C, I. The equality between Y and C+I indicates the equilibrium position. It does not involve the study of time analysis.



In a static Keynesian model, the level of equilibrium is determined by the interaction of aggregate supply function and the aggregate demand function. In the diagram, OZ shows aggregate supply function and C + I line represents aggregate demand function.

The line OZ and C + I intersect at point E, which determines the equilibrium level of income at OY₁. It simply shows a timeless identity equation without any adjusting mechanism.

Static equilibrium is of three types:

- a. Micro Static
- b. Macro Static
- c. Comparative Statics

2. Dynamic Equilibrium:

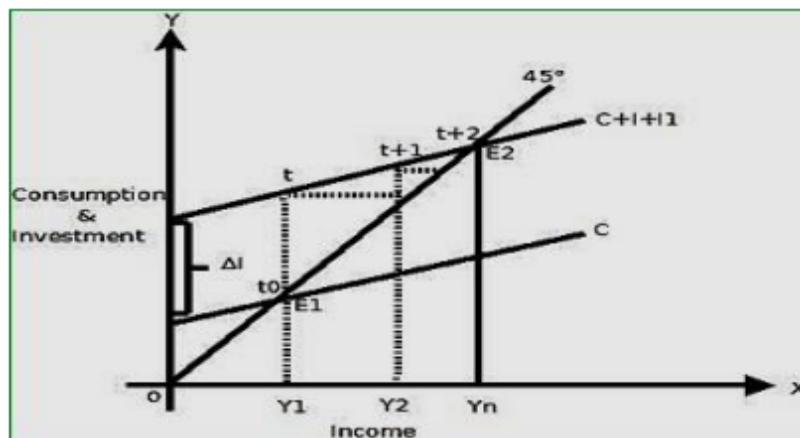
When after a fixed period the equilibrium state is disturbed it is called dynamic equilibrium. In dynamic equilibrium prices, quantities, incomes, tastes, technology etc. are constantly changing.

For example: suppose some more persons develop the taste for fish, as a result, the demand for fish will increase seller will at once raise the price and thus change the behavior of the old buyers. The market will be thrown into a state of disequilibrium and will remain so until the supply of fish is increased to the level of the new demand. When new equilibrium will be brought in by the forces contending forces.

The word dynamic means causing to move. In economics, 'dynamic' refers to the study of economic change. The essence of any knowledge lies in formulating relationships between phenomena.

There must be thus the sequence of events for the knowledge to be born. The main purpose is to know as to how complex current events will shape itself in the future. To do so it is necessary to visualize the way it has itself arisen out of the past events.

The moment we talk of the sequence of events, the elements of time creeps into our analysis. Economics is thus a process of change through time.



The above diagram shows that C is the aggregate demand function and 45° line is the aggregate supply function. Suppose we start with the time period t_0 where with an equilibrium level of income OY_1 , investment increased from I_0 to I_1 , this can be seen by the new aggregate demand function line $C + I + I_1$.

But in period t , consumption lags behind and it is still on the equilibrium point E_1 . In the next period, $t+1$ consumption increased with the increase in investment, which lead to an increase in income from OY_1 to OY_2 .

This is the process of income prorogation which will continue till the aggregate demand function $C + I + I_1$ intersects the aggregate function 45° lines at point E_2 in the n th period. The new equilibrium level of income is at OY_n . The curved steps from t_0 to E_2 show the macro-dynamic equilibrium path.

Dynamic Equilibrium Is Of Two Types:

- Micro Dynamic Equilibrium
- Macro Dynamic Equilibrium

Stock and Flow Ratio Variables:

1. Flow Variables:

A flow is a quantity which is measured with reference to a period of time. Thus, flows are defined with reference to a specific period (length of time) example: hours, days, weeks, months or years.

It has a time dimension. National income is a flow. It describes and measures the flow of goods and services which become available to a country during a year. Similarly, all other economic variables which have time dimension i.e. whose magnitude can be measured over a period of time are called flow variables.

For instance, the income of a person is a flow which is earned during a week or a month or any other period. Likewise, investment (i.e., adding the stock of capital) is a flow as it pertains to a period of time.

Other examples of flows are expenditure, savings, depreciation, interest, exports, imports, change in inventories (not mere inventories), change in money supply, lending, borrowing, rent, profit, etc. because of the magnitude (size) of all these are measured over a period of time.

2. Stock Variables:

A stock is a quantity which is measurable at a particular point of time, e.g., 4 p.m., 1st January, Monday, 2010, etc. Capital is a stock variable.

On a particular date (say, 1st April 2011), a country owns and commands stock of machines, buildings, accessories, raw materials, etc. It is a stock of capital. Like a balance sheet, a stock has a reference to a particular date on which it shows stock position.

Clearly, a stock has no time dimension (length of time) as against a flow which has a time dimension.

A flow shows change during a period of time whereas a stock indicates the quantity of a variable at a point of time. Thus, wealth is a stock since it can be measured at a point of time, but income is a flow because it can be measured over a period of time.

Examples of stocks are: wealth, foreign debts, loan, inventories (not change in inventories), opening stock, money supply (amount of money), population, etc.

The distinction between flows and stocks can be easily understood by comparing the actions of Still Camera (which records position at a point of time) with that of Video Camera (which records position during a period of time).

Unit II: Theory of Consumer Demand - Applied Economics

Ordinal Approach (Indifference Curve Analysis):

Modern economists, particularly Hicks gave ordinal utility concept to analyze consumer behavior. He has used a tool, called indifference curve, for consumer behavior analysis.

Ordinal Approach (Indifference Curve Analysis)

Assumptions:

1. Rationality:

Implies that a consumer is a rational being and aims at maximizing the total satisfaction given the income and prices of goods and services.

2. Ordinal Utility:

Assumes that utility is expressible only in ordinal terms. This implies that a consumer is only able to express his/her preference for goods.

3. Transitivity and Consistency of Choice:

Implies that consumer choices are assumed to be transitive and consistent. The transitivity of choice means that if a consumer prefers A to B and B to C, he/she would prefer A to C. On the other hand, the consistency of choice means that if a consumer prefers A to B in one period, he or she cannot prefer B to A in another period.

4. Non-satiety:

Implies that a consumer is assumed to be non-satisfied. In other words, it is assumed that the consumer does not reach the level of satisfaction by consuming good and always prefers a large number of goods.

5. Diminishing Marginal Rate of Substitution:

Acts as an important concept in indifference curve analysis. The marginal rate of substitution implies the rate at which a consumer is willing to substitute one good (X) for another good (Y) so that the total satisfaction remains the same.

Meaning of Indifference Curve:

An indifference curve is defined as the locus of points on the graph each representing a different combination of two substitute goods, which yield the same utility or level of satisfaction to a consumer. The combinations of goods give equal satisfaction to a consumer.

Therefore, a consumer is indifferent between any combinations of two goods when it comes to making a choice between them. When these combinations are plotted on the graph, the resulting curve is called the indifference curve. This curve is also called an equal utility curve.

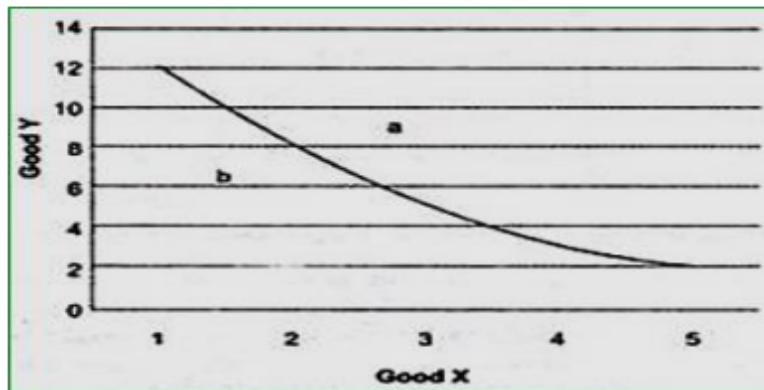
Let us learn the indifference curve through a schedule.

Combination	Good X	Good Y	MRS _{XY} = ($\Delta Y / \Delta X$)
A	1	12	-
B	2	8	4
C	3	5	3
D	4	3	2
E	5	2	1

Above table depicts that a consumer starts with one unit of good X and 12 units of good Y, which point combination A. For gaining an additional unit of X, he/she sacrifices 4 units of good Y, so that the level of satisfaction remains the same and gets combination B.

Similarly, we get the consumption level of 3X+ 5Y, 4X+ 3Y, 5X+2Y with combination level respectively C, D, And E. The consumer's satisfaction remain the same whichever the combination of goods.

This schedule of combinations can be shown graphically on the indifference curve. The quantity of good X is measured on X-axis and quantity of good Y is shown on Y-axis.



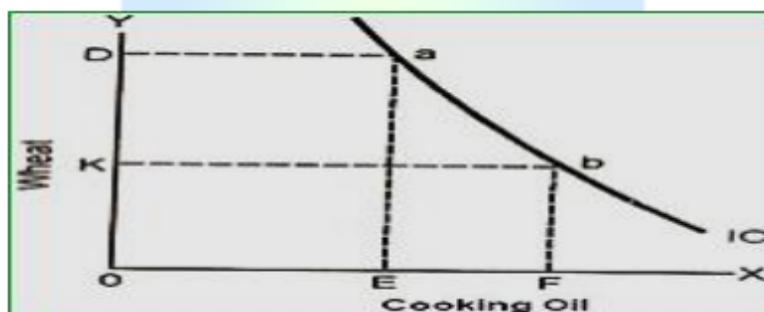
In the above figure, point b shown below and left of the indifference curve would give less satisfaction and point a above the indifference curve would be more preferred than combinations.

A description of consumer's preferences is represented on the indifference map that consists of a set of indifference curves. Indifference map shows the indifference curves ranked in order of preferences of consumers.

Properties of Indifference Curve:

1. Indifference Curves are Negatively Sloped:

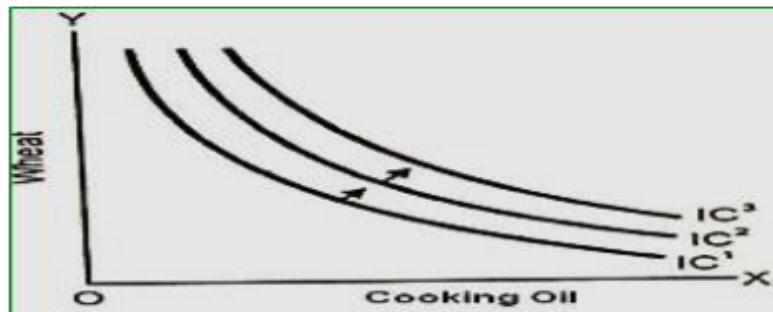
The indifference curves must slope down from left to right. This means that an indifference curve is negatively sloped. It slopes downward because as the consumer increases the consumption of X commodity, he has to give up certain units of Y commodity to maintain the same level of satisfaction.



2. Higher Indifference Curve Represents a Higher Level of Satisfaction:

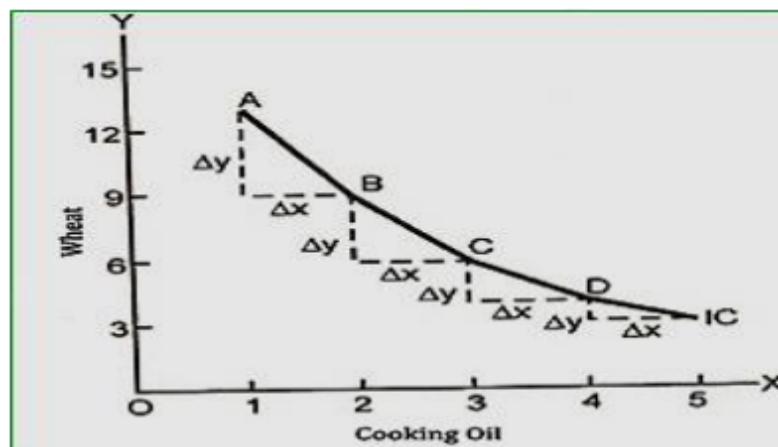
A higher indifference curve that lies above and to the right of another indifference curve represents a higher level of satisfaction and the combination on a lower indifference curve yields a lower satisfaction.

In other words, we can say that the combination of goods which lies on a higher indifference curve will be preferred by a consumer to the combination which lies on a lower indifference curve.



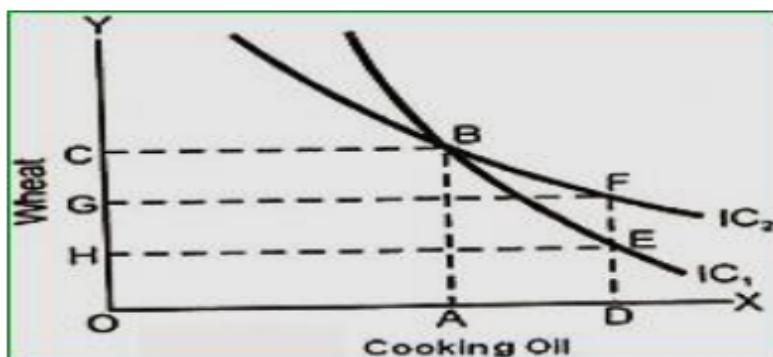
3. Indifference Curves Are Convex To The Origin:

This is an important property of indifference curves. They are convex to the origin (bowed inward). This is equivalent to saying that as the consumer substitutes commodity X for commodity Y, the marginal rate of substitution diminishes of X for Y along an indifference curve.



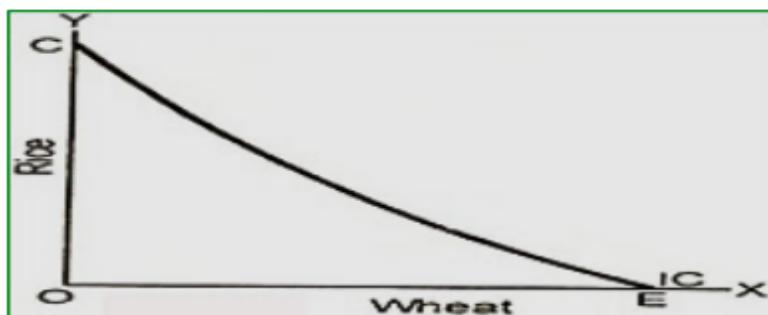
4. Indifference Curve Cannot Intersect Each Other:

Given the definition of indifference curve and the assumptions behind it, the indifference curves cannot intersect each other. It is because at the point of tangency, the higher curve will give as much as of the two commodities as is given by the lower indifference curve. This is absurd and impossible.



5. Indifference Curves Do Not Touch X-Axis And Y-Axis:

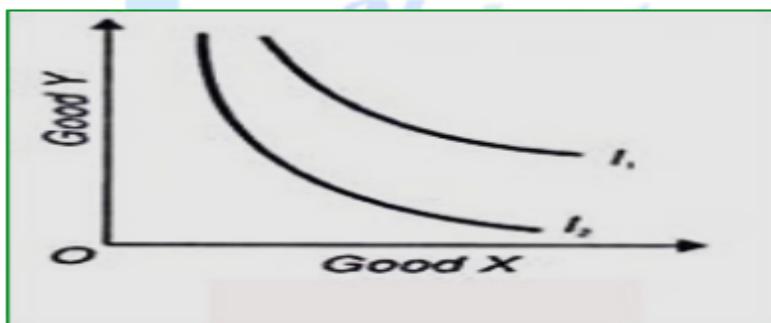
One of the basic assumptions of indifference curves is that the consumer purchases combinations of different commodities. He is not supposed to purchase only one commodity. In that case, the indifference curve will touch one axis. This violates the basic assumption of indifference curves.



6. Indifference Curve Need Not Be Parallel:

Indifference curves are not necessarily parallel to each other. Though they are falling, negatively inclined to the right, yet the rate of fall will not be the same for all indifference curves.

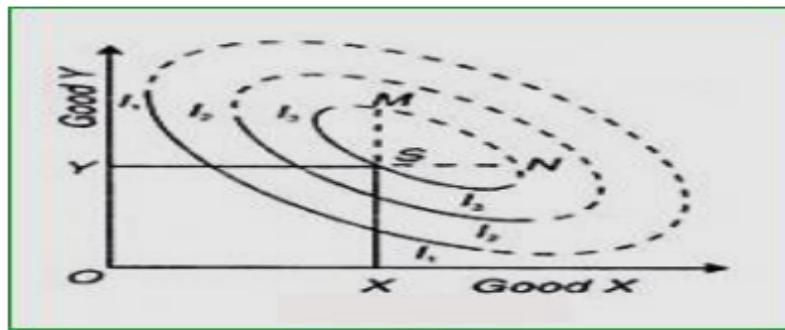
In other words, the diminishing marginal rate of substitution between the two goods is essentially not the same in the case of all indifference schedules. The two curves I₁ and I₂ shown in the figure below are not parallel to each other.



7. Indifference Curve Is Like Bangles:

In reality indifference curves are like bangles. But as a matter of principle their 'effective region' in the form of segments is shown in the figure below.

This is so because of indifference curves are assumed to be negatively sloping and convex to the origin. An individual can move to higher indifference curves I₁ and I₂ until he reaches the saturation point 5 where his total utility is the maximum.



Consumers Equilibrium:

A consumer is said to be in equilibrium when he feels that he "cannot change his condition either by earning more or by spending more or by changing the quantities of thing he buys".

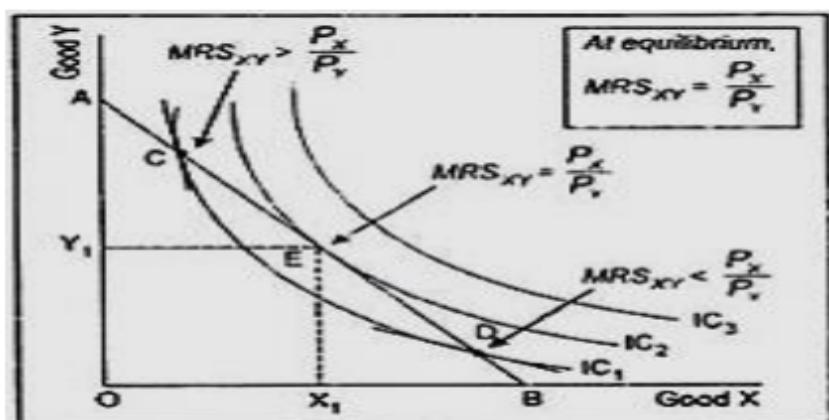
A rational consumer will purchase a commodity up to the point where price of the commodity is equal to the marginal utility obtained from the thing.

Assumption:

1. The consumer must be rational.
2. The consumer must have a budget line and indifference map.
3. Prices of the two goods remain unchanged.
4. Producer has to maximize utility by spending a fixed budget on two goods.

Conditions:

1. **Necessary or 1st order Condition:** The budget line should be tangent to the indifference curve (or the slope of indifference curve should be equal to the slope of budget line i.e. $MRS_{XY} = P_x/P_y$).
2. **Sufficient or 2nd order Condition:** Indifference curve should be convex to the origin.



According to the above figure, point E is the consumer's equilibrium where two conditions for equilibrium (i.e. AB budget line is tangent to the IC_2 and IC_2 is convex to the origin) are satisfied.

Hence, the consumer gets maximum satisfaction by spending total budget on combination E which contains OY_1 units of Good Y and OX_1 units of Good X.

Changes in Consumer's Equilibrium:

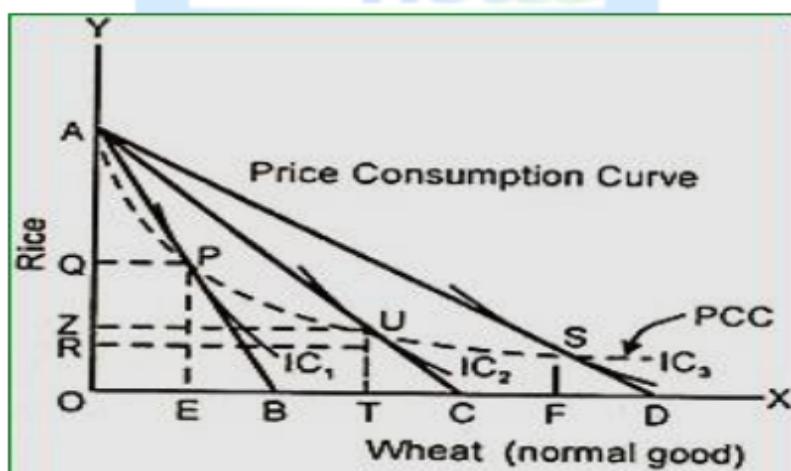
1. Price Effect:

Price effect shows the total effect on consumer's demand for a commodity due to change in the price of the same commodity, other things being equal. When the price of the good changes, a consumer will be either better off or worse off than before, depending upon whether the price falls or rises.

In other words, as a result of a change in the price of the good, his equilibrium position will be at a higher indifference curve in case of the fall in price and at a lower indifference curve in case of the rise in price.

Price Effect on the Consumption of a Normal Good:

A normal good is a product or service whose quantity demanded increases as consumer income increases. The elasticity of demand for a normal good is always positive but less than 1.



For example in the above figure, AB is the initial budget line. It is assumed that the price of wheat has fallen and the price of rice and the income of the consumer remains unchanged.

The price line takes a new position AC and the equilibrium point shifts from P to U. The consumer buys now OT quantity of wheat, the amount demanded rises from OE to OT and OZ quantity of rice.

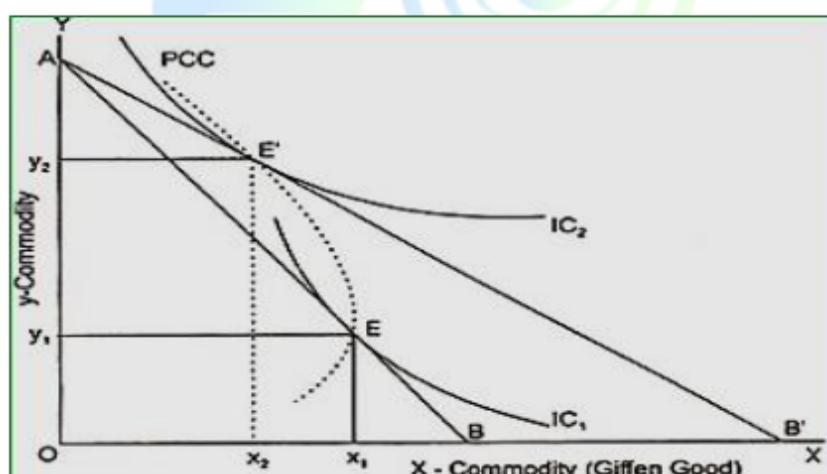
With further fall in the price of wheat, the consumer is in equilibrium at point S, where the budget line AD is tangent to a higher indifference curve AC3. He buys now OF quantity of wheat and OR quantity of rice.

The rise in the amount purchased of wheat (OE to OF) as a result of a fall in its price is called price effect. The price effect on the consumption of a normal good is negative. If we join the equilibrium points PUS, we get price consumption curve (PCC) of the consumer for the commodity wheat.

Price Effect on the consumption of a Giffen Good:

A Giffen good is a good for which demand increases as the price increases and falls when the price decreases.

A Giffen good is typically an inferior product that does not have easily available substitutes, as a result of which the income effect dominates the substitution effect. Giffen goods are quite rare, to the extent that there is some debate about their actual existence. The term is named after the economist Robert Giffen.



In the figure above, the consumer is in equilibrium at point E where the budget line AB is tangent to the indifference curve IC₁. The consumer purchases OX₁ quantity of Giffen good X and OY₁ quantity of good Y.

When there is a reduction in the price of good X but no change in the price of good Y, the budget line AB' will show upward. The consumer is in equilibrium at point E' where the budget line AB' is a tangent to the indifference curve IC₂.

In the new equilibrium position, the consumer purchases only OX₂ units of Giffen good X and OY₂ units of good Y.

We find that the decrease in the price of Giffen good X, its quantity purchased has fallen from OX₁ to OX₂ and the quantity demanded of Y commodity goes up from OY₁ to OY₂. The price effect on the consumption of Giffen good is positive. It is indicated by the backward bending PCC in the case of X as a Giffen good.

2. Income Effect:

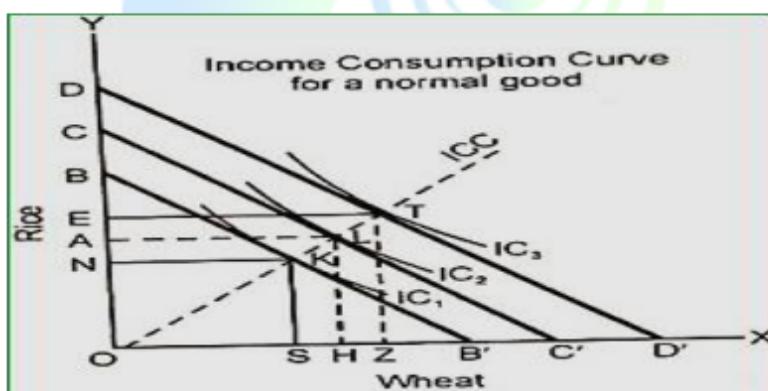
If the prices of goods, tastes and preferences of the consumer remains constant and there is a change in his income, it will directly affect consumer's demand. This effect on the purchase due to change in income is called the income effect.

A rise in consumer's income will shift the price line or budget line upward to the right and he goes on to a higher point of equilibrium. A fall in the income will shift the price line down to the left and the consumer attains lower (tangency) points of equilibrium.

The shift of the price line is parallel to the prices of the goods are assumed to remain the same.

Positive Income Effect:

Income effect for a good is supposed to be positive when with an increase in consumer's income, consumer increases his/her consumption of the good. Such goods for which income effect is positive are called superior goods.



In above figure wheat is measured along OX and rice along OY. When the price line or budget line is BB' the consumer gets maximum satisfaction or is in equilibrium position at point K where it touches the indifference curve IC₁.

The consumer buys OS quantity of wheat and ON quantity of rice. We suppose now that the income of the consumer has increased and the price line is now CC'. Which shifts in a parallel fashion to the right.

The consumer is in equilibrium at a level at point L which is its equilibrium point. If there is further increase in income: the shift of the price line now will be DD', and the consumer is in equilibrium at point T and will be purchasing OZ quantity of wheat and OE quantity of rice. If these, equilibrium points K, L, T are joined together by a dotted line passing through the origin, we get income consumption curve ICC.

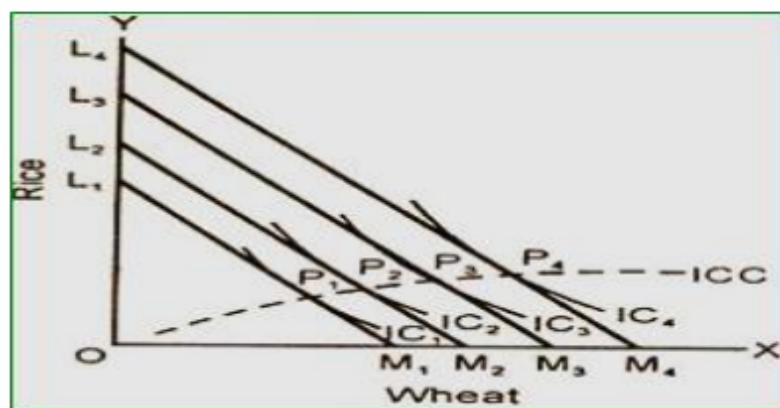
This shows that with the rise in income, the consumer generally buys more quantities of the two commodities rice and wheat. The income consumer is now better off at T on indifference curve IC₃ as compared to L at a lower indifference curve IC₂.

The income effect is positive in case of both the goods rice and wheat as these are normal goods. The income consumption curve ICC which is derived by joining the successive equilibrium positions has a positive slope.

Negative Income Effect:

Income effect for a good is supposed to be negative when with an increase in consumer's income, consumer reduces his/her consumption of the good. Such goods for which income effect is negative are called inferior goods.

Income Effect When Rice is an Inferior Good:

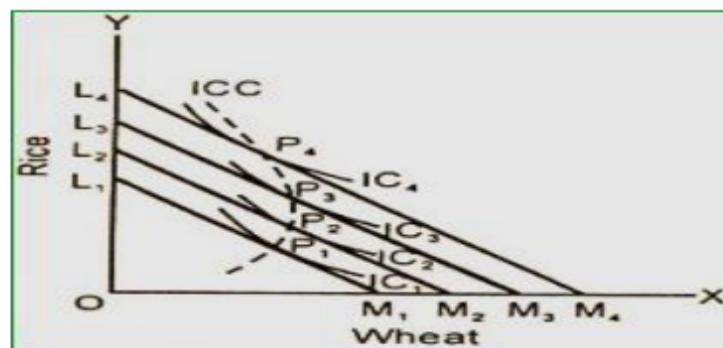


In the figure above, it is shown that with the rise in income, the purchase of wheat has increased from M_1 to M_4 indicating positive income effect on the purchase of normal good wheat. The income effect on inferior good is negative.

The income consumption curve ICC is starting bending towards the horizontal axis which shows that wheat is a normal good and rice is inferior good.

Income Effect When Wheat is an Inferior Good:

Sometimes it also happens that with the rise in income, the consumer buys more of one commodity and less of another. For instance, he may buy less of wheat and more of rice as is, illustrated in figures below.



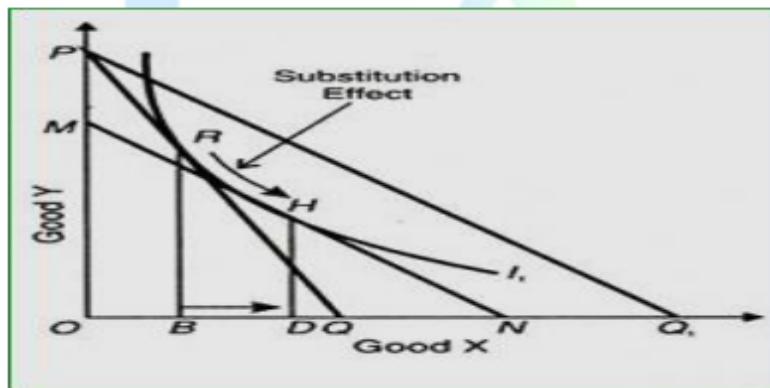
In the diagram above, the income-consumption curve bends back on itself. With the rise in income, the consumer buys more rice and less wheat. The price effect for rice is positive and for wheat is negative. The good which is purchased less with the increase in income is called inferior good.

3. Substitution Effect:

Prof. Hicks has explained the substitution effect independent of the income effect through compensating variation in income. "The substitution effect is the increase in the quantity bought as the price of the commodity falls, after adjusting income to keep the real purchasing power of the consumer the same as before."

This adjustment in income is called compensating variations and is shown graphically by a parallel shift of the new budget line until it becomes tangent to the initial indifference curve."

Thus based on the methods of compensating variation, the substitution effect measure the effect of change in the relative price of a good with real income constant. The increase in the real income of the consumer as a result of fall in the price of, say good X, is so withdrawn that he is neither better off nor worse off than before.



The substitution effect is explained in Figure above where the original budget line is PQ with equilibrium at point R on the indifference curve I_1 . At R, the consumer is buying OB of X and BR of Y. Suppose the price of good X falls so that his new budget line is PQ_1 .

With the fall in the price of X, the real income of the consumer increases. To make the compensating variation in income or to keep the consumer's real income constant, take away the increase in his income equal to PM of good Y or Q_1N of good X so that his budget line PQ_1 shifts to the left as MN and is parallel to it.

At the same time, MN is tangent to the original indifference curve I_1 but at point H where the consumer buys OD of X and DH of Y. Thus PM of Y or Q_1N of X represents the compensating variation in income, as shown by the line MN being tangent to the curve I_1 at point H.

Now the consumer substitutes X for Y and moves from point R to H or the horizontal distance from B to D. This movement is called the substitution effect. The substitution

effect is always negative because when the price of a good falls (or rises), more (or less) of it would be purchased, the real income of the consumer and price of the other good remaining constant.

In other words, the relation between price and quantity demanded to be inverse, the substitution effect is negative.

Decomposition of Price Effect into Income and Substitution Effect:

A change in demand for a commodity, say X, due to change in the price of the same commodity (i.e. X) is called price effect.

The price effect describes the phenomenon on the consumer's purchases for a commodity (say X good) when its price changes, given consumer's tastes & preferences, his income and the price of good Y remains constant.

It shows the total effect on consumer's demand for a commodity due to the change in the price of the same commodity, other things being equal. The total price effect consists of two direct effects of the price change on consumer's choice i.e. (i) Income effect and (ii) Substitution effect.

Substitution effect arises due to the change in the relative price of a commodity. It happens due to the absolute change in the price of the same commodity.

When the price of one commodity increases (or decreases), it becomes relatively dearer (or cheaper) than the other. The consumers have an inherent tendency to substitute cheaper goods for relatively dearer ones. This is called the substitution effect.

A change in the relative prices of goods makes a rational consumer substitute a relatively cheaper commodity for the dearer one. Such an effect of the change in relative prices of goods is described as the substitution effect.

Under this effect, the consumer will tend to buy more of a good, the price of which has fallen and less of the good price of which has remained unchanged or has increased as he would reallocate his expenditure in favor of the relatively cheaper good and substitute for the dearer one.

It was assumed that the income level of the consumer remains constant or unchanged in the consumer's equilibrium analysis, given the prices of two goods X and Y.

If the income level of the consumer changes (i.e. either increases or decreases), then there is the effect in the purchase decision, given the prices of the two goods, and tastes & preferences of the consumer.

This effect on the demand or purchasing decision is known as income effect. Income effect shows the total effect on the demand for goods due to the change in income of the consumer, other things being equal.

Thus, the total price effect is composed of income and substitution effect. There are two methods of decomposing total price effect on income and substitution effects. They are as:

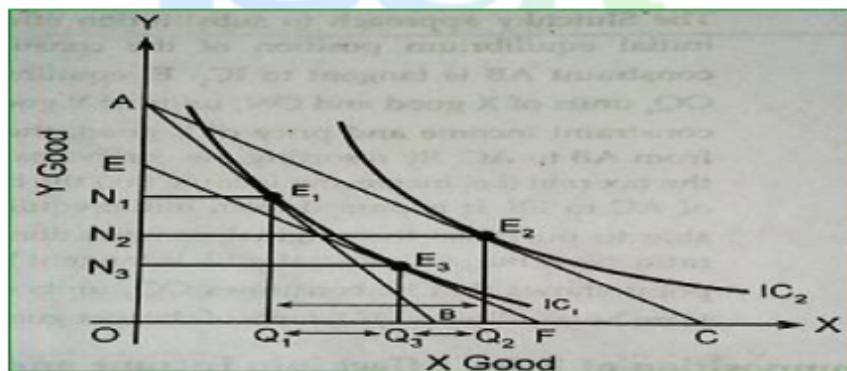
- i. Hicksian approach
- ii. Slutsky approach

Decomposition Of The Price Effect Into Income And Substitution Effects With A Fall In The Price Of Normal Goods Under Hicksian Approach:

In the figure, suppose that consumer is initially in equilibrium position at E_1 on the indifference curve IC_1 where initial budget line AB is tangent to indifference curve IC_1 .

Here, the consumer buys (or purchase) OQ_1 units of X good and ON_1 units of Y good. Now, suppose the price of X falls or decline other things being equal (i.e. the price of Y and level of income of the consumer remains unchanged or constant), the initial budget line AB shifts rightward to AC due to the increase in purchasing power of consumer for X good.

The new budget line (AC) is tangent to IC_2 at the point E_2 and the consumer reaches a new equilibrium. The new equilibrium shows that the consumer's purchase (or buys) OQ_2 units of X good and reduces N_1N_2 units of Y good. This process of adjustment on the consumption X and Y is called the total price effect.



Now the problem is how to split the price effect of X good (i.e. Q_1Q_2) into the income and substitution effects since price effect (PE) is composed of income effect (IE) and substitution effect (SE) i.e. $PE = IE + SE$.

If we measure any of these effects (IE or SE), we can easily find the others. Hicks suggested a convenient and direct way to measure first the income effect.

According to Hicks, the consumer can be brought to the initial indifference curve IC_1 , by imposing taxes (such as an increase in income tax), according to the new budget line.

In other words, when the government increases income tax, the consumer's real disposable income decreases and budget line shifts leftwards as a parallel of AC to EF . The new budget line EF is tangent to the initial indifference curve IC_1 at the point E_3 .

The point E_3 represents the consumer's equilibrium at a new price budget line (or price ratio) of X and Y, after the elimination of the real income effect. The equilibrium point E_3 shows that the consumers purchase OQ_3 units of X good and ON_3 units of Y good.

Here, he reduces his demand for X good by Q_2Q_3 units. The change in quantity demanded of X results from a decrease in consumer's real income due to an increase in income tax. Hence, Q_2Q_3 is the income effect.

When the consumer is in initial purchasing power from the cutting down of increased purchasing power or real income due to fall in the price of X, he compares the relative price of X with Y. It results that X good is relatively cheaper than Y good.

The change in relative prices will induce the consumer to rearrange the purchases of X and Y. Here, he substitutes Q_1Q_3 units of X for N_1N_3 units of Y. It is shown by the equilibrium point E_3 . This process in the substitution effect. In short,

$$PE = SE + IE$$

$$\text{Or, } E_1E_2 = E_1E_3 + E_2E_3$$

$$\text{Or, } Q_1Q_2 = Q_1Q_3 + Q_2Q_3$$

$$\text{Or, } Q_1Q_2 = Q_1Q_3 + Q_2Q_3$$

Demand and Demand Function:

Demand is the quantity of a good or service that consumers are willing and able to buy at a given price in a given time. According to **Milton H. Spencer**, "Demand is the quantity that will be purchased of a particular commodity at various prices, at a given time and place".

Demand function shows the functional relationship between demand for a commodity and price of the same commodity. It may be defined as the mathematical relationship between determinants of demand and demand for a commodity. It is expressed as $Q_x = f(P_x, Y, P_y, A, T, C, W, Sp, Ms, Tr, Ep)$ where,

- Q_x = Quantity Demand for X Good
- f = Function
- P_x = Price of X Good
- Y = Income
- P_y = Price of Y Good
- A = Advertisement
- T = Taste and Preferences
- C = Customs
- W = Weather
- Sp = Size of Population
- Ms = Money Supply
- Tr = Tax Rate

Ep = Expectation about Change in Price

According to **Edwin Masfield**, "Demand function is the relationship between the quantity demanded of the product and the various factors that influence this quantity".

Price Elasticity of Demand (Ep):

Price elasticity of demand is a measure used in economics to show the responsiveness of the quantity demand of a good or services to a change in its price. More precisely, it gives the percentage change in quantity demanded in response to a one percent change in price, holding constant all the other determinants of demand.

Price elasticity of demand is defined as the percentage change in demand due to the percentage change in the price of the commodity.

Mathematically,

$$Ep = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}}$$

$$Ep = \frac{\frac{\Delta Q}{Q} * 100\%}{\frac{\Delta P}{P} * 100\%}$$

$$\therefore Ep = \frac{P}{Q} * \frac{\Delta Q}{\Delta P}$$

Where,

Ep = Coefficient of price elasticity of demand

Q = Initial quantity demanded

P = Initial price

ΔQ = Change in quantity demanded

ΔP = Change in price

According to **K. E. Boulding**, "The price elasticity of demand may be defined as the percentage change in the quantity demanded which would result from one percent change in price".

For example, when quantity demanded increase from 100 units to 150 units due to a change in the price of the commodity from Rs 12 to Rs 10. Find the price elasticity of demand.

Solution,

Initial Price (P) = Rs 12

New Price (P1) = Rs 10

Change in Price (ΔP) = P1 - P = Rs (10 - 12) = - Rs 2

Initial Quantity Demanded (Q) = 100 units

New Quantity Demanded (Q1) = 150 units

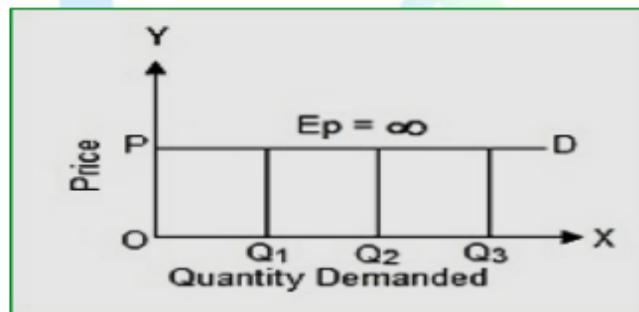
Change in Quantity demanded (ΔQ) = Q1 - Q = (150 - 100) units = 50 units

$$\therefore \text{Price Elasticity of Demand (}E_p\text{)} = \frac{P}{Q} * \frac{\Delta Q}{\Delta P} = \frac{10}{100} * \frac{50}{-2} = -2.5$$

Types (Degree) of Price Elasticity of Demand:

1. Perfectly Elastic Demand ($E_p = \infty$):

If a small change in the price of a commodity makes an infinite change in demand of commodity then it is called perfectly elastic demand. It is unrealistic because a one percent increase in the price of product X causes its sales to drop to zero or one percent decrease cause its sales to increase to infinity. It is denoted by $E_p = \infty$.

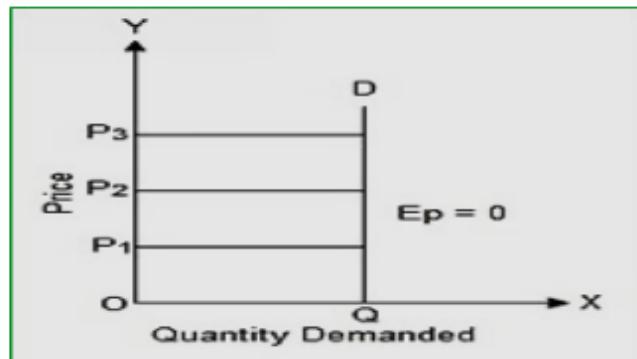


In the above figure, quantity demanded and price of the commodity is measured along X-axis and Y-axis respectively. A small change in price OP (i.e. rise or fall) make an infinite change in quantity demand (i.e. demand rises from OQ2 to OQ3 or demand falls from OQ2 to OQ1).

Thus, the demand curve PD, which is a horizontal straight line parallel to X-axis shows perfectly elastic demand.

2. Perfectly Inelastic Demand ($E_p = 0$):

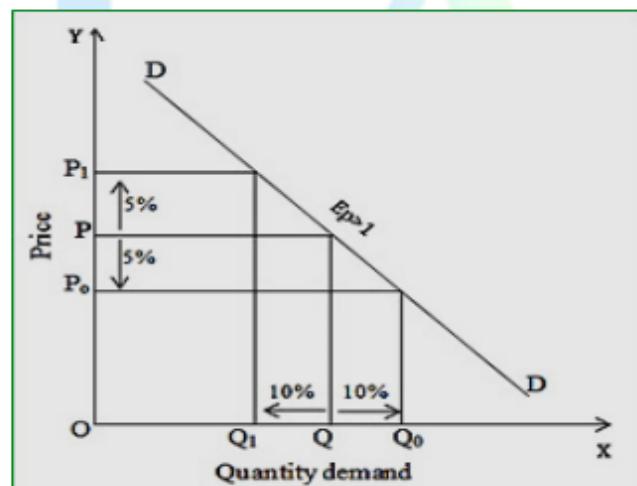
Perfectly inelastic demand refers to a situation when any change in price will not affect the demand for good i.e. quantity demanded will remain unchanged as a result of the change in its price, it is called perfectly inelastic demand. It is denoted as $E_p = 0$. Its example is salt.



In the above figure, quantity demanded and price of a commodity is measured along X-axis and Y-axis respectively. Change in price OP₂ (i.e. rise from OP₂ to OP₃ or fall from OP₂ to OP₁) does not make any change in quantity demand. Thus, the demand curve QD, which is a vertical straight line parallel to Y-axis shows perfectly inelastic demand.

3. Relatively Elastic Demand ($Ep > 1$):

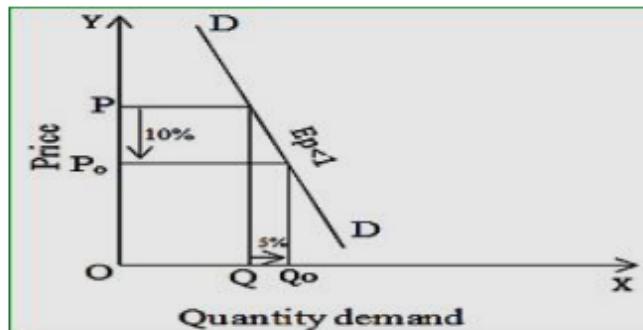
If there is great change in demand with a small change in price, it is called relatively elastic demand, i.e. percentage change in quantity demand is greater than the percentage change in price. It is denoted by $Ep > 1$.



In the above figure, the quantity demanded and price of a commodity is measured along X-axis and Y-axis respectively. Small percentage rise in price from OP to OP₁ i.e. 5% makes a greater percentage fall in quantity demand from OQ to OQ₁ i.e. 10% and vice versa then such, the demand curve DD, shows relatively elastic demand.

4. Relatively Inelastic Demand ($Ep < 1$):

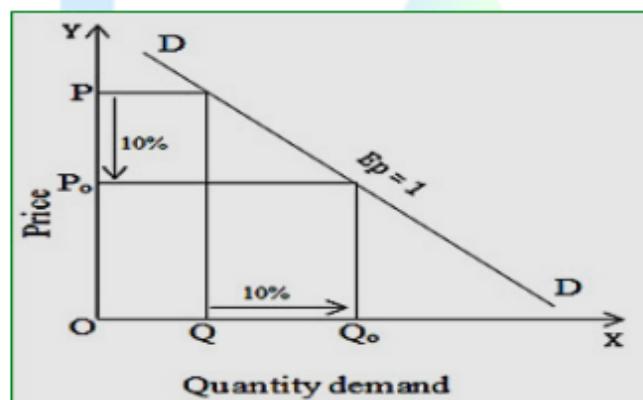
If there is a small change in demand with greater change in price i.e. percentage change in demand is less than the percentage change in price, is said to be relatively inelastic demand. It is denoted by $Ep < 1$.



In the above figure, the quantity demanded and price of a commodity is measured along X-axis and Y-axis respectively. Percentage fall in price from OP to OP_0 i.e. 10% makes a smaller percentage rise in quantity demand from OQ to OQ_0 i.e. 5% and vice versa then such, the demand curve DD shows relatively inelastic demand.

5. Unitary Elastic Demand ($E_p = 1$):

If a percentage change in price leads to an equal percentage change in demand, then the demand for that good is unitary. This kind of elasticity is also an imaginary one. This kind of elasticity is found basically in case of normal goods. It is denoted by $E_p = 1$.



In the above figure, the quantity demanded and price of a commodity is measured along X-axis and Y-axis respectively. Percentage fall in price from OP to OP_0 i.e. 10% makes the same percentage rise in quantity demand from OQ to OQ_0 i.e. 10% and vice versa then such, the demand curve DD, shows unitary elastic demand.

Nature of Price Elasticity of Demand:

Description	Elasticity	Definition	Example
Perfectly Elastic	Infinite ($E_p = \infty$)	Change in demand with negligible change in price	Imaginary
Perfectly Inelastic	Zero ($E_p = 0$)	Demand does not change with change in price	Salt
Relatively Elastic	Greater than 1 ($E_p > 1$)	% change in demand is greater than % change in price	Petrol

Relatively Inelastic	Smaller than 1 ($Ep < 1$)	% change in demand is less than % change in price	Sugar
Unitary Elastic	One ($Ep = 1$)	% change in demand is equal to % change in price	Cloth

Determinants of Price Elasticity of Demand:

1. Availability of Substitute Goods:

Demand for those commodities which have substitutes is relatively more elastic. The reason begins that when the price of a commodity falls concerning its substitute, the consumers will go in for it and so its demand will increase. Commodities having no substitutes like cigarettes, liquor, etc. have inelastic demand.

2. The Income Of The Consumer:

Price elasticity of demand is also determining the income of the consumer. If the consumer's income is high, demand is less elastic i.e. change in the price of goods will not affect the demand for that good by a greater proportion. But in low-income groups, the demand is an elastic i.e. small rise or fall in the price of goods will reduce or increase the demand.

3. The Proportion Of Income Spent On A Commodity:

Goods, on which a consumer spends a very small proportion of his income such as toothpaste, boot-polish, newspaper, etc. will have an inelastic demand. On the other hand, goods on which the consumer spends a large proportion of his income, their demand will be elastic.

4. Time Period:

Demand is inelastic in a short period but elastic in the long period. It is so because in the long-run a consumer can change his habits more conveniently than in a short period. Longer the time is taken by consumers to adjust a new price, the greater the elasticity and vice-versa.

5. Brand Loyalty:

An attachment to a certain brand, either out of tradition, can override sensitivity to the price change, resulting in more elastic demand.

6. Different Uses of Commodity:

Commodities that can be put to a variety of uses such as electricity have elastic demand. On the other hands, if a commodity such as the paper has only a few uses its demand is likely to be inelastic.

Income Elasticity of Demand (Ey):

Income elasticity of demand is the degree of responsiveness of quantity demanded of a commodity due to change in consumer's income, other things remaining constant. In other words, it measures by how much the quantity demanded changes concerning the change in income.

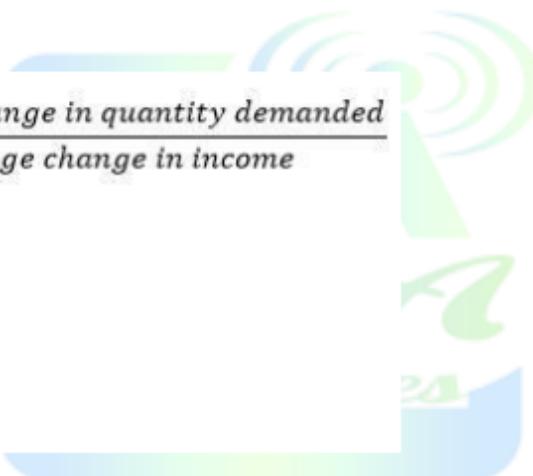
The income elasticity of demand is defined as the percentage change in quantity demanded due to a certain percentage change in the consumer's income.

Mathematically,

$$Ey = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in income}}$$

$$Ey = \frac{\frac{\Delta Q}{Q} * 100\%}{\frac{\Delta Y}{Y} * 100\%}$$

$$\therefore Ey = \frac{Y}{Q} * \frac{\Delta Q}{\Delta Y}$$



Where,

Ey = Coefficient of income elasticity of demand

Q = Initial quantity demanded

Y = Initial income

ΔQ = Change in quantity demanded

ΔY = Change in income

According to **Watson**, "Income Elasticity of demand means the ration of the percentage change in the quantity demanded to the percentage change in income."

For example, suppose that the income is Rs. 100, demand is 25 units. Now suppose that the income increases to Rs. 150, as a result of this, demand increases to 30 units. Find income elasticity of demand.

Solution,

Initial Income (Y) = Rs 100

New Income (Y_1) = Rs 150

Change in Income (ΔY) = $Y_1 - Y = \text{Rs } (150 - 100) = \text{Rs } 50$

Initial Quantity Demanded (Q) = 25 units

New Quantity Demanded (Q_1) = 30 units

Change in Quantity demanded(ΔQ) = $Q_1 - Q = (30 - 25)$ units = 5 units

$$\therefore \text{Income Elasticity of Demand (}E_Y\text{)} = \frac{Y}{Q} * \frac{\Delta Q}{\Delta Y} = \frac{100}{25} * \frac{5}{50} = 0.4$$

Interpretation: $E_Y = 0.4$ indicates that one percent increase in income of the consumer leads to 0.4 percentage increase in quantity demanded.

Types of Income Elasticity of demand:

1. Positive Income Elasticity Of Demand ($E_Y > 0$):

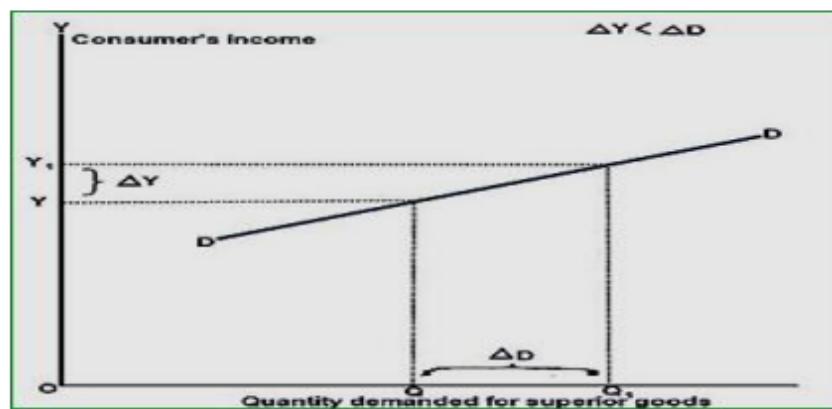
If there is a direct relationship between the income of the consumer and demand for the commodity, then income elasticity will be positive. That is, if the quantity demanded for a commodity increase with the rise in income of the consumer and vice versa, it is said to be a positive income elasticity of demand.

For example: as the income of consumer increases, they consume more of superior (luxurious) goods. On the contrary, as the income of consumer decreases, they consume less of luxurious goods.

Positive Income Elasticity Can Be Further Classified Into Three Types:

a. Income Elasticity Greater Than Unity ($E_Y > 1$):

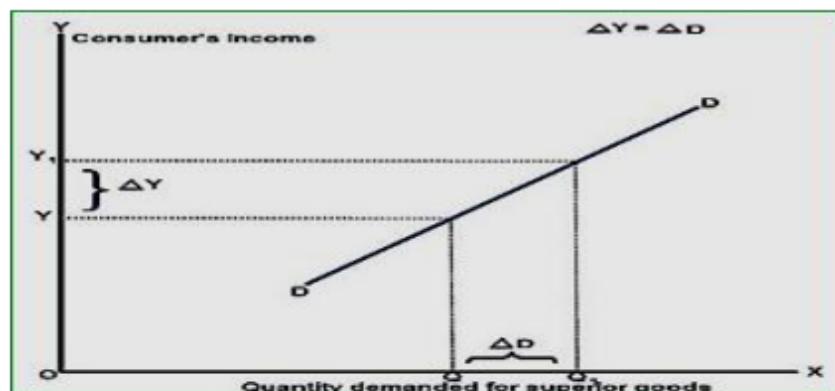
If the percentage change in quantity demanded for a commodity is greater than the percentage change in income of the consumer, it is said to be income greater than unity. For example: When the consumer's income rises by 5% and the demand rises by 10%, it is the case of income elasticity greater than unity.



In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The small rise in income from OY to OY_1 has caused greater the rise in the quantity demanded from OQ to OQ_1 and vice versa. Thus, the demand curve **DD** shows income elasticity greater than unity.

b. Income Elasticity Equal to Unity ($EY = 1$):

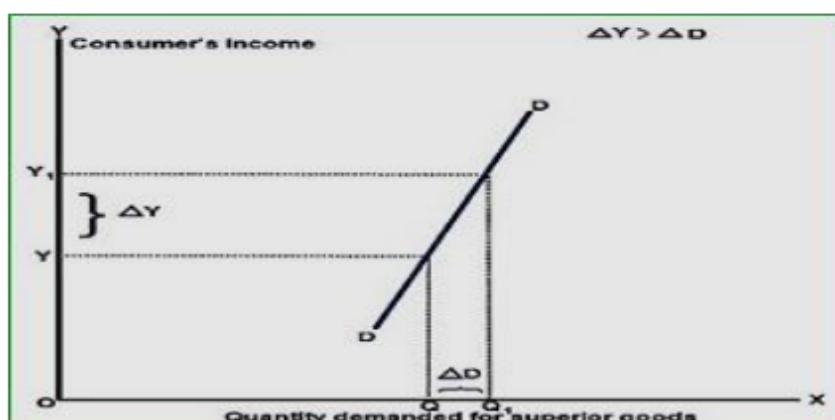
If the percentage change in quantity demanded for a commodity is equal to the percentage change in income of the consumer, it is said to be income elasticity equal to unity. For example: When the consumer's income rises by 5% and the demand rise by 5%, it is the case of income elasticity equal to unity.



In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The small rise in income from OY to OY_1 has caused an equal rise in the quantity demanded from OQ to OQ_1 and vice versa. Thus, the demand curve **DD** shows income elasticity equal to unity.

c. Income Elasticity Less than Unity ($EY < 1$):

If the percentage change in quantity demanded for a commodity is less than the percentage change in income of the consumer, it is said to be income greater than unity. For example: When the consumer's income rises by 10% and the demand rises by 5%, it is the case of income elasticity less than unity.

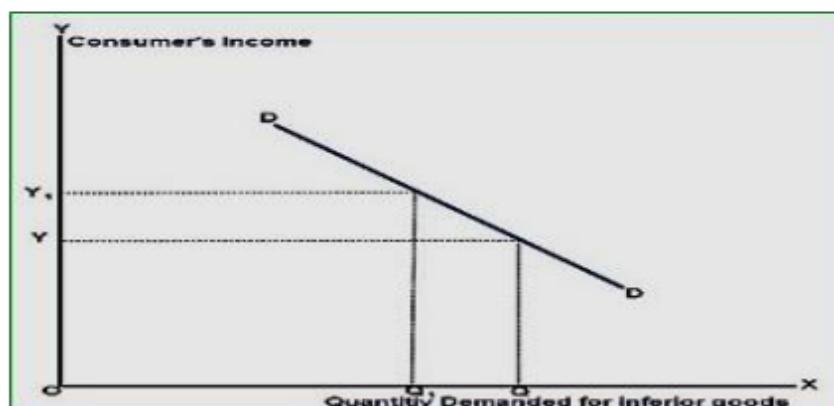


In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The greater rise in income from OY to OY_1 has caused a small rise in the quantity demanded from OQ to OQ_1 and vice versa. Thus, the demand curve DD shows income elasticity less than unity.

2. Negative Income Elasticity Of Demand ($E_Y < 0$):

If there is an inverse relationship between the income of the consumer and demand for the commodity, then income elasticity will be negative. That is, if the quantity demanded for a commodity decreases with the rise in income of the consumer and vice versa, it is said to be negative income elasticity of demand.

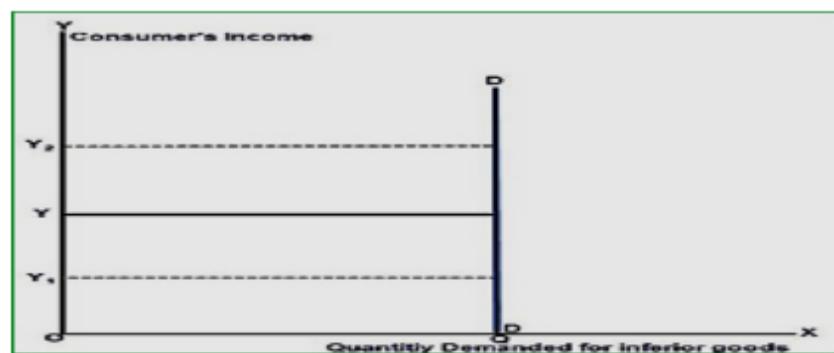
For example: As the income of consumer increases, they either stop or consume less of inferior goods.



In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. When the consumer's income rises from OY to OY_1 the quantity demanded of inferior goods falls from OQ to OQ_1 and vice versa. Thus, the demand curve DD shows negative income elasticity of demand.

3. Zero Income Elasticity Of Demand ($E_Y = 0$):

If the quantity demanded for a commodity remains constant with any rise or fall in income of the consumer and, it is said to be zero income the elasticity of demand. For example: In the case of basic necessary goods such as salt, kerosene, electricity, etc. there is zero income elasticity of demand.



In the given figure, quantity demanded and consumer's income is measured along X-axis and Y-axis respectively. The consumer's income may fall to **OY₁** or rise to **OY₂** from **OY**, the quantity demanded remains the same at **OQ**. Thus, the demand curve **DD**, which is a vertical straight line parallel to Y-axis shows zero income elasticity of demand.

Nature of Income Elasticity of Demand:

Description	Elasticity	Definition	Example
Positive Elasticity	Positive ($E_y > 0$)	Demand increases with the increase in income of the consumer	
	Greater than 1 ($E_y > 1$)	% change in demand is greater than % change in income	Watch
	Smaller than 1 ($E_y < 1$)	% change in demand is smaller than % change in income	Flour
	Equal to 1 ($E_y = 1$)	% change in demand is equal to % change in income	
Negative Elasticity	Negative ($E_y < 0$)	Demand decrease with increase in income of the consumer.	Millet
Zero Elasticity	Zero ($E_y = 0$)	Demand does not change with change in income of the consumer.	Salt

Cross Elasticity of Demand (Ec):

The cross-price elasticity of demand is the degree of responsiveness of quantity demanded of a commodity due to the change in price of another commodity. Cross elasticity of demand is the percentage change in the quantity demanded of good X due to a certain percentage change in the price of the good Y.

Mathematically,

$$Ec = \frac{\text{percentage change in quantity demanded of good } X}{\text{percentage change in price of good } Y}$$

$$Ec = \frac{\frac{\Delta Q_x}{Q_x} * 100\%}{\frac{\Delta P_y}{P_y} * 100\%}$$

$$\therefore Ec = \frac{P_y}{Q_x} * \frac{\Delta Q_x}{\Delta P_y}$$

Where,

- E_c = Coefficient of cross elasticity of demand
- Q_x = Initial quantity demanded of good X
- P_y = Initial price of good Y
- ΔQ_x = Change in quantity demanded of good X
- ΔP_y = Change in price of good Y

According to **C. E. Ferguson**, “*Cross the elasticity of demand is the proportionate change in the quantity demanded of good X divided by the proportionate change in the price of good Y.*”

For example, suppose X and Y are two substitute goods when the initial price of Y is Rs. 40, the initial quantity of X is 50kg. When the price of good Y increase to Rs. 5 the quantity demanded for X increases to 60kg. Then find cross-elasticity of demand.

Solution,

$$\text{Initial demand of good X } (Q_x) = 50\text{kg}$$

$$\text{New demand of good X } (Q_{x1}) = 60\text{kg}$$

$$\text{Change in demand of good X } (Q_{x1} - Q_x) = 60 \text{ kg} - 50 \text{ kg} = 10\text{kg}$$

$$\text{Initial price of good Y } (P_y) = \text{Rs. } 40$$

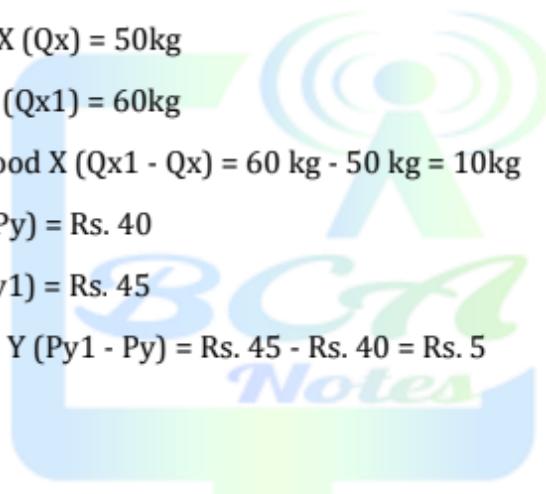
$$\text{New price of good Y } (P_{y1}) = \text{Rs. } 45$$

$$\text{Change in price of good Y } (P_{y1} - P_y) = \text{Rs. } 45 - \text{Rs. } 40 = \text{Rs. } 5$$

$$E_c = 40/50 * 10/5$$

$$\therefore E_c = 1.5$$

Interpretation: $E_c = 1.5$ indicates that 1 percent increase in price of good Y leads to 1.5 percentage increase in quantity demanded of good X.

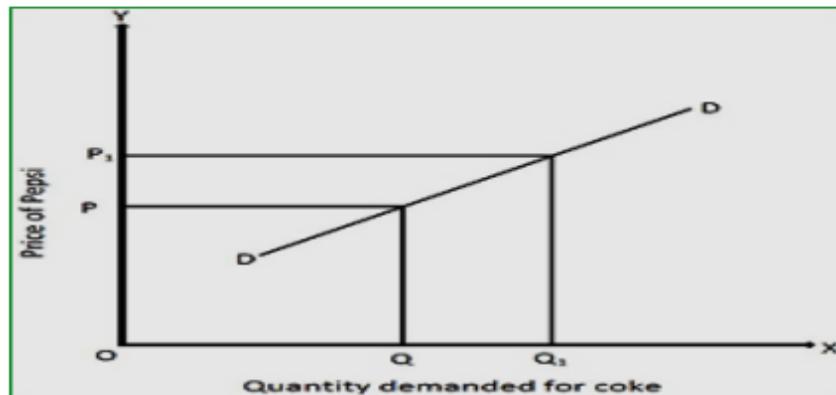


Types Of Cross Elasticity of Demand:

1. Positive Cross The elasticity of Demand: Substitute Goods($E_c > 0$):

If the two goods are substitutes for each other, the cross elasticity of demand will be positive. When the price of one good goes up the demand of the other will increase and vice-versa.

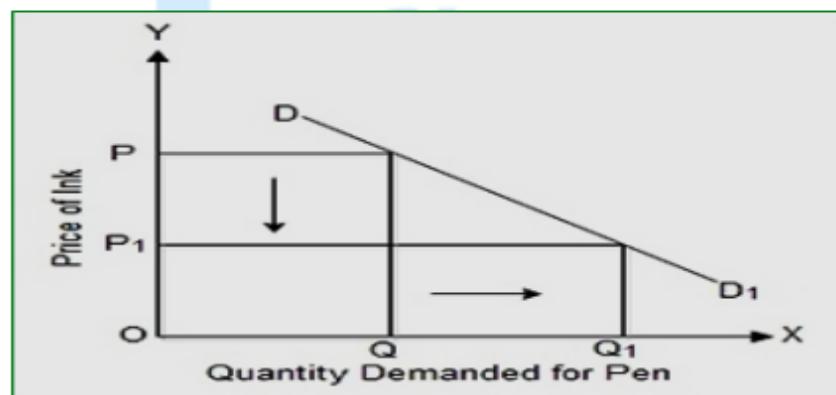
For example, in response to an increase in the price of Pepsi, the demand for Coke will rise. It is denoted by $E_c > 0$.



In the given figure, the price of Pepsi and demand for coke is measured along Y-axis and X-axis respectively. With the increase in the price of Pepsi from OP to OP₁, demand for coke has increased from OQ to OQ₁ i.e. if the price of Pepsi raises the demand for coke rises. The DD curve shows the positive relationship between the price for Pepsi and the demand for coke.

2. Negative Cross The elasticity of Demand: Complementary Goods ($EC < 0$):

If the two goods are complementary to each other, the cross elasticity of demand will be negative. When the price of one good increases the demand for the other will decrease. For example, a response to an increase in the price of Ink, the demand for Pen will decrease. It is denoted by $Ec < 0$.

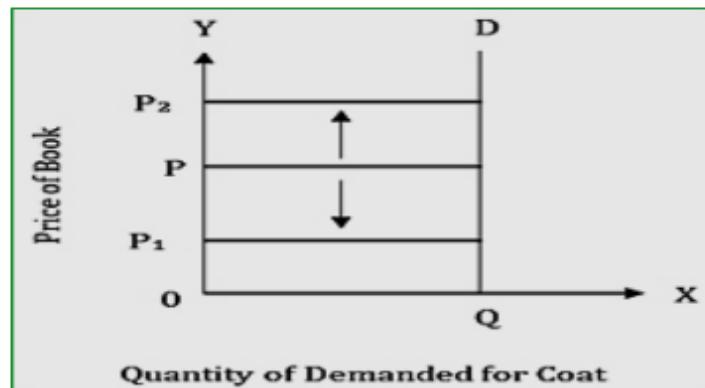


In the given figure, the price of Ink and demand of Pen is measured along Y-axis and X-axis respectively. With the decrease in the price of Ink from OP to OP₁, demand for Pen has increased from OQ to OQ₁ i.e.

if the price of Ink falls the demand for coke rises. The DD curve shows the negative relationship between the price for Ink and demand for a pen.

3. Zero Cross Elasticity of Demand: Neutral Goods (EC = 0):

When the goods are not related to each other i.e. neutral goods, the cross elasticity is zero. These goods have no price and demand relationship with one another. As for example, Price of Book and demand of Coat. The change in the price of a book does not affect the demand for the coat.



In the given figure, the price of book and demand of coat is measured along Y-axis and X-axis respectively. With the increase or decrease in the price of a book from OP to OP₂ or OP to OP₁, demand for coat remains neutral OQ. The DQ curve shows, there is no price and demand relation between book and coat.

Supply and Supply Function:

Supply is the quantity of a good or service that producers are willing and able to sell at a given price in a given time. According to **R.G. Lipsey**, "The amount of commodity that firms will be willing and able to offer for sale is called the quantity supplied of a commodity."

Supply function shows the functional relationship between supply of a commodity and its various determinants. In other words, the supply of a commodity is a function of several factors as expressed in the following equation: $S_x = f(P_x, P_r, N_f, G, P_f, T, E_x, G_p)$ where,

- S_x = Supply of commodity-x
- F = Functional relationship
- P_x = Price of commodity-x
- P_r = Price of related goods
- N_f = Number of firms
- G = The goal of the firm
- P_f = Price of factors of production
- T = Technology
- E_x = Expected future price
- G_p = Government policy

Price Elasticity of Supply:

In economics, elasticity is defined as the degree of change in demand and supply of consumers and producers concerning the change in income or price of the commodity.

Particularly, price elasticity of supply is a measure of the degree of change in the supplied amount of commodity in response to the change in the commodity's price. In simple words, it can be defined as the rate of change in supply in response to a price change. It is denoted as PES or E_s .

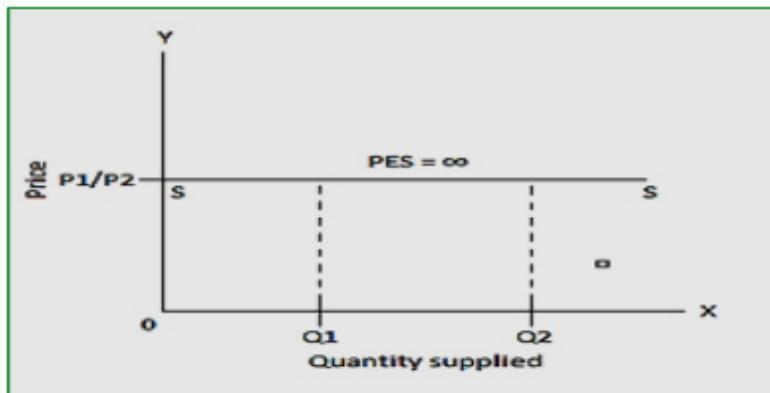
Mathematically, the price elasticity of demand is expressed as:

$$\begin{aligned}
 PES &= \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}} \\
 &= \frac{\frac{\text{change in quantity supplied}}{\text{initial quantity supplied}} \times 100\%}{\frac{\text{change in price}}{\text{initial price}} \times 100\%} \\
 &= \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}
 \end{aligned}$$

Degrees or Types of Price Elasticity of Supply:

1. Infinite/Perfectly Elastic Supply:

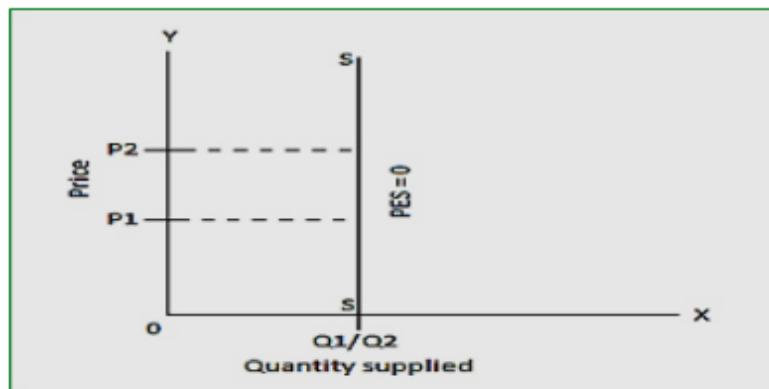
When a slight or minimal change in price causes an infinite change in quantity supplied, it is said to be infinite or perfectly elastic supply. In a graph, such a situation is represented by a straight line which is parallel to X-axis.



In the above figure, we can see that the quantity supplied has varied significantly even at the same price level. This kind of price elasticity is expected to occur in highly luxurious goods. However, the perfectness of anything, including perfectly inelastic supply is considered to be rare or impractical in the economy.

2. Zero/Perfectly Inelastic Supply:

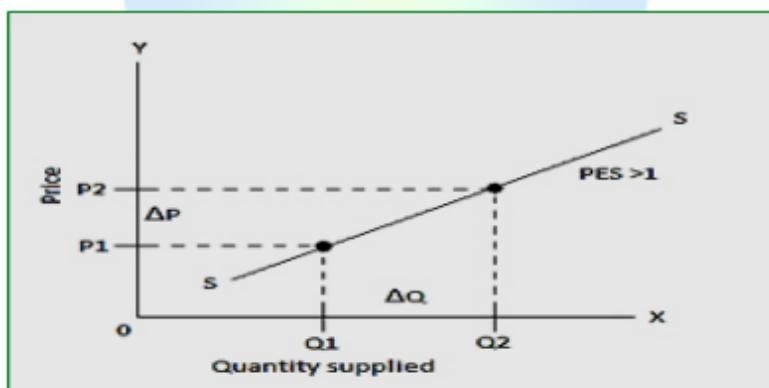
When quantity supplied remains unchanged with a change in price, it is said to be zero or perfectly inelastic supply. Such a situation in the graph is represented by a straight line which is parallel to Y-axis.



In the above figure, we can see that the amount of commodity supplied has remained unchanged even when the price has greatly changed. This type of price elasticity is expected to be observed in highly essential goods such as medicines. However, as mentioned earlier, the perfectness of anything in the economy is rare or impractical.

3. Relatively Elastic Supply:

When the percentage change in quantity supplied is greater than percentage change in price, the condition is known as relatively elastic supply. This situation when plotted in the graph makes an upward slope which intersects positive Y-axis.

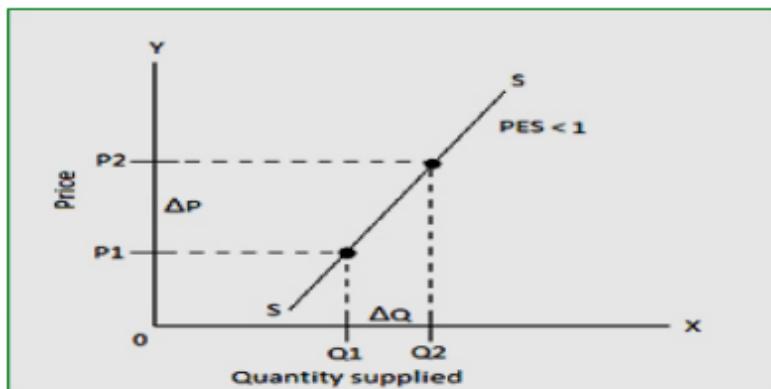


In the figure above, we can see that the ratio of change in quantity supplied is greater than the ratio of change in price. As a result, when we put their values in the above mathematical expression, we get $PES > 1$.

Elasticity tends to be greater than 1 in case of products which are not necessary to sustain our lives. Luxury goods such as expensive smartphone, gold, etc. show this kind of price elasticity.

4. Relatively Inelastic Supply:

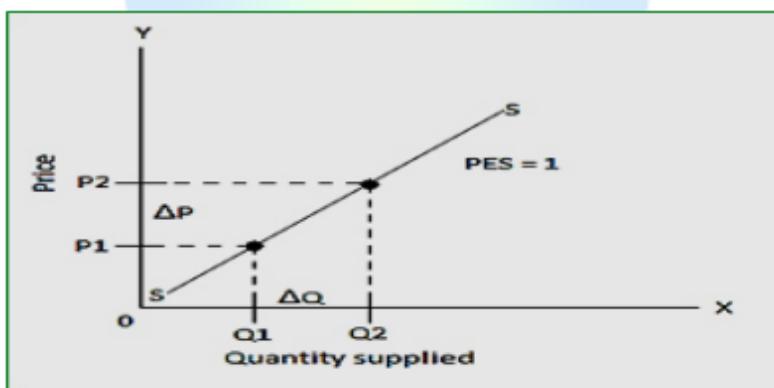
When the percentage change in quantity supplied is lesser than the percentage change in price, the condition is known as relatively inelastic supply. This situation when plotted in the graph makes the highly inclined upward slope which intersects positive X-axis.



In the above figure, it is clearly shown that the ratio of change in price is greater than the ratio of change in quantity, whose value when substituted in the given expression, we get $PES < 1$. Such kind of price elasticity can be observed in goods which are necessary for our day to day lives. Clothes, foods, etc. are good examples of these kinds of goods.

5. Unitary Elastic Supply:

When the percentage change in quantity supplied is exactly equal to the percentage change in price, the situation is known as unitary elastic supply. This situation is graphed by an upward slope which intersects the origin.



In the above figure, the ratio of change in quantity supplied is equal to the ratio of change in price. Consequently, when the value of these variables is substituted in the given expression, we get $PES=1$. This behavior between price and quantity supplied of the commodity is also known as lock-step movement.

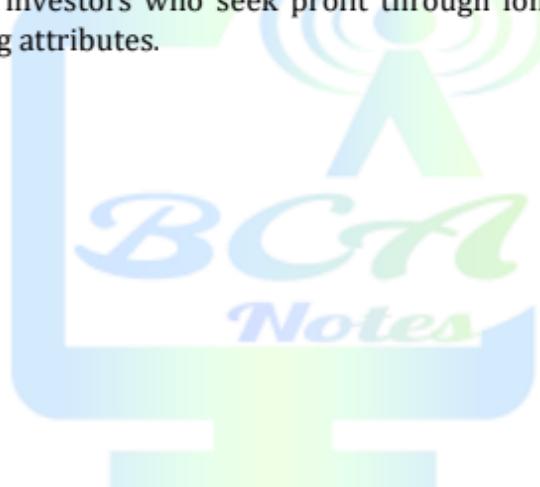
Economics of Speculation:

Speculation is the purchase of an asset (a commodity, goods, or real estate) with the hope that it will become more valuable at a future date.

In finance, speculation is also the practice of engaging in risky financial transactions in an attempt to profit from short term fluctuations in the market value of a tradable financial instrument rather than attempting to profit from the underlying financial attributes embodied in the instrument such as capital gains, dividends, or interest.

Many speculators pay little attention to the fundamental value of a security and instead focus purely on price movements. Speculation can in principle involve any tradable good or financial instrument. Speculators are particularly common in the markets for stocks, bonds, commodity futures, currencies, fine art, collectables, real estate, and derivatives.

Speculators play one of four primary roles in financial markets, along with hedgers, who engage in transactions to offset some other pre-existing risk, arbitrageurs who seek to profit from situations where fungible instruments trade at different prices in different market segments, and investors who seek profit through long-term ownership of an instrument's underlying attributes.

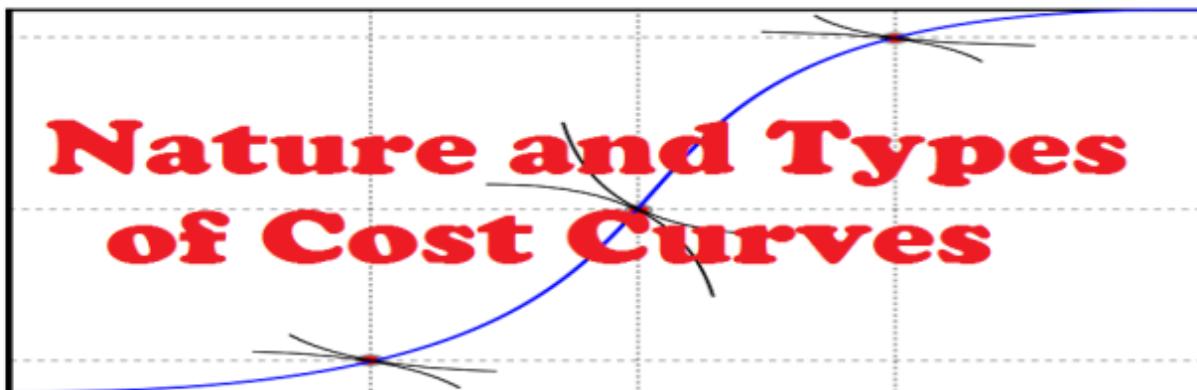


Unit III: Analysis of Cost and Revenue - Applied Economics

Nature and Types of Cost Curves:

Cost is the most important factor which influences the supply of commodities. Since the highest cost reduces the profits of the producer it is a very important factor to consider very seriously by the producer.

The theory of cost is very important in Economics. Now, the theory has two versions like the traditional version and modern version. Here the hub is briefly explained the traditional theory of cost.



Concept of Costs:

When a producer wants to produce commodities, he/she should contribute to the factors of production. Then only he/she can produce the commodity. Further, he/she required to spend many other expenses like taxes, duties etc. So, the cost refers to the expenditure incurred by a firm to produce goods and services.

Types of costs:

On the basis of the nature of the expenditure, costs can be classified into many categories. Some of them are described below.

1. Money Costs / Explicit Costs:

Simply money costs refer to the total money expenditure incurred by a firm due to its production activities. Wages to labors, salaries to staffs, expenses to purchase raw materials, rent etc. are the examples of money cost. It is also called as explicit costs.

2. Implicit Costs:

Sometimes the entrepreneur may bring his own raw materials, buildings, land etc. to the business. In reality, he can claim rent for land and building, interest on investment etc. Simply, implicit cost refers to the cost of self-owned resources by the producer.

3. Private And Social Costs:

Private costs refer to the costs which are related to the firm. This is nothing when we sum up both implicit and explicit costs together we can derive private costs. A social cost is entirely different from private cost. Suppose a factory creates lots of social issues like pollution. So, the social cost is nothing, it is the cost incurred in society.

4. Opportunity Cost:

It is defined as the cost of the best alternative cost foregone. Consider a field, where a farmer can produce either Rice or Wheat or other crops. When he wants to produce Rice he should sacrifice the others.

5. Real Cost:

Payment is given to the factors of production in terms of money as well as other extra facilities like logging, food, health, education, etc. are called real cost.

6. Economic Cost:

The cost obtained after the summation of implicit and explicit cost of the factors of production is called economic cost.

7. Accounting Cost:

Accounting cost is the measurement of the cost at which we will be recording expense (actual cost incurred/ cash outflow) in our books of accounts for the transaction.

Time and Costs:

On the basis of the time element, costs can be classified into two groups. They are

1. Short Run Period:

In the short run period, the producer cannot change the fixed capital or factors of production like land, building etc. he can vary only variable inputs like labor, power, raw material etc.

Short Run Total Costs and Curves:

In the short run, there are three basic concepts of total costs. Namely:

a. Total Fixed Costs (TFC):

Total fixed costs refer to those costs which are unable to vary. For example land, buildings, machinery etc. Even the output is zero fixed costs will be there. Because this cannot be variable with respect to the level of production.

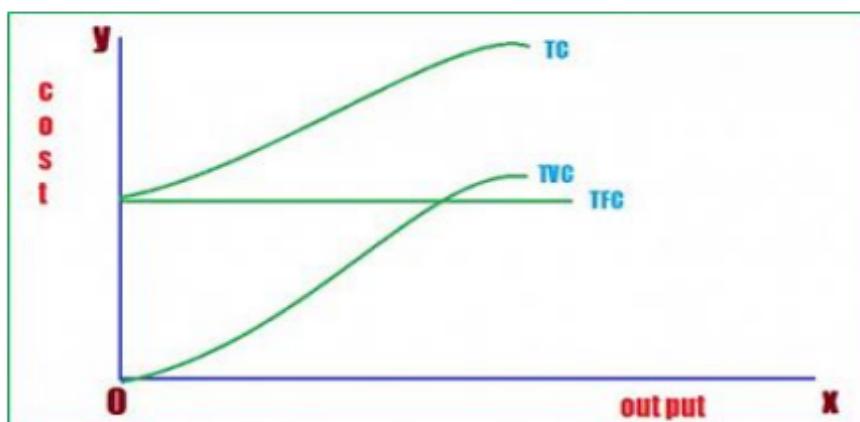
So, it is also called the invariable cost. Since fixed costs are fixed or rigid it can be represented through a curve having a horizontal shape to the output axis as showed in the figure below.

b. Total Variable Costs (TVC):

On the opposite of fixed inputs, some other variable inputs are there. This can change according to the demand for production. When the demand is high the producer can increase the output by increasing the variable inputs. TVC curve can be represented as shown in the figure below.

c. Total Costs (TC):

Total cost is the total expenditure incurred by a firm during the production process. To find out total cost, we can add both variable and fixed costs. TC always varies with the TVC. It begins with the minimum point of TFC as shown in the Figure below.



Short Run Average Cost and Curves:

There are mainly three units of Average Costs. These costs are also known as unit costs. It can influence the prices and supply of commodities. Anyway each of the concepts of Short-run Average Costs is briefly shown below with curves.

a. Average Fixed Cost (AFC):

AFC is the average of total fixed costs. AFC can be obtained by dividing the total fixed cost by total quantity of output each time produced.

Mathematically,

$$AFC = TFC / \text{quantity}$$

TFC will be always fixed. So it will reduce and never reaches zero. It is showed in the Figure below.

b. Average Variable Cost (AVC):

AVC is the average of total variable cost. It can find out by using the following formula.

$$AVC = TVC / \text{quantity}$$

AVC curve will be a 'U' shaped one as showed in the figure below. Which is showing that when the output raises the cost will decline, but after a certain level the cost starts to increases? That is why due to the variable proportion.

c. Average Total Cost (ATC):

ATC or AC is the average of the total cost. It can be derived by using the formula.

$$AC = TC / \text{quantity}$$

ATC is also a 'U' shaped curve. Because this will varies with the changes in variable costs. The curve of AC can be represented as showing in the figure below.

Short Run Marginal Cost (MC):

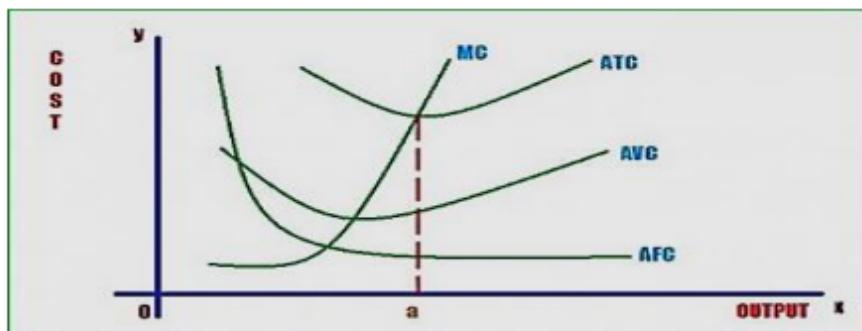
When a producer increases the supply or output of commodities, there arose additional cost. So, Marginal Cost refers to the cost adding to Total Cost when production is increased. Hence MC can be found by using the formula:

$$MC = \text{Change In TC} / \text{Change In Quantity.}$$

The marginal cost curve is also a 'U' shaped one. It can be represented as showing in the figure below.

In the figure below short-run average costs and MC, curves are shown. Where AFC has a shape of a rectangular hyperbola. And all other curves have a 'U' shaped curve. An important thing noted that, the relationship between SAC and SMC.

Where when SAC decline SMC also follows. When SAC reaches its minimum point, SMC cut SAC from below through the minimum point of SAC.



2. Long Run Period:

On the opposite side, in the long run, the producer can change all inputs both fixed and variable, either increase or decrease according to demand.

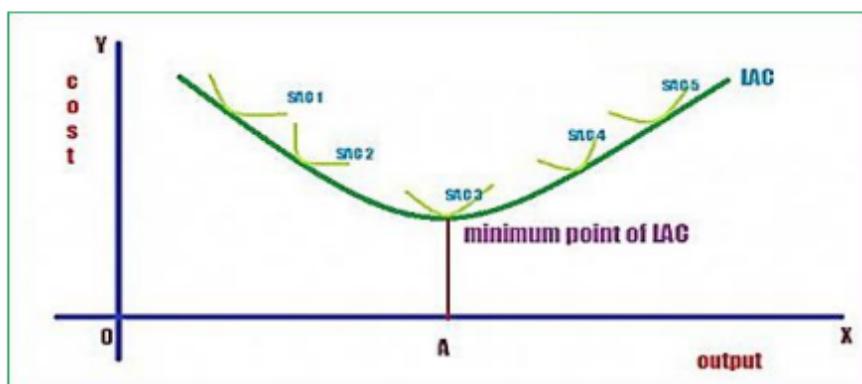
Long-Run Cost Curves:

Long run refers to, a firm can vary all inputs even fixed inputs. Mainly two concepts of costs are coming under the long run. They are:

a. Long-Run Average Cost (LAC):

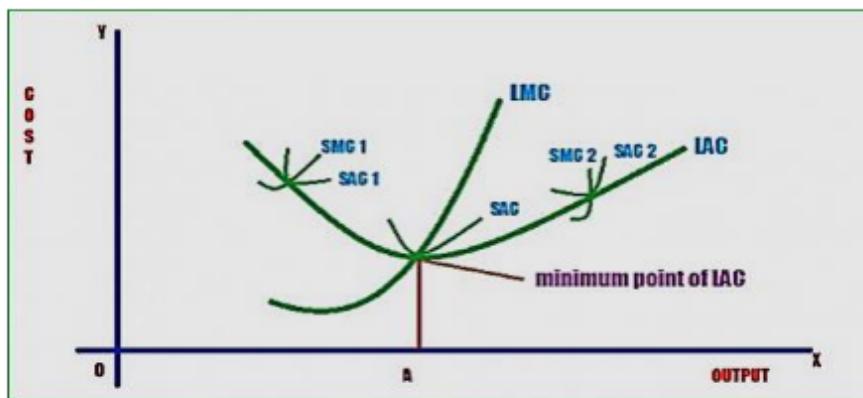
LAC is the sum-up of each short-run average costs (SAC). LAC showing the average cost for producing per unit of output. So, when we add each of the SAC curves we can develop LAC curve. So, this is also called a envelop curve.

It is the planning curve because it enables the producer in decision making. The minimum point of the LAC curve is more profitable to the producer. LAC curve can be represented in the figure below:



b. Long Run Marginal Cost (LMC):

Since each of the SMC curves passes through the minimum point of SAC, we can draw many SMC curves. But LMC curve will be one which passes through the minimum point of LAC. It is showed in the figure below.



In the above figure, the minimum point of LAC is the point which enables the producer to penetrate maximum profits. LMC curve cuts LAC from below through its minimum point.

Conclusion:

In the traditional theory of cost, all the average cost curves having 'U' shape. In which the producer can earn maximum at a specific point. That is the minimum point of the SAC curve in the short-run and LAC curve in the long run.

Relation between Average Cost and Marginal Cost Curve:

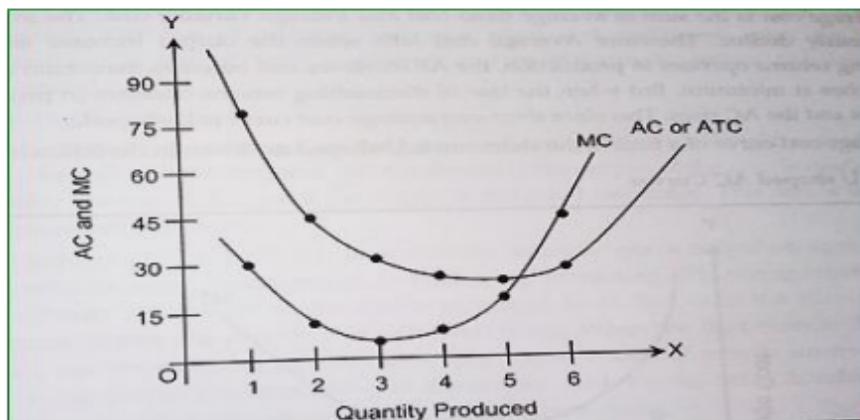
The relationship between AC and MC is very important for economic analysis. With the help of this relationship, a firm can decide its level of output. Both average and marginal cost first falls reach the minimum point, then after rising.

Marginal cost curve cuts the average cost curve at its minimum point. When marginal cost is below the average cost, the average cost falls and when marginal cost is above than average cost, average cost arises.

The relationship between AC and MC can be explained with the help of the following table:

Output (Kg)	TC (Rs)	$MC (\text{Rs}) = \Delta \text{TC}/\Delta Q$	$AC (\text{Rs}) = \text{TC}/Q$
0	50	-	-
1	80	30	80
2	90	10	45
3	95	5	31.6
4	105	10	26.2
5	125	20	25
6	170	45	28.3

In the above table, both MC and AC are derived from the total cost. Initially, they fall reach at the minimum point and start to rise. MC falls faster than AC, reach minimum and MC rise faster than AC. It can be also explained with the help of a diagram.



In the above figure, before the minimum point of the AC curve, the MC curve falls faster than the AC curve. The MC curve lies below the AC curve, the MC curve cuts the AC curve from below. After the minimum point of the AC curve, MC curve rises faster than the AC curve and MC curve lies above the AC curve.

Nature and Type of Revenue Curve:

Revenue is an amount received by producer, seller or firm by selling goods and services in the market at market price.

Concept of Revenue:

1. Total Revenue:

Total Revenue is referred to the total amount received by producer, seller or firm by selling goods and services in the market at the market price at a given period of time. It is found out by multiplying the price per unit of the product with the total number of units of the product sold to the customers.

Mathematically,

$$TR = P \cdot Q \text{ where}$$

TR = Total Revenue

P = Price

Q = Quantity Sold

2. Average Revenue:

Average Revenue is a per-unit revenue of the product. It is obtained by dividing total revenue by output i.e. $AR = TR/Q$.

3. Marginal Revenue:

Marginal Revenue is an additional revenue obtained by selling one extra unit of output in the market at market price. It is obtained by dividing the change in total revenue by change in output i.e. $MR = \text{change in TR}/\text{change in } Q$.

Derivation of TR, AR and MR Curve under Different Market Structure:

1. Perfect Competition:

Perfect competition refers to a market situation in which there are large numbers of buyers and sellers of the homogeneous product. The price of the product is determined by the interaction between two forces of the market, i.e. demand forces and supply forces.

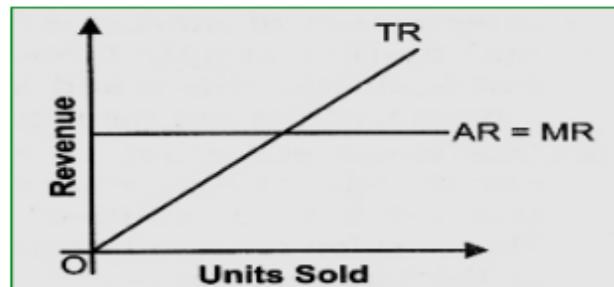
Under perfect competition, a firm is a price taker. Thus, it sells its output at the prevailing market price over a period of time. Thus, the price is constant at each increasing level of output.

In other words, the price of the product remains constant at any level of output due to the perfect knowledge about market and product homogeneity. Hence, all firms are price takers.

At the constant price, TR varies positively and proportionately with an output. But, both AR and MR remain constant at any level of output. It is because TR increases at a constant rate.

Units of Sales (Q)	Price per unit	TR	$AR = TR/Q$	$MR = \Delta TR/\Delta Q$
1	10	10	10	10
2	10	20	10	10
3	10	30	10	10
4	10	40	10	10

According to the above schedule, when the seller increases his sales as proportionately (say, 1 kg, 2 kg, 3 kg and 4 kg) at a constant price (i.e. Rs. 10) total revenue also increases at the same proportion (say, Rs. 10, Rs.20, and Rs.40). But average and marginal revenues remain constant (say, Rs. 10) at each increasing level of output (sales). In other words, $AR = MR$ at each level of output.



In the above figure, output and revenue are measured on, the X-axis and the Y-axis respectively. TR is the total revenue curve sloping upward, left to right at 45. It indicates that the total revenue varies directly and positively with the sales quantity.

AR and MR are average revenue curve and marginal revenue curves respectively. Both curves slope horizontal or parallel to the X-axis. MR coincides with AR. AR is the firm's demand curve and it is perfectly elastic (i.e. $ep = \infty$).

The slope of these curves indicates that both AR and MR remain unchanged at each increasing level of output.

2. Imperfect Competition (Monopoly):

A monopoly is an extreme form of imperfect competition. Monopoly is a market organization in which there is a single seller. There are no close substitutes for the commodity it produces and entry of other firms is blocked.

Thus, the seller has full control over the supply of the commodity. A monopolist is a price maker and it is he who determines the price of his product on the basis of the law of demand. Thus, the seller can sell more units of the output only at lower prices.

In other words, there is an inverse relationship between output and price. Hence, total revenue increases at a diminishing rate with an increase in output at the same rate. But, both average and marginal revenue fall continuously.

However, the decreasing rate of marginal revenue is greater than average revenue. The relationship between TR, AR, MR can be shown by a schedule as follows:

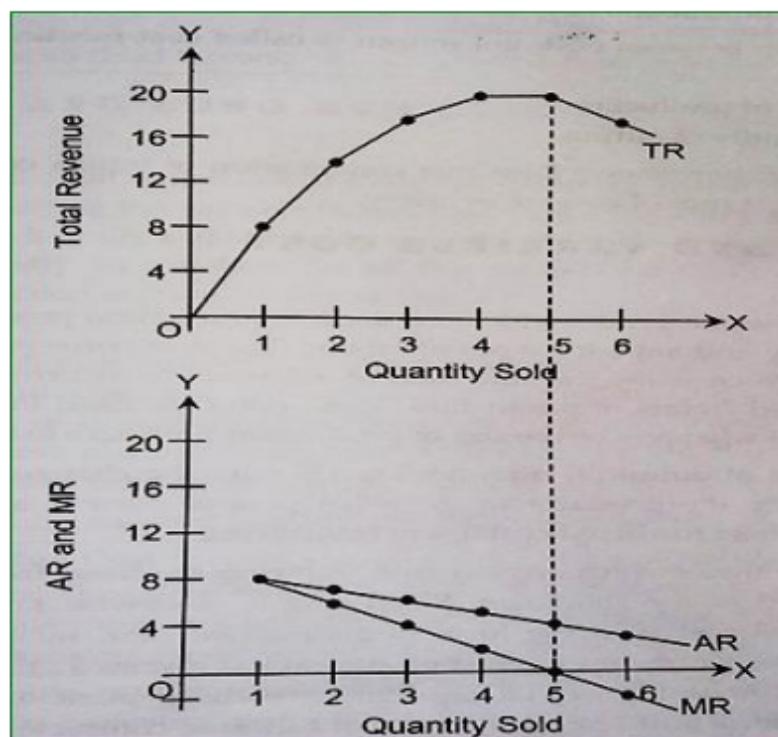
Price (Rs.)	Units of Commodity(Q)	TR	AR = TR/Q	MR = $\Delta TR/\Delta Q$
8	1	8	8	-
7	2	14	7	6
6	3	18	6	4
5	4	20	5	2
4	5	20	4	0
3	6	18	3	-2
2	7	14	2	-4

Above table shows that under imperfect competition market more units of output can be sold by lowering the price. When the price falls, both the average revenue and marginal

revenue decline. Marginal revenue decreases at a higher rate than average revenue. Marginal revenue falls, becomes zero and it will be negative.

Average revenue also falls but remains positive. The total revenue continuously increases, reaches the maximum point and declines. When marginal revenue will be zero, total revenue reaches the maximum point.

But total revenue falls when marginal revenue becomes negative. The derivation of TR, MR and AR curve under Monopoly.



In the upper portion of the figure total revenue is measured on the OY axis and quantity sold is measured on the OX axis. In the lower portion of the figure price, average revenue and marginal revenue measured on OY axis quantity sold are measured on the OX axis.

TR, MR and AR represent the total revenue curve, marginal revenue curve and average curve respectively. The total revenue increase at a diminishing rate reaches the maximum point and declines.

Average revenue and marginal revenue curves both slope downward to the right. The sloping rate of marginal revenue is higher than the sloping rate of average revenue.

Under monopoly, the industry itself is the firm, in fact, only one firm constitutes the industry. The demand for the monopoly industry is also the demand curve of the monopoly firm.

The demand curve will be sloping downwards to indicate that the monopoly firm can sell more only by reducing its price. The MR curve for such a demand curve will also be falling but at a greater rate than the demand curve.

Unit IV: Theory of Production - Applied Economics

Producer Equilibrium in Long Run:



Producer Equilibrium:

Producer equilibrium is a situation where the producer produces maximum output from given resources or inputs. It is a condition of profit maximization of the producer from the given level of inputs (i.e. labor and capital).

Two Conditions Must Be Fulfilled Form Producer Equilibrium and They Are:

1. **Necessary Condition:** The slope of ISO-QUANT must be equal to the ISO-COST line i.e. $MRTS_{LK} = W/R$.
2. **Sufficient Condition:** ISO-QUANT must be convex to the origin at the point of tangency to the ISO-COST line.

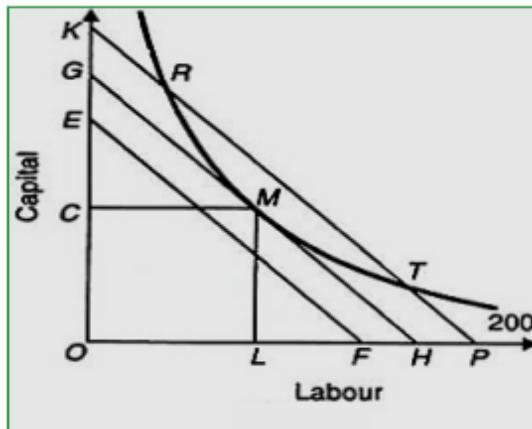
Producer equilibrium can be explained in terms of cost minimization and output maximization with the help of a diagram.

Assumptions:

1. There are two factors, labor and capital.
2. All units of labor and capital are homogeneous.
3. The prices of units of labor(w) and that of capital(r) is given and constant.
4. The cost outlay is given.
5. The firm produces a single product.
6. The price of the product is given and constant.
7. The firm aims at profit maximization.
8. There is perfect competition in the factor market.

Cost Minimization:

Given these assumptions, the point of the least-cost combination of factors for a given level of output is where the isoquant curve is tangent to an iso-cost line. In the figure given below, the iso-cost line GH is tangent to the isoquant 200 at point M.

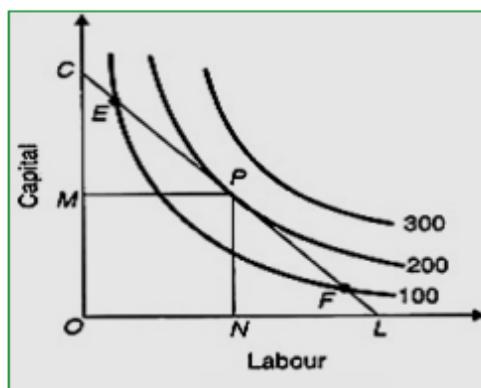


The firm employs the combination of OC of capital and OL of labor to produce 200 units of output at point M with the given cost-outlay GH. At this point, the firm is minimizing its cost for producing 200 units.

Any other combination on the isoquant 200, such as R or T, is on the higher iso-cost line KP which shows a higher cost of production. The iso-cost line EF shows lower cost but output 200 cannot be attained with it. Therefore, the firm will choose the minimum cost point M which is the least-cost factor combination for producing 200 units of output.

Output Maximization:

The firm also maximizes its profits by maximizing its output, given its cost outlay and the prices of the two factors. This analysis is based on the same assumptions, as given above. The firm is in equilibrium at point P where the isoquant curve 200 is tangent to the iso-cost line CL in Figure below.



At this point, the firm is maximizing its output level of 200 units by employing the optimal combination of OM of capital and ON of labor, given its cost outlay CL. But it cannot be at

points E or F on the iso-cost line CL, since both points give a smaller quantity of output, being on the iso-quant 100, than on the iso-quant 200.

The firm can reach the optimal factor combination level of maximum output by moving along the iso-cost line CL from either point E or F to point P. This movement involves no extra cost because the firm remains on the same iso-cost line.

The firm cannot attain a higher level of output such as isoquant 300 because of the cost constraint. Thus the equilibrium point has to be P with optimal factor combination OM + ON. At point P, the slope of the isoquant curve 200 is equal to the slope of the iso-cost line CL. It implies that $w/r = MP_L/MPC = MRTS_{LC}$.

Cobb-Douglas Production Function:

The Cobb-Douglas production function is based on the empirical study of the American manufacturing industry made by Paul H. Douglas and Charles W. Cobb.

It is a linear homogeneous production function of degree one, which takes into account two inputs, labor and capital, for the entire output of the manufacturing industry.

The Cobb-Douglas production function is expressed as: $Q = A * L^\alpha * C^\beta$, where Q is output, L and C are inputs of labor and capital respectively. A, α and β are positive parameters where, $\alpha > 0$, $\beta > 0$.

The equation tells that output depends directly on L and C, and that part of output which cannot be explained by L and C is explained by A which is the 'residual', often called technical change.

The production function solved by Cobb-Douglas had 1/4 contribution of capital to the increase in the manufacturing industry and 3/4 of labor so that the C-D production function is: $Q = AL^{3/4}C^{1/4}$ which shows constant returns to scale because the total of the values of L and C is equal to one: $(3/4 + 1/4)$, i.e. $(\alpha + \beta = 1)$.

The coefficient of the laborer in the C-D function measures the percentage increase in Q that would result from a 1 per cent increase in L, while holding C as constant.

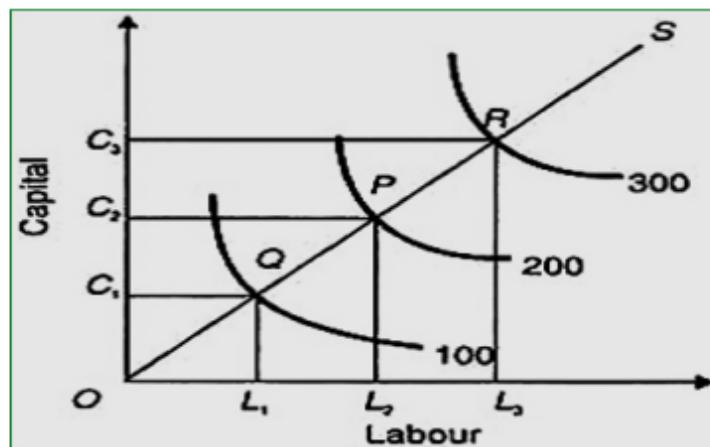
Similarly, B is the percentage increase in Q that would result from a 1 per cent increase in C while holding L as constant. The C-D production function showing constant returns to scale is depicted in Figure below. Labor input is taken on the horizontal axis and capital on the vertical axis.

To produce 100 units of output, OC_1 units of capital and OL_1 units of labor are used. If the output were to be doubled to 200, the inputs of labor and capital would have to be doubled. OC_2 is exactly double of OC_1 and of OL_2 is double of OL_1 .

Similarly, if the output is to be raised three-fold to 300, the units of labor and capital will have to be increased three-fold. OC_3 and OL_3 are three times larger than OC_1 , and OL_1 ,

respectively. Another method is to take the scale line or expansion path connecting the equilibrium points Q, P and R. OS is the scale line or expansion path joining these points.

It shows that the isoquants 100, 200 and 300 are equidistant. Thus, on the OS scale line $OQ = QP = PR$ which shows that when capital and labor are increased in equal proportions, the output also increases in the same proportion.



Properties:

1. Factor Intensity:

The factor intensity can be measured by taking the ratio between a and b.

- a. If $a/b > 1$, there is an operation of labor-intensive production technique.
- b. If $a/b < 1$, there is an operation of capital intensive production technique.

2. Efficiency of Production:

The efficiency of production can be measured by the coefficient A.

- a. If the value of A is higher, there is a higher degree of efficiency of production.
- b. If the value of A is lower, there is a lower degree of efficiency of production.

3. Returns to Scale:

The various degrees of returns to scale can be measured by taking the sum of a and b.

Let, $a+b = V$

- a. If $V > 1$, there is an operation of increasing returns to scale.
- b. If $V = 1$, there is an operation of constant returns to scale.
- c. If $V < 1$, there is an operation of decreasing returns to scale.

4. Average Productive of Inputs:

a. Average productivity of labor (AP_L) = $\frac{Q}{L} = \frac{AL^\alpha K^\beta}{L}$

b. Average productivity of capital (AP_K) = $\frac{Q}{K} = \frac{AL^\alpha K^\beta}{K}$

5. Marginal Productivities of Inputs:

- a. Marginal productivity of labor:

$$(MP_L) = \frac{\Delta Q}{\Delta L} = \frac{\partial Q}{\partial L} = \frac{\partial(AL^\alpha K^\beta)}{\partial L} = AK^\beta * \alpha L^{\alpha-1} = \frac{\alpha(AL^\alpha K^\beta)}{L} = \alpha(AP_L)$$

- b. Marginal productivity of capital:

$$(MP_K) = \frac{\Delta Q}{\Delta K} = \frac{\partial Q}{\partial K} = \frac{\partial(AL^\alpha K^\beta)}{\partial K} = AL^\alpha * \beta K^{\beta-1} = \frac{\beta(AL^\alpha K^\beta)}{K} = \beta(AP_K)$$

6. The Marginal Rate of Technical Substitution:

$$MRTS_{LK} = \frac{MP_L}{MP_K} = \frac{\beta(AP_L)}{(AP_K)} = \frac{\alpha(Q/L)}{\beta(Q/K)} = \frac{\alpha}{\beta} * \frac{K}{L}$$

$$MRTS_{KL} = \frac{MP_K}{MP_L} = \frac{\beta(AP_K)}{(AP_L)} = \frac{\beta(Q/L)}{\alpha(Q/K)} = \frac{\beta}{\alpha} * \frac{L}{K}$$

7. The Elasticity of Technical Substitution:

$$\sigma = \frac{d(K/L)/(K/L)}{d(MRTS)/(MRTS)} = 1$$

Importance:

1. It has been used widely in empirical studies of manufacturing industries and in inter-industry comparisons.
2. It is used to determine the relative shares of labour and capital in total output.
3. It is used to prove Euler's Theorem.
4. Its parameters α and β represent elasticity coefficients that are used for inter-sectorial comparisons.
5. This production function is linear homogeneous of degree one which shows constant returns to scale. If $\alpha + \beta = 1$, there are increasing returns to scale and if $\alpha + \beta < 1$, there are diminishing returns to scale.
6. Economists have extended this production function to more than two variables.

Unit V: Product Pricing - Applied Economics

Introduction to Product Pricing:

The price of a product is influenced by a number of factors, such as manufacturing cost, competition, market conditions, and quality of the product.

An organization, while setting the prices of its products, needs to ensure that prices must cover costs incurred for producing products and profit margins. If the price of a product does not cover costs, then the financial resources of the organization would exhaust, which would ultimately result in the failure of business.



An organization uses a number of methods and strategies to determine the prices of its products. In economic terms, an efficient pricing strategy is the one that aims at gaining consumer surplus to the producer. The pricing strategy of an organization should be realistic, flexible, and profitable.

Moreover, it should be focused on achieving the financial goals of an organization. Some of the most common pricing strategies used by an organization include differential pricing, promotional pricing, product line pricing, and psychological pricing.

Concept of Product Pricing:

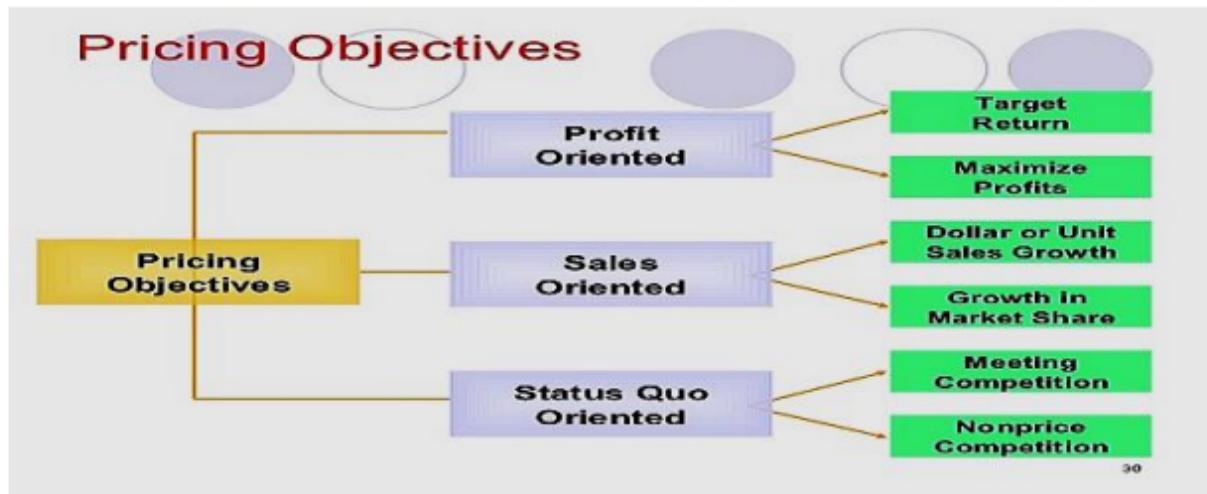
Setting prices as per the level where marginal revenue is equal to marginal cost is called marginality rule.

However, there is evidence produced by some researchers that most of the organizations do not follow marginality rules rather they follow different pricing methods and strategies based on different market conditions. Pricing decisions play an important role in an organization since they help in generating revenue.

Pricing contributes to the success or failure of the organization's marketing strategy. Price is also called a demand regulator. Setting the prices involves a deep understanding

of factors that affect the marketing environment. Every organization sets the prices of its products for fulfilling various objectives.

Pricing Objectives:



1. Profit-Oriented Objectives:

Include the following objectives:

a. Maximizing Profit:

Implies that prices are set in such a way that they help in achieving maximum profit. According to Stanton, Etzel and Walker, "The pricing objective of making as much money as possible is probably followed more than any other goal."

Profit maximization is more beneficial in the long run as compared to the short run. For instance, an organization selling a new product tries to build a customer base by selling the product at low prices in the short run. This helps the organization to gain profit in the long run by winning loyal customers.

b. Achieving a Target Return:

Refers to earn an adequate rate of return on the investment done by an organization in manufacturing a product. The main focus of marketers is on maintaining a specific return on sales or investment. This is done by adding extra cost to the product for earning a desired profit.

2. Sales-Oriented Objectives:

Include the following objectives:

a. Increasing Sales Volume:

Implies sales expansion by giving discounts to customers. In the short run, an organization might be ready to bear losses by reducing the prices to increase the sales volume.

For instance, the hotel industry faces low demand during the off-season; therefore, it prefers to decrease its prices and offers discounts to increase sales.

b. Increasing or Maintaining Market Share:

Plays a crucial role in the success of an organization. The organization tries to gain market share by lowering down the prices as compared to its competitors.

3. Status Quo-Oriented Objectives:

Includes the following objectives:

a. Stabilizing the Prices:

Prevents price wars between competitors. The prices are stabilized in those industries where product is standardized in nature. The stabilization of the prices helps in maintaining demand and reducing competitive threats.

b. Meeting the Competition:

Implies that the changes made in the price of a product help an organization to gain competitive advantage. Sometimes, the organization also tries to neutralize competitive pressures by price movement.

c. Determining Prices According To Consumer's Paying Capacity:

Implies that the purchasing power of the consumers should be taken into consideration while setting prices. The sales of an organization depend entirely upon the purchasing power of consumers.

An organization also adopts pricing objectives to promote developmental activities in the society. For instance, an organization may reduce the prices of a product for the low-income sections of society.

Thus, the pricing objectives play a significant role in the overall growth of the organization.

Concept of Market Equilibrium:

Market equilibrium is an economic state when the demand and supply curves intersect and suppliers produce the exact amount of goods and services consumers are willing and able to consume.

Essentially, this is the point where the quantity demanded and quantity supplied is equal at a given time and price. There is no surplus or shortage in this situation and the market would be considered stable.

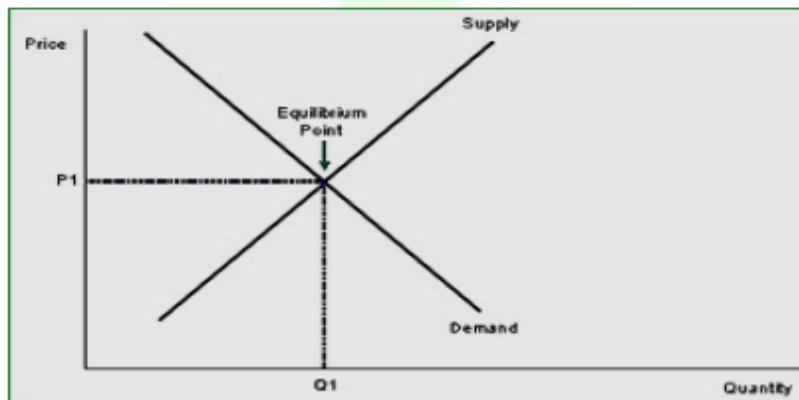
In other words, consumers are willing and able to purchase all of the products that suppliers are willing and able to produce. Everyone wins.

If the market price is above the equilibrium value, there is an excess supply in the market (a surplus), which means there is more supply than demand. In this situation, sellers will tend to reduce the price of their good or service to clear their inventories.

They probably will also slow down their production or stop ordering new inventory. The lower price entices more people to buy, which will reduce the supply further. This process will result in demand increasing and supply decreasing until the market price equals the equilibrium price.

If the market price is below the equilibrium value, then there is excess in demand (supply shortage). In this case, buyers will bid up to the price of the good or service in order to obtain the good or service in short supply.

As the price goes up, some buyers will quit trying because they don't want to, or can't, pay the higher price. Additionally, sellers, more than happy to see the demand, will start to supply more of it. Eventually, the upward pressure on price and supply will stabilize at market equilibrium.



Concept of Firm's Equilibrium:

A firm is in equilibrium when it has no tendency to change its level of output. It needs neither expansion nor contraction. It wants to earn maximum profits. In the words of A.W.

Stonier and D.C. Hague, "A firm will be in equilibrium when it is earning maximum money profits."

Equilibrium of the firm can be analyzed in both short-run and long-run periods. A firm can earn the maximum profits in the short run or may incur the minimum loss. But in the long run, it can earn only normal profit.

Price and Output Determination of a Firm under Perfect Competition:

A firm is said to be in equilibrium when it satisfies the following conditions:

1. The first condition for the equilibrium of the firm is that its profit should be maximum.
2. Marginal cost should be equal to marginal revenue.
3. MC must cut MR from below.

The Above Conditions Of The Equilibrium Of The Firm Can Be Examined In Two Ways:

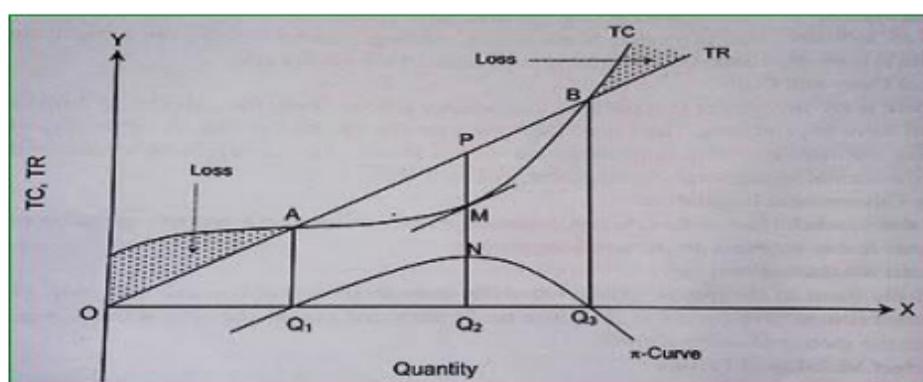
1. Total Revenue and Total Cost Approach:

In this approach, total revenue and total cost are under consideration. Since the objective of the firm is profit maximization. Profit is the difference between total revenue (TR) and total cost (TC). We have, Profit (p) = Total Revenue (TR) - Total Cost (TC).

Under this approach there are three types of profit:

- a. When, $TR > TC \Rightarrow p > 0$, i.e. abnormal profit. (since normal profit is included in cost)
- b. When $TR = TC \Rightarrow p = 0$, i.e. normal profit.
- c. When $TR < TC \Rightarrow p < 0$, i.e. loss

The profit is maximized at the output where there is the biggest gap or highest difference between TR and TC, which is given by PM in the figure below. TR-TC approach is shown in the figure below.



In the above figure, the TR curve under perfect competition is a straight line, positively sloped and passes through the origin. It is because of the price is constant. TC curve is inverse S-shaped comprising total variable cost and total fixed cost.

TR curve intersects TC curve at points A and B. at point A output is Q_1 and at point B output is Q_3 . In the figure, before the output level Q_1 and after output level Q_3 , there is a loss because the TR curve lies below the TC curve (i.e. $TR < TC$).

The output between Q_1 and Q_3 , there is $TR > TC$ which shows there is profit. The biggest gap between TR and TC i.e. MP is at output level Q_2 where profit is maximum. Thus, the output at this position gives the equilibrium output of the firm.

Profit curve (i.e. p-curve) is drawn measuring the gap between TR and TC curves. Before the output Q_1 and after the output Q_3 the p-curve lies below X-axis. It shows there is a loss to the firm.

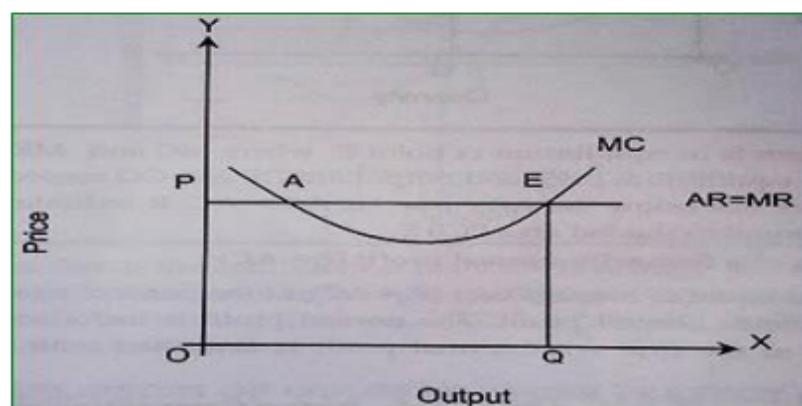
Between outputs from Q_1 to Q_2 the p-curve rises, showing that there is a profit which increases as an increase in output. In a similar fashion, the p-curve starts to fall from the outputs between Q_2 and Q_3 . The maximum profit (Q_2N) is at the output Q_2 . The profit curve reaches a maximum point N when output is OQ_2 .

2. Marginal Revenue and Marginal Cost Approach.

In this approach marginal revenue (MR) and marginal cost (MC) are used to determine the profit maximization conditions. The profit maximization conditions are mentioned below:

- a. **Necessary Condition:** MR and MC must be equal to each other i.e. $MR = MC$
- b. **Sufficient Condition:** Slope of the MC curve should be greater than the Slope of the MR curve or MC curve cuts the MR curve from below.

This Can Be Explained By The Figure Below:



In the above figure, MC intersects MR through point A and E. therefore necessary condition ($MR = MC$) is satisfied in both points but sufficient condition is satisfied at point E only. Hence, E is the profit maximization condition.

Short-Run Equilibrium of Firm under Perfect Competition:

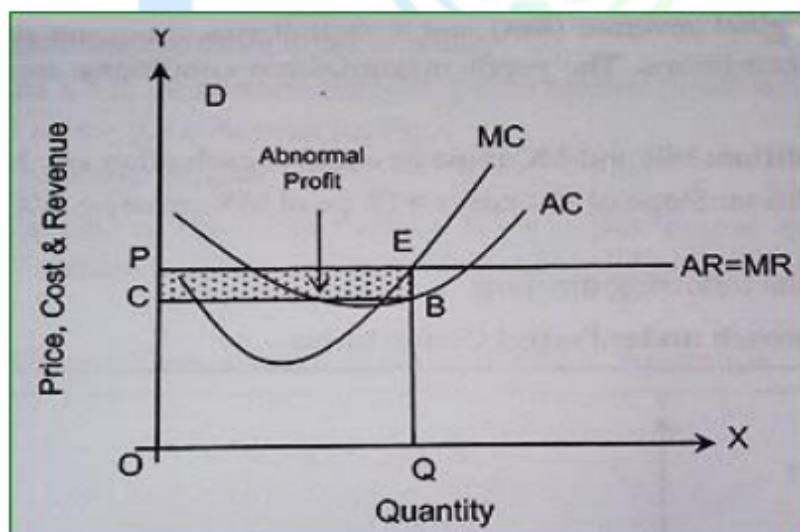
Short-run is a period of time in which the firm can change its level of output by changing variable factors of production i.e. it is a period in which market supply cannot be varied according to change in the market demand due to lack of sufficient time.

The firm in short-run equilibrium does not necessarily mean that it makes abnormal profits. Whether the firm makes an abnormal profit or normal profit or losses depends on the level of AC and AR i.e. price and average cost.

There are three types of firms which are in equilibrium in the short run. They are given below:

1. Equilibrium of a Firm with Abnormal Profit ($P > AC$):

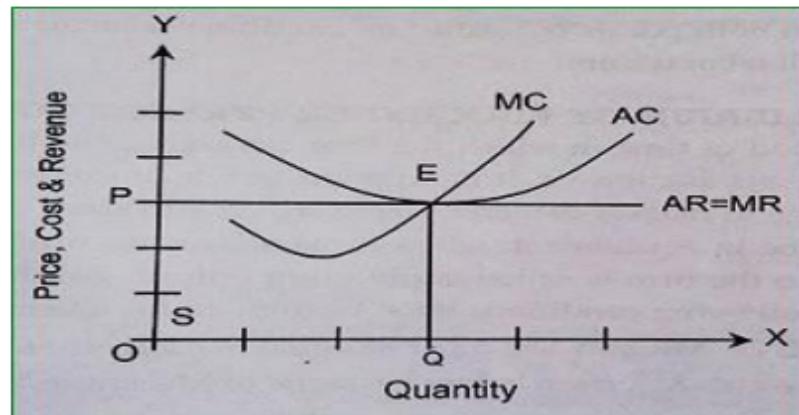
If the price is greater than the average cost of the firm at the point of equilibrium, the firm is enjoying an abnormal profit. It is given by the following diagram.



In the figure above, the firm is in equilibrium at point E where $MR = MC$ and MC cut MR from below. The equilibrium price and output are OP and OQ respectively. The minimum point of the AC curve lies below the AR curve i.e. $AR > AC$. It indicates that firm A enjoys abnormal profit equal to shaded area $PCBE$.

2. Equilibrium of a Firm with Normal Profit ($P = AC$):

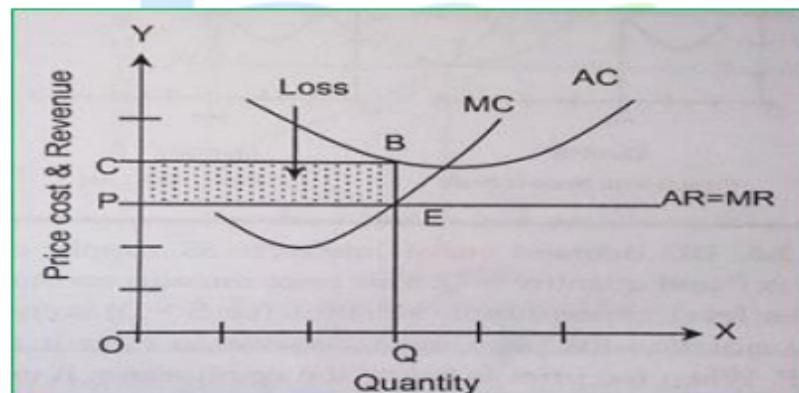
If the price is equal to average cost ($P = AC$), at the point of equilibrium the firm is in equilibrium with normal profit. The normal profit is included in the average cost. The equilibrium of the firm with a normal profit is explained with the help of the following diagram.



In the figure above, the firm is in equilibrium at point E, where $MR = MC$ and MC cuts MR from below. The equilibrium price and output are OP and OQ respectively. The minimum point of the AC curve just equal to AR curve i.e. $AR = AC$. It indicates that firm B enjoys the only normal profit.

3. Equilibrium of a Firm with Loss ($P < AC$):

If the price is less than average cost ($P < AC$) at the point of equilibrium, the firm is facing a loss. The following figure shows the equilibrium of the firm is a short run. The equilibrium of a firm with loss is explained by the following figure.



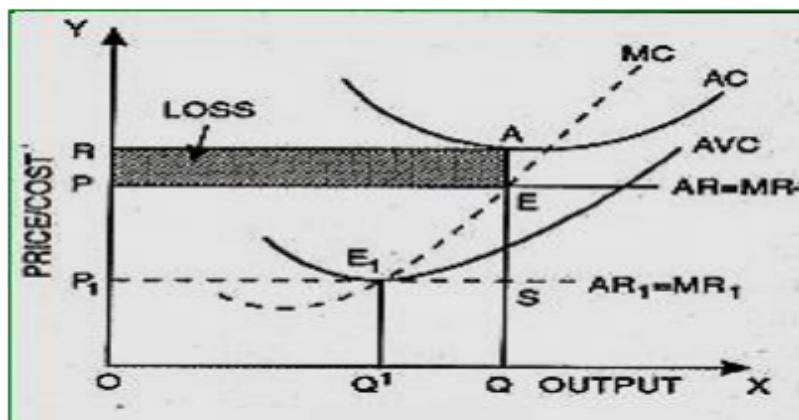
In the figure above, the firm is in equilibrium at point E, where $MR = MC$ and MC curve cuts the MR curve from below. The equilibrium price and output are OP and OQ respectively. The minimum point of the AC curve lies above the AR curve i.e. $AR < AC$. It indicates that firm C is bearing losses equal to shaded area $PEBC$.

4. Shut Down Point (Losses = Total Fixed Cost):

The simple question is why firms continue producing the product if they are making losses. In the short run, the firms cannot go out of the industry by disposing off the plant. Why do they not shut down? It is because they cannot change the fixed factors and they have to face fixed costs even if the firm is shut down.

The firm can avoid only variable costs but it has to bear the fixed costs whether to produce or not. The firm will continue producing until the price covers the average variable cost.

If the price covers some part of the average fixed costs besides the variable costs, the producer will continue producing. Thus the firm will continue producing so long as price exceeds the average variable cost. The shutdown point can be shown with the help of a diagram.



In the diagram above equilibrium is at E where $MR = MC$ and MC cuts MR from below. The price is EQ and OQ is the output. This price covers the average variable cost. Average cost corresponding to this output is AQ .

In that way, loss per unit is AE which is equal to average fixed cost. The total losses are equal to total fixed costs. If the price is slightly below OP , level, the firm will not produce at all. The firm will simply shut down production and wait for some good days to come.

Long-Run Equilibrium of Firm under Perfect Competition Market:

The long-run is a period of time in which the firm can change its level of output by changing all the factors of production i.e. it is a period in which market supply can be adjusted according to change in the market demand due to the availability of sufficient time.

If there is an abnormal profit in the short run, more firms are attracted into the market and output increases consequently, price falls to a normal level in the long run.

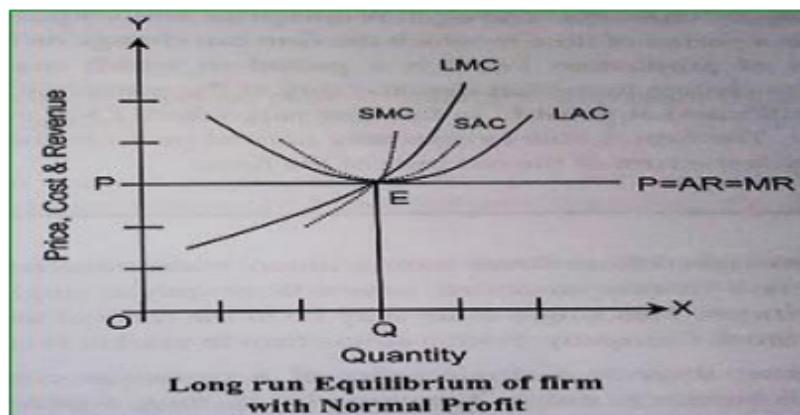
Similarly, if there is a loss in the short run. The firms either improve or change their plants to reduce cost or exit from the industry so that the remaining firms enjoy normal profit only. In this way, all the firms are equilibrium with normal profit in the long run.

All the firms in the industry are price takers. All the firms in the industry get a normal profit in the long run. All the firms are able to utilize their plants at optimal capacity i.e. the minimum point of LAC curve just equal to AR or P.

The following condition must be fulfilled for a firm to be in equilibrium:

1. $MR = MC$ i.e. long run MR must be equal to long-run MC curve.
2. LMC curve cuts MR from below.

The long-run equilibrium of the firm under perfect competition can be explained with the help of the following graph.



In the figure above, the firm will be in equilibrium at point E in the long run, where $MR = LMC = LAC = SMC = SAC$ and LMC curve cuts the MR curve from below. The equilibrium price and output are OP and OQ respectively.

The minimum point of LAC is just equal to AR line i.e. $LAC = AR$, which indicates that the firm is able to earn only normal profit in the long run.

Price and Output Determination under Monopoly:

A firm is said to be in equilibrium when it satisfies the following conditions:

1. The first condition for the equilibrium of the firm is that its profit should be maximum.
2. Marginal cost should be equal to marginal revenue.
3. MC must cut MR from below.

The Above Conditions Of The Equilibrium Of The Firm Can Be Examined In Two Ways:

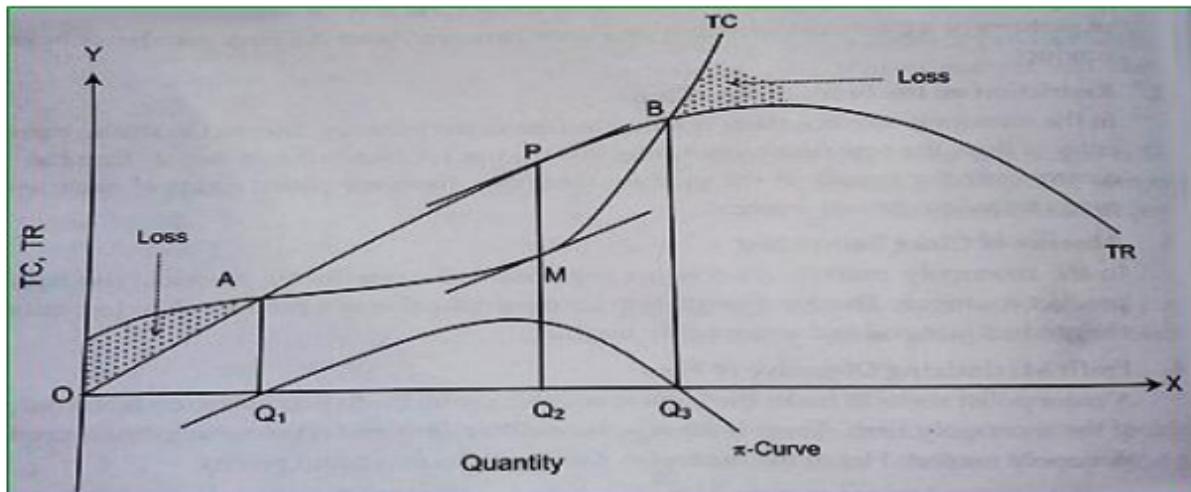
1. Total Revenue - Total Cost (TR - TC) Approach:

In this approach, total revenue and total cost are under consideration. Since the objective of the firm is profit maximization. Profit is the difference between total revenue and total cost i.e. Profit (p) = Total Revenue (TR) - Total Cost (TC)

Under this approach there are three types of profit:

- When $TR > TC \Rightarrow p > 0$, i.e. abnormal profit. (since normal profit is included in cost)
- When $TR = TC \Rightarrow p = 0$, i.e. normal profit.
- When $TR < TC \Rightarrow p < 0$, i.e. loss

The profit is maximized at the output where there is the biggest gap or highest difference between TR and TC, which is given by PM in the figure below. TR-TC approach is shown in the figure below.



In the above figure, the TR curve under monopoly market is bell-shaped. It shows the TR initially rises, reaches the maximum and then after falls when quantity sold increases. It is because there is a negative relationship between price and quantity sold in the market.

TC curve is inverse S-shaped comprising total variable cost and total fixed cost. TR curve intersects TC curve at points A and B. At point A output is Q_1 and at point B output is Q_3 .

In the figure above, before the output level Q_1 and after output Q_3 , there is a loss because the TR curve lies below the TC curve (i.e. $TC > TR$). The output between Q_1 and Q_3 , there is $TR > TC$ which shows there is profit.

The biggest gap between TR and TC i.e. MP is at output level Q_2 where profit is maximum. Thus, the output at this position gives the equilibrium output of the firm.

In the below portion of the figure, profit curve (i.e. p-curve) is drawn measuring the gap between TR and TC curves. Before the output Q_1 and after the output Q_3 the p-curve lies below the x-axis. It shows there is a loss to the firm.

Between outputs from Q_1 to Q_2 , the p-curve rises showing that there is profit which increases as an increase in output. In a similar fashion, the p-curve starts to fall from the outputs between Q_2 to Q_3 . The maximum profit is at the output Q_2 . Thus, Q_2 is the equilibrium output level of the firm.

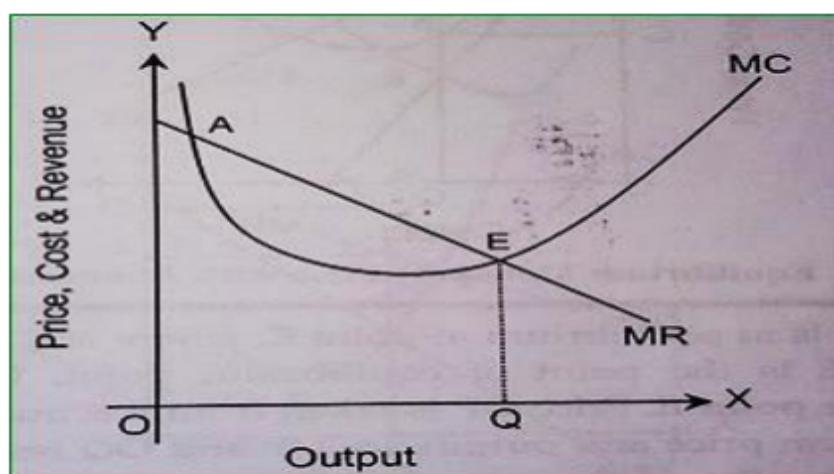
2. Marginal Revenue - Marginal Cost (MR - MC) Approach:

In this approach, marginal cost and marginal revenue curves are considered to determine the equilibrium of the firm. In this approach, marginal revenue (MR) and marginal cost (MC) are used to determine the profit maximization conditions.

The profit maximization conditions are mentioned below in MR - MC approaches:

- a. **Necessary Condition:** MR and MC must be equal to each other i.e. $MR = MC$
- b. **Sufficient Condition:** Slope of the MC curve > The slope of the MR curve i.e. MC curve cuts MR curve from below.

It can be better explained with the help of following figure.



In the above figure, MC intersects MR through point A and E. therefore necessary condition ($MR = MC$) is satisfied in both points but sufficient condition is satisfied at point E only. Hence, E is the profit maximization condition.

Short-Run Equilibrium of Firm under Monopoly Market:

In short-run, a monopoly firm can only change the output by changing variable factors. The monopolist has no sufficient time to expand its plant size. The objective of the monopoly firm is to maximize the profit.

The industry is a group of firms. But in a monopoly market, the firm itself is an industry since there is a single seller to produce and sell a particular commodity. The monopoly firm faces a downward-sloping demand curve in a market.

Thus, the firm under monopoly faces downward sloping demand curve. The demand curve is also represented by the AR curve, AR curve also negatively sloped. MR curve is also downward sloping and lies below the AR curve.

The profit of a monopolist is maximized when the firm fulfils the following two conditions:

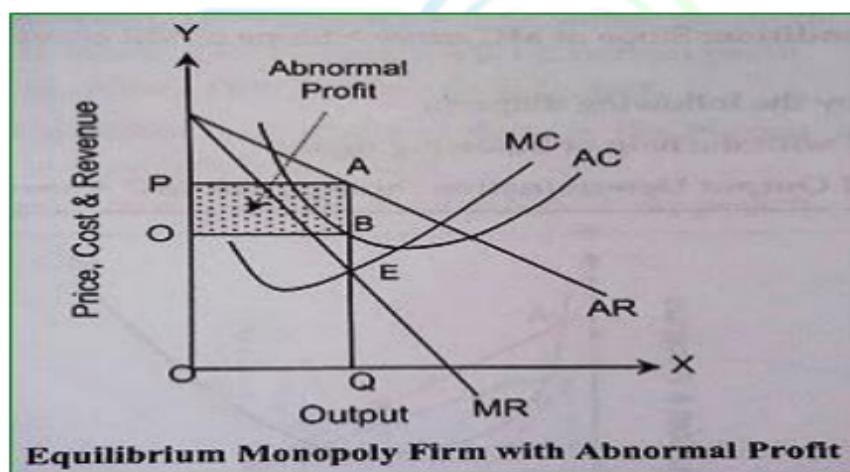
- $MR = MC$ i.e. MC and MR curve must be equal to each other.
- MC curve cuts the MR curve from below.

Being a sole seller, the monopolist may enjoy abnormal profit i.e. $AR > AC$ in the short run. However, there is no certainty that a monopoly firm will always earn an abnormal profit.

A monopolist may earn an abnormal profit or normal profit or incur a loss in short-run depending upon the AC in comparison to AR .

1. Equilibrium of the Monopoly firm with Abnormal Profit ($P > AC$):

When the price is greater than AC , there will be an abnormal profit. It can be explained with the help of the following figure.

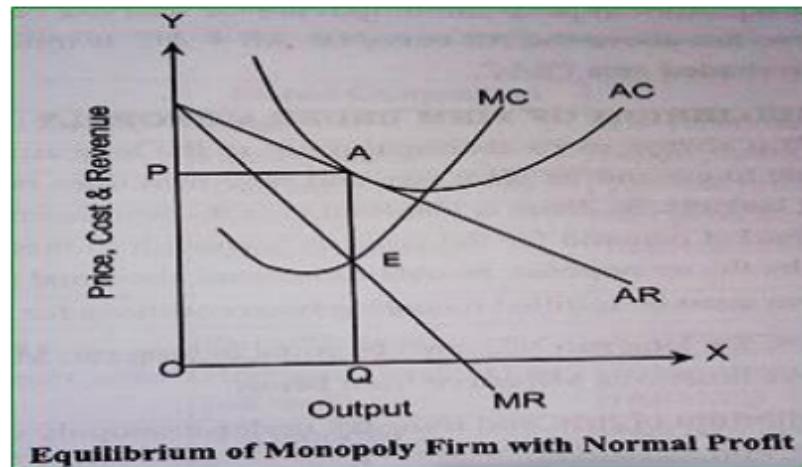


In the above figure, the firm is in equilibrium at point E, where $MR = MC$ and MC curve cuts the MR curve from below. The point E is the point of the equilibrium point. The output is taken from X-axis corresponding to point E.

Price OP is taken from AR and cost is taken from AC , which is QB . The equilibrium price and output are OP and OQ respectively. The minimum point of AC curve lies below the AR curve i.e. $AR > AC$. It indicates that the firm is able to earn abnormal profit equal to shaded area $POBA$.

2. Equilibrium of the Monopoly firm with Normal Profit ($P = AC$):

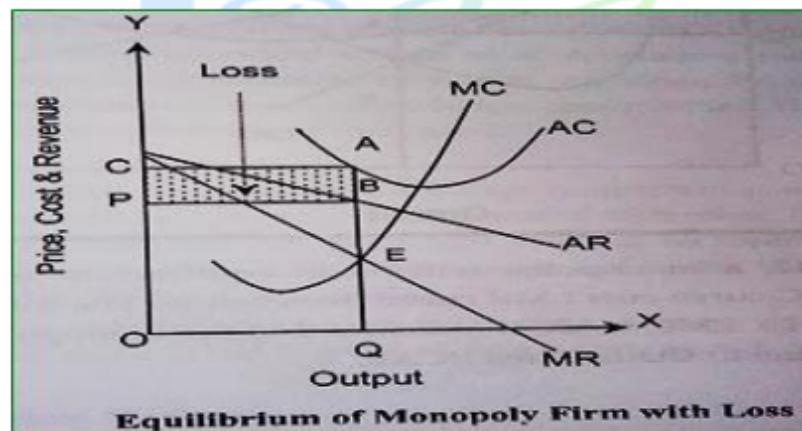
When the price is equal to average cost, there is a normal profit. In this case, AC is tangent to AR . It can be explained with the help of following graph.



In the figure above, the firm is in equilibrium at point E where $MR = MC$ and MC curve cut MR curve from below. The equilibrium price and output are OP and OQ respectively. The minimum point of the AC curve just equal to the AR curve i.e. $AR = AC$. It indicates that the firm is able to earn an only normal profit.

3. Equilibrium of Monopoly Firm with Loss ($P < AC$):

If the price is less than average cost, the firm is in equilibrium with loss. It can be explained with the help of the following graph.



In the above figure, the firm is in equilibrium at point E where $MR = MC$ and MC curve cuts the MR curve from below. The equilibrium price and output are OP and OQ respectively. The minimum point of AC curve lies above the AR curve i.e. $AR < AC$. It indicates that the firm has to bear loss equal to shaded area CPBA.

Long-Run Equilibrium of Firm under Monopoly:

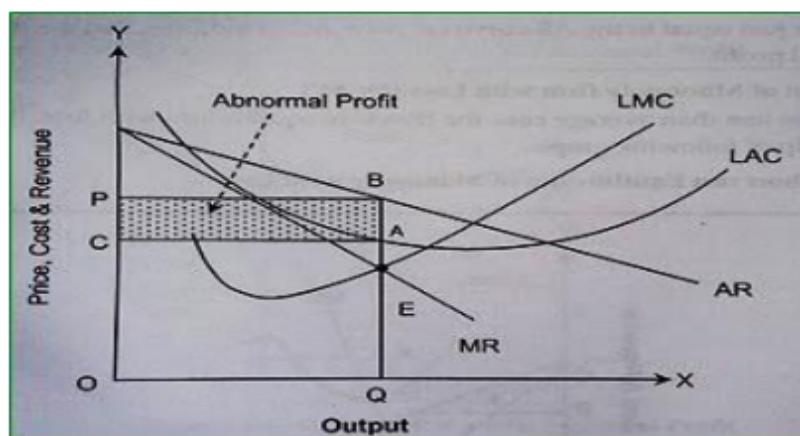
The monopoly firm always earns abnormal profit in the long run because the monopolist has sufficient time to expand its plant size and the new firm does not enter into the industry due to the strong barriers.

So, there is a possibility for the firm earning abnormal profit in the long run. If the market demand for the product is enough to meet the output produced at optimal capacity by the monopolist, he obtains rational abnormal profit.

The monopoly firm must be fulfilled following two conditions for equilibrium.

- $MR = LMC$ i.e. MR curve must be equal to LMC
- LMC curve must cut the MR curve from below

The long-run equilibrium of firm and industry under monopoly can be explained with the help of the following graph.



In the above figure, a monopolist will be in equilibrium in the long run at point E, where $LMC = MR$ and LMC curve cuts the MR curve from below. The minimum point of the LAC curve lies below the AR curve i.e. $LMC < AR$. It indicates that the monopoly firm is able to earn abnormal profit in the long run equal to shaded area PCAB.

Short-Run Equilibrium of Industry and The firm under Perfect Competition:

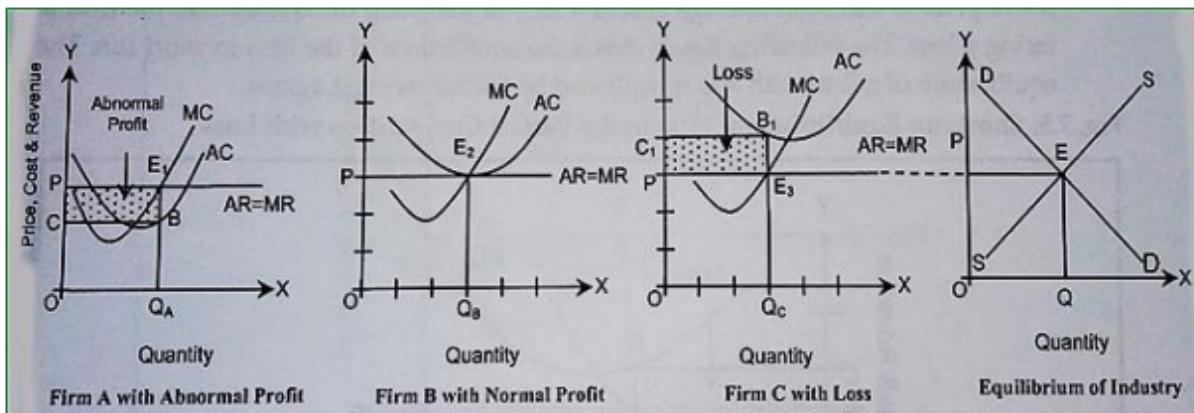
In industry, there are large numbers of firms producing a homogenous product. All the firms under the industry are in equilibrium. Due to cost conditions of the firm all the firms are not enjoying an abnormal profit.

There are three types of firms in the industry. Some firms are equilibrium with abnormal profit, some firms are in equilibrium with normal profit and some firms may be in equilibrium with loss also.

The sum of total outputs of all these three types of firms are equal to the output of the industry. The firm A represents those types of firms which are in equilibrium with abnormal profit, firm B represents those types of firms which are in equilibrium with normal profit and firm C represents those types of firms which are in equilibrium with loss.

Price and output of an industry is determined by the intersection of the negatively sloped demand curve and positively sloped supply curve of the industry. It is shown in the figure below.

All the firms in the industry are price takers, not price makers because each firm possesses a perfectly elastic demand curve. It can be explained with the help of the following graph.



In the above figure, the DD demand curve intersects SS supply curve at point E, where equilibrium price is P and quantity is Q. This price remains constant for all the firms. If the price rises to a higher level, excess supply situation (i.e. S > D) is created.

When the market faces the excess supply situation the price is below the equilibrium, it creates the excess demand situation (i.e. D > S). It causes an increase in price again to the original position P.

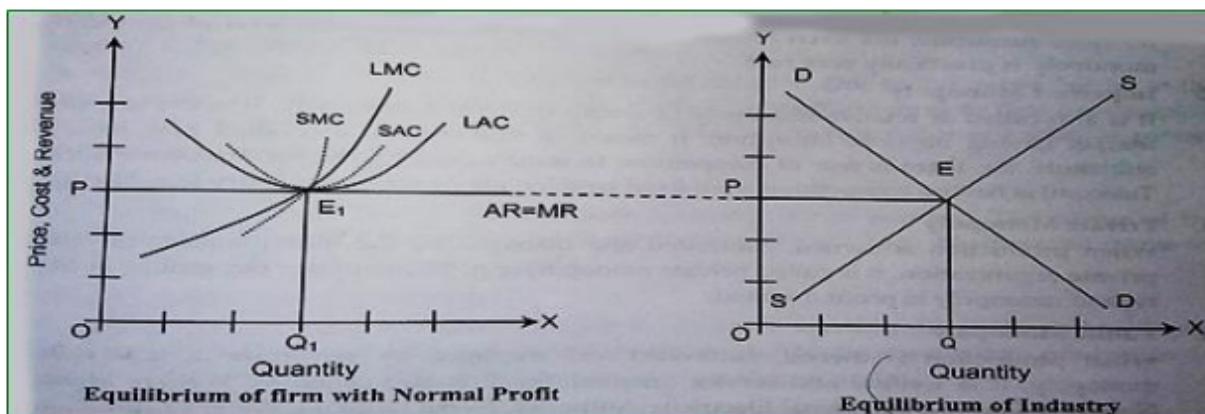
Thus, it remains constant at P if demand and supply curves are the same. The equilibrium output of the industry also remains the same at point Q. It is the horizontal summation of quantity supplied by all the firms in the industry.

All the firms are price takers, not price makers and a single firm cannot affect the market price of the product. At this price, the firm determines its output. The output produced by firm A is OQ_A , firm B is OQ_B and firm C is OQ_C . The total output, $OQ = OQ_A + OQ_B + OQ_C$.

Long-Run Equilibrium of Firm and Industry under Perfect Competition Market:

Industry is the group of firms which is equilibrium at that price where quantity demands are equal to the quantity supply.

The long-run is a period of time in which the firm can change its level of output by changing all the factors of production i.e. it is a period in which market supply can be adjusted according to a change in market demand due to the availability of sufficient time. It can be better explained with the help of the following graph.



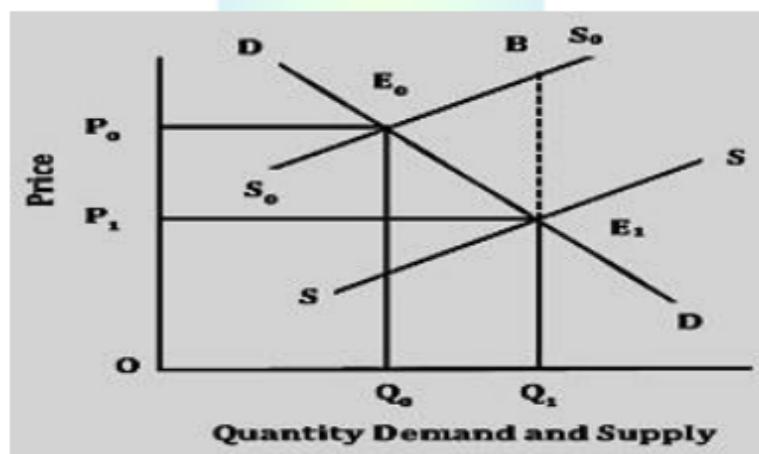
In the above figure, the industry will be in equilibrium at point E, where demand curve DD is equal to supply curve SS. The equilibrium price and output are OP and OQ respectively.

The long-run is a period of time in which the firm can change its level of output by changing all the factors of production i.e. it is a period in which market supply can be adjusted according to change in market demand due to the availability of sufficient time.

The firms will be equilibrium at point E₁ in the long run, where LMC = MR and LMC cuts MR from below. The firm is able to earn only a normal profit in the long run. The total output of the industry is the sum of the outputs of the firms.

Effect of Tax upon Market Equilibrium and Price:

Let initial price be OP₁ and the quantity of demand be OQ₁. When the government impose a tax for goods and services, then the tax will affect current equilibrium i.e. E₁. The effect of the tax is different according to the elasticity of demand and supply. It sometimes affects consumer only, sometimes producers only but mostly affect both.



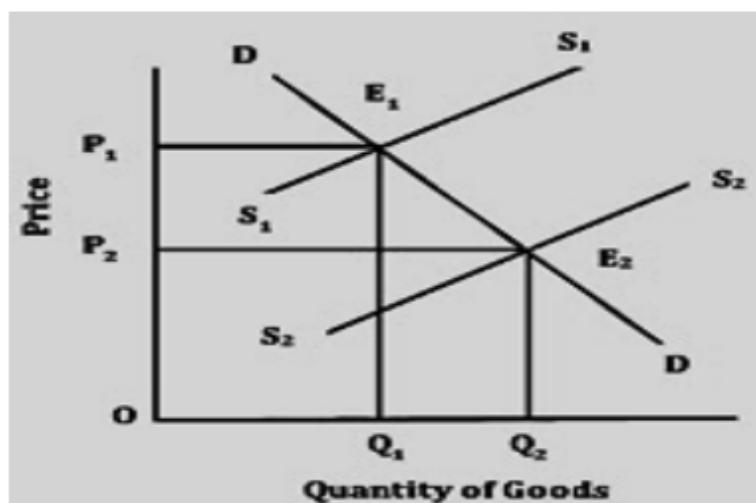
In the above figure, initial demand curve DD and supply curve SS intersect at a point E₁, which gives the equilibrium quantity demand OQ₁ at the price OP₁. After the taxation, there is an increase in the cost of production, which shift supply curve leftward and is denoted by S₀S₀.

The shift in supply curve S_0S_0 intersect demand curve DD and form new equilibrium point at E_0 , where we can find OQ_0 quantity demanded and supplied and OP_0 price level.

So, after imposing the tax price of goods increases to the new level and quantity of goods decreases. In the figure, E_1B is the tax burden which is shared by both consumer and producer.

Effect of Subsidy upon Market Equilibrium and Price:

After imposing subsidy for producer own goods, the cost of production will decrease. When the cost of production decreases, there will be increase in supply, as a result, the price of goods will decrease which will shift the supply curve rightward.



In the above figure, S_1S_1 is the supply curve and DD is the demand curve which intersects at a point E_1 and shows that OP_1 is the current price level and OQ_1 is the current quantity of goods.

After imposing subsidy supply curve shifted rightward from S_1S_1 to S_2S_2 and intersect demand curve DD at a point E_2 , which shows that Price level decreases from OP_1 to OP_2 and quantity of goods increases from OQ_1 to OQ_2 .

Linear Programming:

Linear programming (LP or linear optimization) is a method to achieve the best outcome (such as maximum profit or lowest cost) in the mathematical model whose requirements are represented by linear relationships. Linear programming is a special case of mathematical programming.

More formally, linear programming is a technique for the optimization of a linear objective function, subject to linear equality and linear inequality constraints. Its feasible

region is a convex polyhedron, which is a set defined as the intersection of finitely many half-spaces, each of which is defined by a linear inequality.

Its objective function is a real-valued affine function defined on this polyhedron. A linear programming algorithm finds a point in the polyhedron where this function has the smallest (or largest) value if such a point exists.

Linear Programs Are Problems That Can Be Expressed In Canonical Form:

maximize $c^T x$

subject to $Ax \leq b$

and $x \geq 0$

Where x represents the vector of variables (to be determined), c and b are vectors of (known) coefficients, A is a (known) matrix of coefficients, and c^T is the matrix transpose.

The expression to be maximized or minimized is called the objective function ($c^T x$ in this case). The inequalities $Ax \leq b$ and $x \geq 0$ are the constraints which specify a convex polytope over which the objective function is to be optimized.

In this context, two vectors are comparable when they have the same dimensions. If every entry in the first is less-than or equal-to the corresponding entry in the second then we can say the first vector is less-than or equal-to the second vector.

Linear programming can be applied to various fields of study. It is used in business and economics, but can also be utilized for some engineering problems. Industries that use linear programming models include transportation, energy, telecommunications, and manufacturing. It has proved useful in modelling diverse types of problems in planning, routing, scheduling, assignment, and design.

Steps To Solving Linear Programming Problems Are:

1. Read the problem carefully.
2. Write the constraints or inequalities.
3. Graph the inequalities. Find the feasible region.
4. Find the vertices of the feasible region.
5. Write a function to find the minimum or maximum value.
6. Plug the vertices into the function.
7. Find the maximum or minimum

Cost-Benefit Analysis (CBA):

Cost-benefit analysis (CBA), sometimes called benefit-cost analysis (BCA), is a systematic approach to estimating the strengths and weaknesses of alternatives that satisfy transactions, activities or functional requirements for a business.

It is a technique that is used to determine options that provide the best approach for the adoption and practice in terms of benefits in labor, time and cost savings etc. CBA is also defined as a systematic process for calculating and comparing benefits and costs of a project, decision or government policy.

Broadly, CBA Has Two Purposes:

1. To determine if it is a sound investment/decision (justification/feasibility),
2. To provide a basis for comparing projects. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much.

CBA is related to, but distinct from cost-effectiveness analysis. In CBA, benefits and costs are expressed in monetary terms and are adjusted for the time value of money, so that all flows of benefits and flows of project costs over time (which tend to occur at different points in time) are expressed on a common basis in terms of their "net present value."

The Following Is a List Of Steps That Comprise a Generic Cost-Benefit Analysis:

1. List alternative projects/programs.
2. List of stakeholders.
3. Select measurement(s) and measure all cost/benefit elements.
4. Predict the outcome of cost and benefits over a relevant time period.
5. Convert all costs and benefits into a common currency.
6. Apply the discount rate.
7. Calculate the net present value of project options.
8. Perform sensitivity analysis.
9. Adopt the recommended choice.

Unit VI: Factor Pricing - Applied Economics

Introduction to Factor Pricing:

Factors of production can be defined as inputs used for producing goods or services with the aim to make an economic profit.

In economics, there are four main factors of production, namely land, labor, capital, and enterprise. The price that an entrepreneur pays for availing the services of these factors is called factor pricing.



An entrepreneur pays rent, wages, interest, and profit for availing the services of land, labor, capital, and enterprise respectively. The theory of factor pricing deals with the price determination of different factors of production.

The determination of factor prices is always assumed to be similar to the determination of product prices. This is because in both cases, the prices are determined with the help of demand and supply forces. Moreover, the demand for factors of production is similar to the demand for products.

However, there are two main differences in the supply side of factors of production and products. Firstly, in the product market, the supply of a product is determined by its marginal cost of production.

On the other hand, in the factor market, it is not possible to determine the supply of factors on the basis of marginal cost.

For example, it is difficult to ascertain the exact cost of production for factors, such as land and capital. Secondly, the supply of factors of production cannot be readily adjusted as in the case of products.

For instance, if the demand for land increases, then it is not possible to increase its supply immediately.

Concept of Factor Pricing:

Factor pricing is associated with the prices that an entrepreneur pays to avail the services rendered by the factors of production. For example, an entrepreneur needs to pay wages to labor, rents for availing land, and interests for capital so that he/she can earn maximum profit. These factors of production directly affect the production process of an organization.



In context of an economy, these four factors of production when combined together produce a net aggregate of products, which is termed as national income. Therefore, it is important to determine the prices of these four factors of production.

The theory of factor pricing deals with the determination of the share prices of four factors of production, namely land, labor, capital and enterprise.

In other words, the theory of factor pricing is concerned with the principles according to which the price of each factor of production is determined and distributed. Therefore, the theory of factor pricing is also known as the theory of distribution.

According to **Chapman**, the theory of distribution, "*accounts for the sharing of the wealth produced by a community among the agents, or the owners of the agents, which have been active in its production.*"

Aspects of Factor of Production:

1. Price Aspect:

Refers to the aspect in which an organization pays a certain amount to avail the services of factors of production. For example, wages, rents, and interests constitute the price of factors of production.

2. Income Aspect:

Refers to another aspect in which a certain amount is received by a factor of production. For instance, rents received by a landlord and wages received by labor constitute the income generated from the factors of production.

Generally, it is assumed that factor pricing theory is similar to product pricing theory. However, there are certain differences between the two theories. Both the theories assume the determination of prices by the interaction of two market forces, namely, demand and supply.

However, there are differences in the nature of demand and supply of factors of production with respect to that of products. The demand for factors of production is derived demand, while demand for products is direct demand. Moreover, the demand for the factors of production is joint demand.

This is because a product cannot be produced using a single factor of production. On the other hand, the supply of products is closely related to the cost of production, whereas there is no cost of production for factors. For example, there is no cost of production for land, labor, and capital. Therefore, the factor pricing is separated from product pricing.

Theories of Factor Pricing:

The theory of factor pricing is concerned with the principles according to which the price of each factor of production is determined and distributed. The distribution of factors of production can be of two types, namely personal and functional. Personal distribution is concerned with the distribution of income among different individuals.

It is associated with the amount of income generated not with the source of income. For example, an individual earns Rs. 20,000 per month; this income can be earned by him/her by wages, rents, or dividends. On the other hand, functional distribution is associated with the distribution of income among different factors of production as per their functions.

It is concerned with the source of income, such as wages, rents, interests, and profits. In regard to the distribution of factors of production, there are two theories, namely marginal productivity theory and **modern theory of factor pricing**.

Modern Theory of Factor Pricing (Demand and Supply Theory):

The modern theory of factor pricing provides a satisfactory explanation of the problem of distribution. It is known as the demand and supply theory of distribution. According to the modern theory of factor pricing, the equilibrium factor prices can be explained by the forces of demand and supply.

Prices paid for productive services are like any other price and they are basically determined by demand and supply conditions. Incomes are received as payments for the services of factors of production.

Wages are payments for the services rendered by labor. Rents are payments for the services of land and interest is paid for the services of capital. In this way, most incomes are remunerations or prices paid for services rendered by factors of production in the process of production.

This theory is superior to the marginal productivity theory because it takes into account both the forces of demand and supply in the determination of factor prices. Marshall held the view that no separate theory is required to explain factor prices.

The principles which govern commodity pricing also govern factor-pricing. The following paragraphs touch upon the salient aspects of the theory.

According to Lipsey and Stonier, "*The theory of factor prices is just a special case of the theory of price. We first develop a theory of the demand for factors, then a theory of the supply of factors and finally combine them into a theory of the determination of equilibrium price and quantities.*"

Assumptions:

1. Every the producer tries to get maximum profit.
2. Producers have perfect knowledge of the MRP
3. Active competition exists in the factor market.
4. There is active competition among the different units of factors.
5. The state does not intervene to equate the prices of the factoring service.

Demand for a Factor of Production:

The demand for a factor is not a direct demand but it is an indirect or derived demand. The demand for labor, for example, is not a demand for labor himself. It is in fact, demand for goods or services which the labor produces.

Thus when demand for goods increases, the demand for the factors which produce those goods would also rise. If the demand for goods is elastic, the demand for factors would also be elastic.

Similarly, when demand for goods is inelastic, the factor which produces it will also be inelastic. The demand for any given factor of production also depends upon the availability of other factors which co-operate with this factor in the process of production.

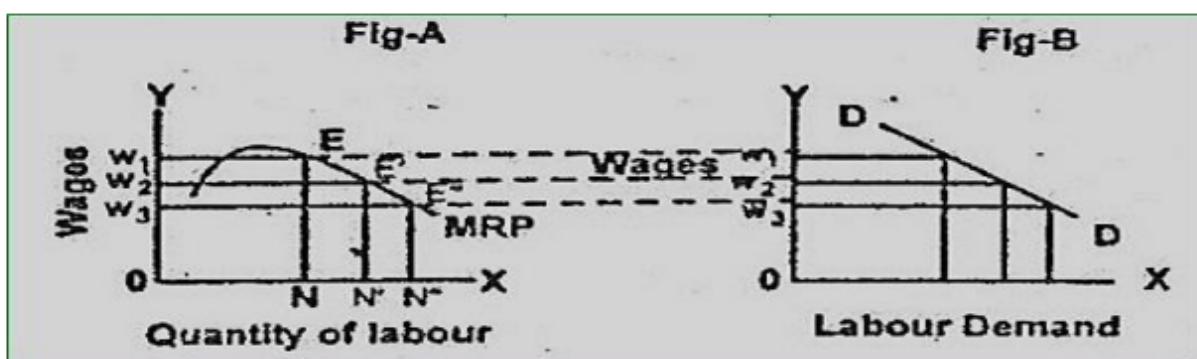
Normally the demand for and price of a given factor will be higher if the co-operating factors are available in large.

A third rule regarding the demand for a factor is that when more of a factor is employed, its marginal productivity is likely to fall and hence its demand and price are also likely to become lower.

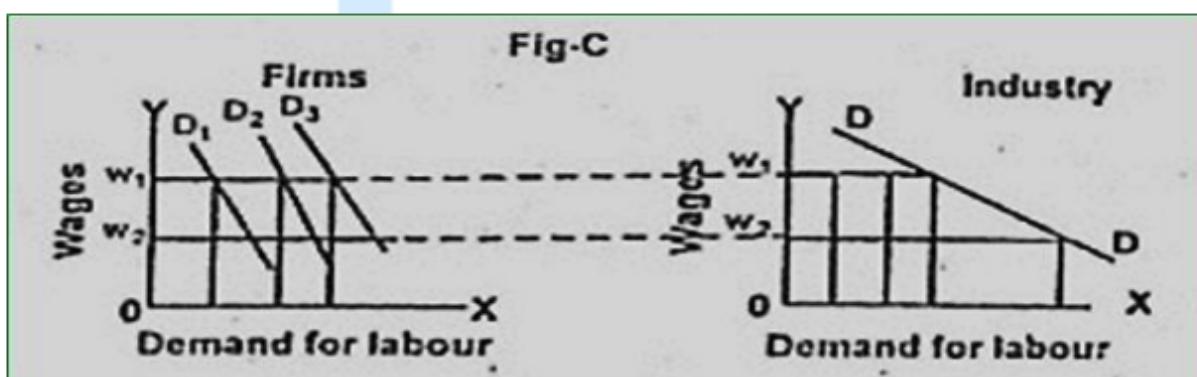
The demand and price of a factor also depend upon the market price of the goods for the production of which this factor has been used. If the goods are being sold at high prices the demand for the factors would also be higher.

In the Fig-A various amounts of labor employed by an individual firm at different wage rates are shown. When wages are OW_1 the firm is in equilibrium at point E and therefore employs ON amount of labor.

As the wages go down OW_2 , the equilibrium position shifts to E' and total employment of the factor goes up to ON' . Similarly at the wages rate OW_3 the employment of factor goes up to ON'' . The demand curve for labor is thus downward sloping as shown in Fig-B.



Now to obtain the demand curve for the whole industry, all the demand curves of the individual firms have to be summed up. Let us for the sake of illustration take that the industry consists of only three firms with the demand curves D_1 , D_2 and D_3 . The total demand curve of the industry would be the summation of three demand curves.



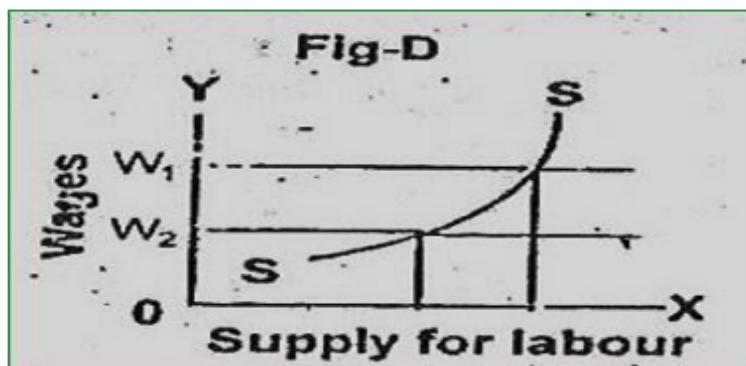
Supply of a Factor of Production:

The supply of a factor of production depends upon many factors. Let us take the case of labor. The supply of labor depends upon the size and composition of a population, its geographical and occupational distribution, efficiency of labor, expected income etc.

But one thing that is generally true is that more of labor would be offered in the market when wages are higher compared to what is being offered at a lower wage rate. It is only a general tendency which may not be true always.

If at higher wage rate labor starts preferring leisure to work the supply of labor is likely to fall thus the supply curve of labor may be backward sloping. However such cases are very rare.'

Therefore for the purpose of our analysis, the supply curve for labor may be treated to be upward sloping showing that more of labor is supplied when the wages go up. The supply curve is given at Fig-D.

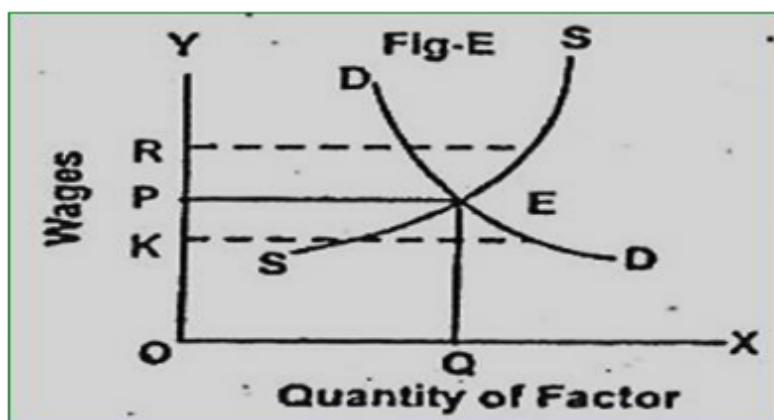


Determination of Market Price of a Factor:

After a detailed discussion on the demand and supply aspects of labor during production, let us see how the wage rate is determined by their interaction. In the Fig-E, DD represents the demand curve for the factor of production say labor and SS is the supply curve.

Both curves intersect each other at point E, which is the equilibrium position in the factor market at which EQ is the equilibrium wage rate. If the wage rate increases to OR, demand for labor will fall and supply will rise, which may cause competition among laborers, thus the wage rate would fall resultantly.

Contrary to it if the wage rate falls to OK then a supply of labor will fall and demand will rise which may cause competition among producers to employ more and more labor at a lower wage rate resultantly this competition would raise the wage rate and this up and down will bring it to the equilibrium level OP or QE at OQ quantity of labor.



Criticism on Demand and Supply Theory:

The theory is criticized on the basis of some of its weak assumptions which are given as:

1. The aspect of increasing the return in the theory of distribution or factor pricing is completely ignored.
2. As the factors of production are not close or complete substitutes of each other, therefore they cannot be substituted for one another.
3. Homogeneity in all units of a factor of production is not possible.
4. Prevalence of perfect competition in both factor and production market is not correct because in the real world it does not prevail.



Unit VII: National Income - Applied Economics

Introduction to National Income:

National income is the sum of the income of all individuals in a certain period of time or one fiscal year. Individuals income mainly defines as the money value of his/her earning from productive activities, currently rendering by his /her properties.

This definition links income to production. Thus the national income is the money value of goods or services produced in an economy in a period of time.



According to **Marshall**, "The labor and capital of a country acting upon its natural resources, produce annually a certain net aggregate of commodities, material and immaterial, including services of all kinds. This is the true net annual income or revenue of a country or the national dividend."

According to **Pigou**, "National dividend is that part of the objective income of the community including, of course, income derived from abroad, which can be measured in money."

According to **Fisher**, "The national income consists solely of services as received by ultimate consumers, whether from their material or from their human environment."

According to **Simon Kuznet**, "National income is the net output of commodities and services flowing during the year from the country's productive system in the hand of the ultimate consumers."

National Income Accounting:

It is a record or account of the production of goods and services with their monetized values within a given period of time generally a year. So national income accounting is a

system where we measure the total final goods and services and their monetary values in a year.



Various Concepts of National Income Accounting:

1. Gross Domestic Product (GDP):

GDP is the total monetary value of all the final goods and services produced within a country in a specific period of time generally one year. So in GDP, we include only:

- a. The final goods and services and we don't include intermediate goods and services.
- b. Their monetary value and goods and services.
- c. The goods and services produced within the country and it has not cared whoever is producing either the producer is a citizen of the country or not.
- d. The goods and services within the specified time and we don't count the goods and services that are produced in previous years.

By Using Expenditure Form, It Can Be Shown As:

$$GDP = C + I + G + (X - M) \text{ Where,}$$

C = consumption expenditure

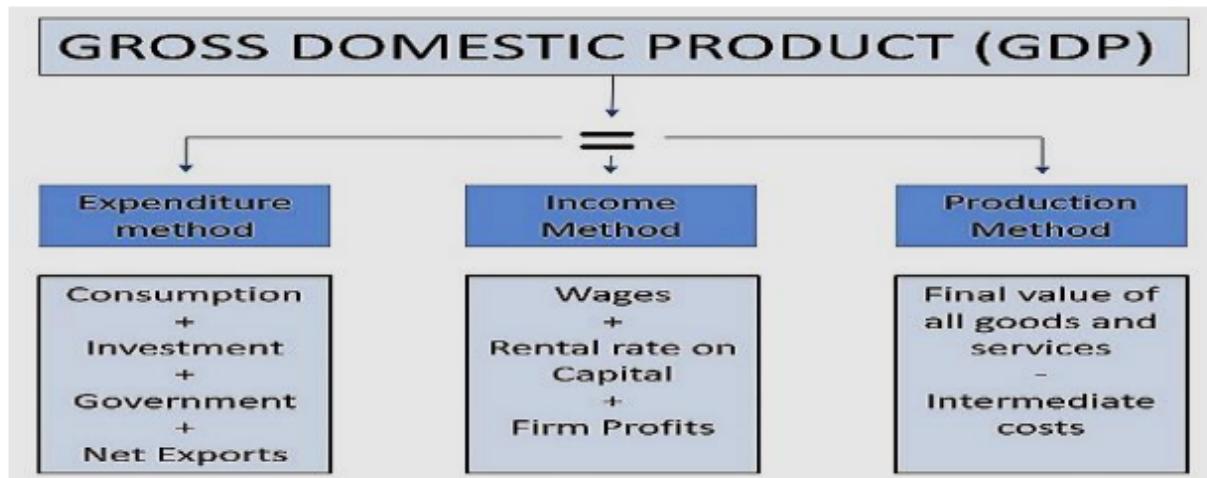
I = Investment expenditure

G = Government expenditure

X = Total export earnings

M = Total import expenses and

X - M = Net income from abroad.



2. Gross National Product (GNP):

GNP is the monetary value of all the final goods and services produced by all the factors of production of a nation within a country or abroad in a given period of time generally one year.

So to calculate GNP, we add the total factor income earn from foreign countries by the domestic citizen and subtract the total factor income earned by the foreigner in the country to GDP.

$$GNP = GDP + NIFA$$

Where,

NFIA = Net factor income from abroad, or

NFIA = Total income received by a domestic factor of production from abroad – total income is taken by the foreign factor of production from the country.



3. Net National Product (NNP):

In the production process, a certain amount of fixed capital is used up. This is called depreciation of fixed capital or capital consumption allowances (CCA). By deducting the

value of depreciation from the value of GNP in a year, we get another measure of output called Net National Product.

Hence, $NNP = GNP - CCA$ (depreciation)



4. National Income (NI):

National income is the aggregate income of all the factors of production within the country in one year. The amount earned by the factors of production such as land, labor, capital and organization for a period of one year is known as national income.

So, national income can be given as: $NI = R + W + I + P$

Where,

R = Aggregate Rent

W = Aggregate Wage

I = Aggregate Interest Income

P = Aggregate Profit

In other words, national income can be expressed as:

$NI = NNP - Indirect\ taxes + subsidies$



5. Personal Income (PI):

Personal income is the sum of all incomes actually received by all individuals or households during a given year.

$PI = NI - \text{Undistributed Corporate Profit} - \text{Profit Tax} - \text{Social Security Contribution} + \text{Transfer Payments}$.



6. Disposable Income (DI):

The entire amount received by the individuals and households are not available for consumption expenditure because of some part of the personal income should be paid to the government in the form of direct tax.

Hence, the income remained after paying direct taxes from personal income is called disposable income.

$DI = PI - \text{Direct Taxes}$.



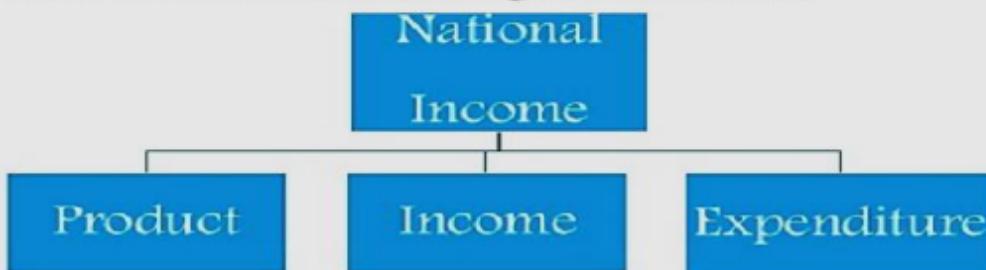
Methods of Measurement of National Income:

National income measures the income generated by a country through the production activities that are carried out within a country during a specific period of time.

Circular flow of income and expenditure exists within an economy, where factor income is earned from the production of goods and services, and the income is spent on the purchase of produced goods. Thus, there are three alternative methods of computing national income. This includes:

Measurement of National Income

There are three methods for calculating National Income...



1. Product/ Value Added Method:

Under this method, national income is calculated at the stage of production of goods and services during a year. There may be some chances of double calculation for the same product when the calculation is done from a different stage of production.

The product method includes the following two methods to avoid the double calculation problem:

A. Final Product Method:

To measure the national income from final product method, an economy is divided into different productive sectors like primary sectors (agriculture), secondary sectors (industry) and tertiary sectors (service).

Finally, National Income is calculated by adding the market value of all the goods and services produced in primary, secondary and tertiary sectors.

The Components Of The Final Product Method Are As Follows:

- a. **Primary Sectors:** Agriculture is the primary sector. It includes various types of agro products like vegetables, fruits, crops, etc.
- b. **Secondary Sectors:** Industrial sector is kept in the secondary category. It includes activities of manufacturing and construction like food processing, iron and steel production, electricity, water supply, etc.
- c. **Tertiary sectors:** Service sector is included in the tertiary sector. It includes banking, insurance, transport and communication, trade and commerce, etc.

The calculation of national income by-product method is presented in a table with hypothetical data:

Production Sector	Value of Product (in million)
Primary Sector	10000
Secondary Sector	7000
Tertiary Sector	8000
Gross Domestic Product	25000
Net factor income	-5000
Gross National Product (GNP)	20000
Depreciation	-1000
Net National Income (NNI)	19000
Indirect taxes	-1000
Subsidies	+2000
National Income	20000

The calculation of National Income by-product the method includes various sectors like primary, secondary, tertiary and other production sectors which are measured in terms of million and calculated to get the national income.

B. Value Added Method:

Under the value-added method, National Income is calculated by adding the value-added amount in each stage of production. All the goods and services are produced being different stages of production.

National Income is the sum of the value added by different stages of producers in a country during the period of a year. We use the following formula to calculate the value-added.

$$\text{Value-added} = \text{Sales value of output} - \text{Cost of intermediate goods}$$

The calculation of National Income by the value-added method is presented below:

Production Stage	Value of Output	Cost of Intermediate	Value Added
Wheat (farmer)	20	0	20
Flour (flour mill)	50	20	30
Bread (baker)	70	50	20
Traders	80	70	10
Total	220	140	80

In the table, there are four stages of production. A farmer produces wheat at equal to the value of Rs. 20. Hence, Rs. 20 is the value-added to the economy. Flour mill grinds the wheat and sells flour to the bakery at Rs. 50.

Hence, the value-added to the economy by the flour mill is Rs. 50 and the net income added is Rs. 30 ($50 - 20$). Similarly, the baker sells bread to the traders at Rs. 70.

Finally, the traders sell to the final consumers at Rs. 80 and the net added is Rs. 10 (80 - 70). Hence the sum of value added at each stage of the production is the final value and the final value is added to the National Income consumption

2. Income/Factor Income Method:

Income method measures the national income by adding all the incomes received by the owners of the factors of production in a year. The business organization uses various factors of production like land, labor, capital, organization, raw materials, etc. to produce goods and services.

The users of such resources make the payment of factors of production in the form of rent, wages, interest, profit, payments for raw materials. So, National income is the sum of incomes received by all these factors of production in a year.

The Income Approach Includes The Following Components:

- a. **Wages and Salaries:** It includes the wage and salary received by the employees during the year. It even includes the benefits as tips, bonus, etc.
- b. **Rent:** Rent includes the rent of land, houses, factories, machinery, apartments, etc.
- c. **Interest:** It is the additional amount paid by the borrower to the lender of capital. It includes interest received.
- d. **Corporate Profits:** It consists of corporate profits with inventory valuation and capital consumption adjustments.
- e. **Indirect taxes:** The income generated from indirect taxes like VAT, sales, tax, excise duty are also included in national income.
- f. **Net exports earnings:** It is the difference between export earnings and import expenses of goods and services.

The calculation of national income by income approach is presented in by the hypothetical table.

Income heading	Amount of Income
Wages and Salaries	5000
Rent	2000
Interest	3000
Corporate Profit	5000
Indirect taxes	1000
Gross Domestic Income (GDI)	16000
Net factor income from abroad	-1000

Gross National Income (GNI)	15000
Depreciation	-500
Net National Income (NNI)	14500
Indirect taxes	-500
Subsidies	1000
National Income	15000

From the above table, we get that wages and salaries are 5,000 million and rent is 2,000 million respectively. So like this way we get the different distribution of national income among the different class of people.

3. Expenditure Method:

Another method for the measurement of national income is expenditure method. Under this method, national income is calculated by adding the expenditure made by all the individuals or sectors of an economy.

In an open economy, the demand for domestic output is made up of four components. It includes consumption expenditure made by the household sector (C), investment expenditure made by the household sector (I), government expenditure on goods and services (G) and net foreign export ($X - M$)

Under the expenditure method, we calculate the GDP by using formula,

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

The Components Of The Expenditure Method Are As Follows:

- a. **Consumption Expenditure (C):** Consumption is the major activities of the household sector. They consume different types of goods and services like basic goods (e.g. food, clothes, shelter), luxurious goods (e.g. gold, diamond), durable goods (e.g. TV, refrigerator), non-durable goods (e.g. fruits, vegetables) etc and services.
- b. **Private Investment Expenditure (I):** Investment is the prime responsibility of the business sector. They invest a large amount of money in the production of goods and services. For example: they invest in purchasing, raw materials, technology plant and machinery, transportation, etc.
- c. **Government Expenditure (G):** Government invest a large amount of money every year for the betterment of citizen (For e.g. government invest to run daily administration, to maintain law and order, infrastructure development like road, education, transport, etc.)

d. **Net-Export (X - M):** Import and Export are two major components of international trade. The difference between export and import is called net-export. An open economy imports and exports a number of goods and services (like machinery, petroleum product, vehicle, etc.)

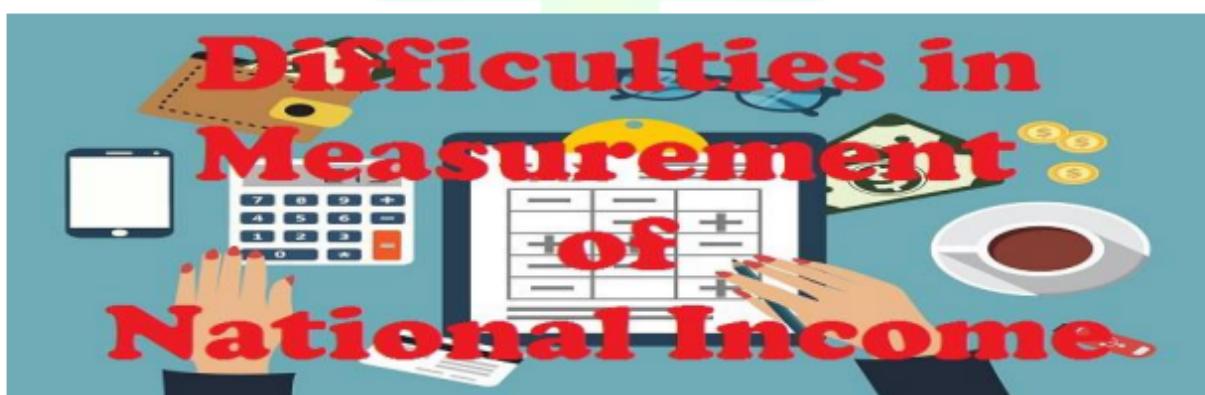
The calculation of national income by expenditure method is shown in the following hypothetical table:

Expenditure heading	Expenditure
Consumption expenditure	1000
Investment expenditure	2000
Government expenditure	3000
Net expenditure	- 400
Gross Domestic Expenditure (GDE)	2000
Net income from abroad	1000
Gross National Expenditure (GNE)	3000
Depreciation	- 500
Net national expenditure (NNP)	2500

It is very difficult to collect the data on consumption and investment expenditure of millions of people, business firms and government in the estimation of national income by the expenditure method. Hence, this method is less practical and less useful.

Difficulties in Measurement of National Income:

There are many difficulties in measuring national income in our country accurately. Some of these difficulties involved in the measurement of national income are described below:



1. Non-Monetary Transaction:

The first problem in national income accounting relates to the treatment of non-monetary transactions such as the services of housewives to the member of their families teaching their own child, working in own farm, fruits and vegetables produced and consumed by households, etc.

2. Problem Of Double Counting:

Only final goods and services are included in the national income accounting. But it is very difficult to distinguish between final goods and intermediate goods. Intermediate goods may be used for final consumption.

3. Inadequate And Unreliable Statistics:

Due to the lack of required data on various economic activities, national income accounting has become quite a difficult task in developing countries. Even the available statistics has become quite reliable due to various factors such as geographical condition, etc.

4. Petty Production:

There is a large number of petty production and it is difficult to include their products in national income because they do not maintain any account. Family members are engaged in the work and they should not maintain any account.

5. Transfer Payments:

Individual gets a pension, unemployment, allowance and interest on public loans, but these payments create difficulty in the measurement of national income.

6. Environment Damages:

No nation prepares account related to the depletion of natural resources in terms of mining minerals, the erosion of soil, the pollution of air, water and soil and so on.

7. Second-Hand Transaction:

The transaction of second-hand goods only changes the ownership. They do not reflect additional production. They are excluded from national income because goods were included in national income when they were newly produced and sold first.

8. Illiteracy and Ignorance:

If the majority of people are illiterate and ignorant, they cannot keep the records of production activities accurately. Hence, it is difficult to get the correct information about the production.

9. No Account:

Some people do not keep any proper account of their business income, so their income is not included in the national income.

10. Difficulty in Assessment:

Some goods and services value cannot be assessed easily. For example, the value of different Cows and Sheep's is very difficult.

11. Unpaid Services:

In national income, only those services are included for which the payment is made. The unpaid services are excluded.

12. Direct Exchange:

In less developing areas, people exchange commodities with commodities and do not use money. So the value of these goods cannot be estimated.

13. Income Of Foreign Companies:

The income of foreign investment is not included in the national income. Because these companies send some portion of their profit to their own countries.

Unit VIII: Theory of Employment - Applied Economics

Introduction of Keynesian Theory of Employment:

According to classicists, there will always be full employment in a free-enterprise capitalist economy because of the operation of Say's Law and wage-price flexibility. This classical theory came under severe attack during the Great Depression years of the 1930s at the hands of J. M. Keynes.

He rejected the notion of full employment and instead suggested full employment as a special case and not a general case. Full employment is a temporary phenomenon and astrological coincidence.



He claimed his theory to be 'general', i.e., applicable at any point in time. That is why he christened his epoch-making book: *The General Theory of Employment, Interest and Money* (1936).

Thus, Keynes' theory is "general". In this book, he not only criticized classical macroeconomics but also presented a 'new' theory of income and employment. He is often described by economists as a revolutionary one in the sense that it was Keynes who salvaged the capitalist economy from destruction in the 1930s. Critics, however, label him as a 'conservative revolutionary'.

Keynes' theory of employment is a demand-deficient theory. This means that Keynes visualized employment/unemployment from the demand side of the model. His theory is, thus, known as a demand-oriented approach, as opposed to the classical supply-side model.

According to Keynes, the volume of employment in a country depends on the level of effective demand of people for goods and services. Unemployment is attributed to the deficiency of effective demand.

It is to be kept in mind that Keynes' theory is a short-run theory when population, labor force, technology, etc., do not change. Once Keynes remarked that since "in the long run we are all dead", it is of no use to present a long-run theory.

In view of this, one can argue that the volume of employment depends on the level of national income/output. Higher (lower) the level of national output higher (lower) is the volume of employment. Thus, Keynesian theory of employment determination is also the theory of income determination.

Meaning of Effective Demand:

Keynes' theory of employment is based on the principle of effective demand. In other words, the level of employment in a capitalist economy depends on the level of effective demand.

Thus, unemployment is attributed to the deficiency of effective demand and to cure it requires the increasing of the level of effective demand.



By 'effective' demand, Keynes meant the total demand for goods and services in an economy at various levels of employment. Total demand for goods and services by the people is the sum total of all demand meant for consumption and investment.

In other words, the sum of consumption expenditures and investment expenditures constitute effective demand in a two-sector economy.

In order to meet such demand, people are employed to produce all kinds of goods, both consumption goods and investment goods. However, to complete our discussion on effective demand, we need another component of effective demand, the component of government expenditure.

Thus, effective demand may be defined as the total of all expenditures, i.e. **C + I + G**

Where,

- C** stands for consumption expenditure,
- I** stands for investment expenditure, and
- G** stands for government expenditure.

Here we ignore government expenditure as a component of effective demand. According to Keynes, the level of employment is determined by the effective demand which, in turn, is determined by aggregate demand function or aggregate demand price and aggregate supply function or aggregate supply price.

In Keynes' words; "The value of D (Aggregate Demand) at the point of Aggregate Demand function, where it is intersected by the Aggregate Supply function, will be called the effective demand."

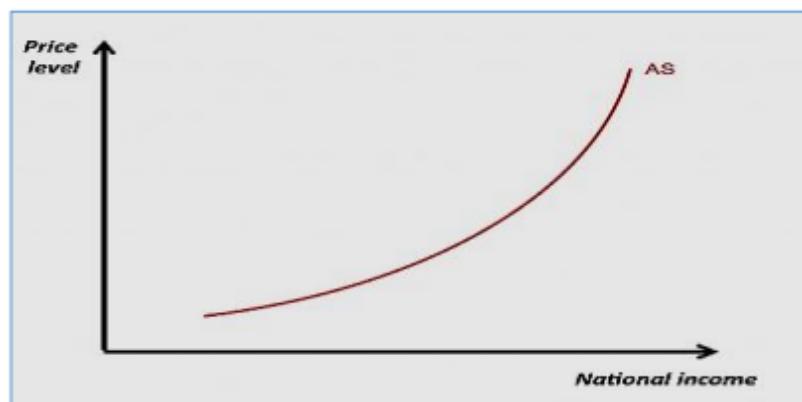
Assumption:

The principle of effective demand is based on the following assumptions:

1. There is the existence of a closed economy, ignoring the effect of foreign trade.
2. There is the operation of the law of diminishing returns.
3. Perfect competition exists in the market.
4. He assumes that labor has a money illusion. It means that a worker feels better when his wages double even when prices also double, thus leaving his real wage unchanged.
5. The government is assumed to have no part play either as taxer or a spender, i.e. the fiscal operations of the government are not explicitly recognized.
6. Less than full employment, equilibrium is possible in a short period.

Aggregate Supply (AS):

Employers hire and purchase various inputs and raw materials to produce goods. Thus, production involves cost. If sales revenue from the sale of output produced exceeds the cost of production at a given level of employment and output, the entrepreneur would be induced to employ more labor and other inputs to produce more.



At any given level of employment of labor, aggregate supply price is the total amount of money that all entrepreneurs in the economy expect to receive from the sale of output produced by a given number of laborers employed.

For each particular level of employment, there is an aggregate supply price. Here, by 'price' we mean the amount of money received from the sale of output, i.e., sales proceeds.

Thus, aggregate supply price refers to the proceeds from the sale of output at each level of employment and there are different aggregate supply prices for different levels of employment.

If this information is expressed in a tabular form, we obtain "aggregate supply price schedule" or aggregate supply function. The aggregate supply function is a schedule of the minimum amounts of proceeds required to induce varying quantities of employment.

Simply, it shows various aggregate supply prices at different levels of employment. Plotting this information graphically, we obtain the aggregate supply curve.

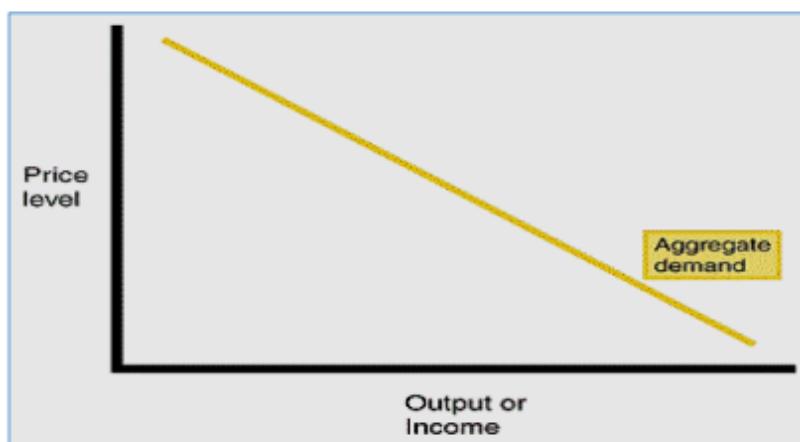
According to Keynes, the aggregate supply function is an increasing function of the level of employment. Aggregate supply (AS) curve slopes upward from left to right because the volume of employment increases with the increase in sale proceeds.

But there is a limit to increase output level. This is called full employment level of output beyond which output cannot be increased, it is because of full employment that AS curve becomes vertical or perfectly inelastic.

This means that the level of employment cannot exceed full employment (L_F) level even by increasing aggregate supply price. This is shown in Figure below.

Aggregate Demand (AD):

Aggregate demand or aggregate demand price is the amount of money or price which all entrepreneurs expect to receive from the sale of output produced by many labors employed. Or it refers to the expected revenue from the sale of output at a particular level of employment. Each level of employment is associated with a particular aggregate supply price and there are different aggregate demand prices for different levels of employment.



Like the aggregate supply schedule, the aggregate demand schedule shows the aggregate demand price for each possible level of employment.

Plotting the aggregate demand schedule we obtain aggregate demand curve as there is a positive relationship between the level of employment and aggregate demand price, i.e., expected sales receipts. This is shown in Figure below. It rises from left to right.

Equilibrium Level of Employment (The Point of Effective Demand):

The level of employment in an economy is determined at that point where the aggregate supply price equals the aggregate demand price. In other words, the intersection of the aggregate supply function with the aggregate demand function determines the volume of income and employment in an economy.

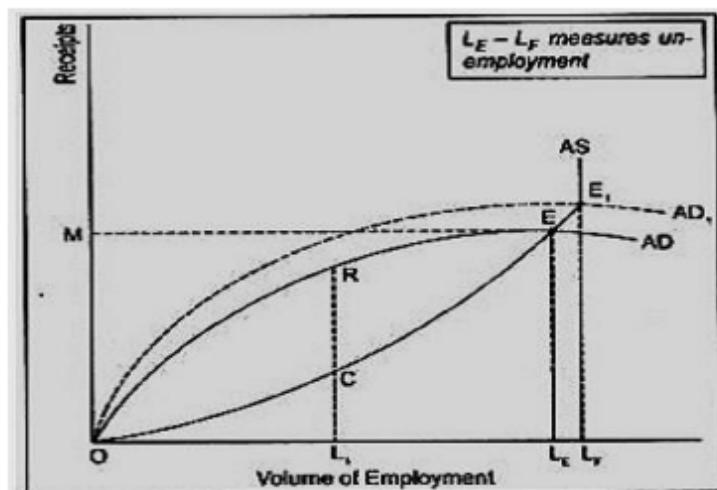
It is, thus, clear that so long as expected sales receipts of the entrepreneur (i.e. aggregate demand schedule) exceed costs (i.e. aggregate supply schedule), the level of employment should be increasing and the process will continue until expected receipts equal costs or aggregate demand curve intersects aggregate supply curve.

Note that the AS curve starts from the origin. If aggregate receipts (i.e. GNP) are zero, entrepreneurs would not hire workers. Likewise, AD curve also starts from the origin. The equilibrium level of employment is determined by the intersection of the AS and AD curves. This is the point of effective demand point E in Figure below. Corresponding to this point, $O L_E$ workers are employed.

At the $O L_1$ level of employment, expected receipts exceed necessary costs by the amount $R C$. Entrepreneurs will now go on hiring more labor till $O L_E$ level of employment is reached.

At this level of employment, entrepreneurs' expectations of profits are maximized. Employment beyond $O L_E$ is unprofitable because costs exceed revenue. Thus, actual employment ($O L_E$) falls short of full employment ($O L_F$).

The Keynesian system shows two kinds of equilibrium actual employment equilibrium determined by AD and AS curves and underemployment equilibrium.



Keynes made a little emphasis to the aggregate supply function since its determinants (such as technology, supply or availability of raw materials, etc.) do not change in the short run.

Keynes was examining the possibility of unemployment in a capitalistic economy against the backdrop of Great Depression of the 1930s.

After diagnosing the problem, Keynes recommended policy prescription so as to create more employment in the economy. Indeed, for curing unemployment problem, he did not subscribe to the classical ideas, the supply-oriented policies.

Keynes attached great importance to demand stimulating policies to cure unemployment. In other words, Keynes paid emphasis on the aggregate demand function. That is why Keynes' theory is known as a 'theory of aggregate demand'.

The figure above shows the situation of equilibrium at less than full employment level. Actual equilibrium, $O_L E$, is short of full employment equilibrium, $O_F E$. Thus, the distance $O_F L$ to $O_L E$ measures unemployment.

This is called involuntary unemployment, a situation at which people are willing to work but do not find jobs.

This unemployment, according to Keynes, is due to the deficiency of aggregate demand. This unemployment can be removed by stimulating aggregate demand. Aggregate demand is the sum total of consumption and investment demand or expenditures in the economy. By raising consumption expenditure, the level of employment can be raised.

But there is a limit to consumption expenditure. So what is needed is the raising of (private) investment demand. Anyway, an increase in consumption demand and investment demand will raise the level of employment in the economy.

The point of effective demand has been changed because of the shifting of AD curve from AD to AD_1 . New effective demand is now given by E_1 . Corresponding to this point, the equilibrium level of employment is $O_F L$, the level of full employment.

Thus, in Keynes' theory, unemployment is due to the deficiency of effective demand. Only by stimulating effective demand can a higher level of employment be achieved. However, Keynes goes on arguing that equilibrium level of employment will not necessarily be at full employment.

A capitalist economy will always experience underemployment equilibrium, an equilibrium situation less than full employment. Full employment, according to Keynes, can never be achieved.

In Keynes' scheme of things, both consumption and investment cannot be raised enough to employ more workforce. Therefore, he recommends the government to come forward and take appropriate action to cure the unemployment problem.

This means that aggregate demand is now the sum total of all consumption, investment and government expenditures. It is because of the multiplier effect of both private

investment expenditure and government expenditure, that there will be larger income, output and employment.

But equilibrium in the economy will be established at less than full employment situation because of (i) wage rigidity, (ii) interest inelasticity of investment, and (iii) liquidity trap.



Unit IX: Consumption, Saving and Investment Functions - Applied Economics

Consumption and Consumption Function:

Referring to the Keynesian theory of employment, an increase in aggregate demand leads to an increase in effective demand which increases employment level and output. The major components of aggregate demand are consumption and investment.

So, Keynes has given importance to consumption which Increases in aggregate demand, effective demand, output level and employment level to get rid of the depression. Thus, consumption has a greater role in macroeconomics.



Consumption is defined as the amount spent by people for buying goods and services to satisfy wants. In macroeconomics, aggregate or total consumption is considered.

The consumption function is the mathematical or quantitative relationship between consumption and determinants of consumption.

The major determinants of consumption (C) are disposable income (Y_d), accumulated wealth (W), future income or expected income (Y_e), price level (P), interest rate (r), etc.

$$C = f(C, Y_d, W, Y_e, P, r \dots)$$

Out of these determinants, disposable income (Y_d) is the most influencing determinant. Thus, in simple, consumption function is taken as a quantitative relationship between consumption and disposable income which can be mathematically expressed as $C = f(Y_d)$

If the slope of consumption curve remains constant throughout its length it is said to be linear consumption function. In other words, if both disposable income and consumption change at a constant rate, consumption function will be linear.

Consumption function can be expressed in linear form as $C = a + bYd$.

Where,

C = consumption

Yd = disposable income ($Y - T$)

a = autonomous consumption

bYd = induced consumption

b = marginal propensity to consume or rate of change of consumption with respect to income

Keynes' Psychological Law of Consumption Function:

This law was propounded by J.M. Keynes which forms the basis of the consumption function. It explains the nature of propensity to consume schedule.

In other words, the law implies that people have a tendency to spend more to some extent as the increase in income because a part of income is saved.

Assumption:

1. The psychological and instructional factors (or complexes) such as income distribution, price level, population growth, taste, preferences and fashion, etc. remain unchanged in the short period.
2. It assumes the existence of a laissez-fair capitalist economy. The law operates only in a developed and free capitalist economy. People are free to spend their increased income in such type of economy. This law is not applicable in the socialist and government-regulated economy.
3. It assumes the existence of normal circumstances. It implies that the operation of the law is possible only under normal circumstances and not under extraordinary circumstances, like war, hyperinflation, depression, or civil war, etc.

The Law is based on the Following Propositions:

Proposition 1st:

When aggregate income increases, consumption expenditure also increases but by a smaller amount. It is because as income increases, people are able to satisfy their wants side by side so that the need to spend more on consumer goods diminishes.

It does not mean that the consumption expenditure falls with the increase in income. In fact, consumption expenditure varies positively with income, but not in the same proportion in which income increases [i.e. $C = f(Y)$ or and].

Proposition 2nd:

The increased income will be divided in some ratio between saving and consumption (i.e. $DY = DC + DS$). This proposition is followed from the first proposition because when the whole of increased income is not spent on consumption, the remaining is saved. Hence, consumption and saving move together.

Proposition 3rd:

Increase in income always leads to an increase in both consumption and saving.

The three propositions of the law can be described with the help of the following schedule:

Income (Y)	Consumption (C)	Saving ($S = Y - C$)
0	40	-40
100	120	-20
200	200	0
300	280	20
400	360	40
500	440	60

Proposition 1st:

Income increases at each stage by Rs. 100 crores (for example from Rs. 100 to Rs. 200, Rs. 200 to Rs. 300, and so on), consumption increases at each stage by Rs. 80 crores (for example from Rs. 120 to Rs. 200, Rs. 200 to Rs. 280, and so on).

Here, $DC < DY$. Thus, when aggregate income increases, aggregate consumption also increases, but by a somewhat smaller amount.

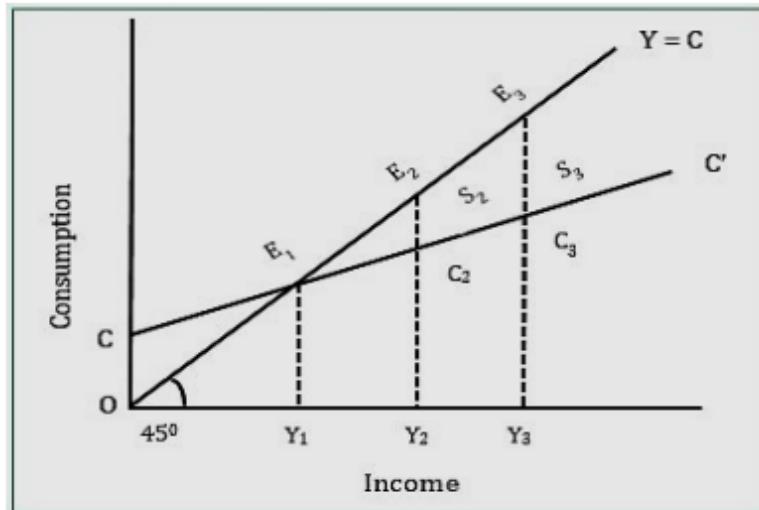
Proposition 2nd:

At any two consecutive periods, $DY = 100$, $DC = 80$, $DS = 20$. Hence, the increased income of Rs. 100 in each stage is divided into some ratio between consumption and saving [i.e. Rs. 80 crores and Rs. 20 crores or $DY (100) = DC (80) + DS (20)$]. Hence, increased income is divided into consumption and saving.

Proposition 3rd:

As income increases from Rs. 200 to Rs. 300, Rs. 400 and Rs. 500 crores consumption increases from Rs. 200 to Rs. 280, Rs. 360 and Rs. 440 along with an increase in saving from Rs. 0 to Rs. 20, Rs. 40 and Rs. 60 crores, respectively. Hence, both consumption and saving increase with an increase in income.

The psychological law of consumption can also be explained with the help of figure:



The 45° line $Y = C$ represents income. It also indicates that at all the points lying on this line, the whole of income is consumed and nothing is saved.

The CC' line is the consumption line which is drawn according to the consumption function and psychological law of consumption function. It slopes upwards to the right indicating, that as income increases, consumption also increases, but at less proportion than income.

Proposition 1st:

When income increases from OY_1 to OY_2 and OY_2 to OY_3 then consumption also increases from Y_1E_1 to Y_2C_2 and Y_2C_2 to Y_3C_3 . Here, consumption increases at less proportion than income [i.e. $Y_2C_2 < Y_2E_2$ and $Y_3C_3 < Y_3E_3$].

Proposition 2nd:

When income increases from OY_1 to OY_2 (Y_2E_2) or increases by S_2E_2 and OY_2 to OY_3 (Y_3E_3) or increases by S_3E_3 , it is divided in some proportion between consumption Y_2C_2 and Y_3C_3 and saving S_2E_2 and S_3E_3 respectively [i.e. $DY(Y_2E_2) = DC(Y_2C_2) + DS(S_2E_2)$ and $DY(Y_3E_3) = DC(Y_3C_3) + DS(S_3E_3)$].

Proposition 3rd:

Increase in income to $OY_2 (Y_2E_2)$ and $OY_3 (Y_3E_3)$ leads to an increase in consumption (i.e. $Y_3C_3 > Y_2C_2$) and increase in saving (i.e. $S_3E_3 > S_2E_2$). It is clearly shown by the widening area between the income line (i.e. 45^0 line) and consumption curve (or the gap between income and consumption lines are increasing).

Attributes of Consumption Function (APC and MPC):

Average Propensity to Consume (APC):

It is the outcome of aggregate consumption expenditure divided by aggregate income. It is also defined as the ratio of absolute consumption to absolute income i.e. $APC = C/Y$. Total income earned by any individual is either consumed or saved or both.

If income is denoted by Y , consumption is denoted by C and saving is denoted by S , then

$$Y = C + S$$

$$\text{Or, } \frac{Y}{Y} = \frac{C}{Y} + \frac{S}{Y} \text{ (Dividing both side by } Y\text{)}$$

$$\text{Or, } 1 = APC + APS \text{ and } 0 < APC < 1; 0 < APS < 1$$

Where,

APC = average propensity to consume = consumption for one rupee income

APS = average propensity to saving = saving for one rupee income

Marginal Propensity to Consume (MPC):

It is the outcome of change in aggregate consumption expenditure divided by the change in aggregate income. It is also defined as the ratio of change in consumption to change in income i.e. $MPC = \Delta C / \Delta Y$. ΔY , ΔC and ΔS is the increased income, increased consumption and increased saving respectively, then

$$\Delta Y = \Delta C + \Delta S$$

$$\text{Or, } \frac{\Delta Y}{\Delta Y} = \frac{\Delta C}{\Delta Y} + \frac{\Delta S}{\Delta Y} \text{ (Dividing both sides by } \Delta Y\text{)}$$

$$\text{Or, } 1 = MPC + MPS \text{ and } 0 < MPC < 1; 0 < MPS < 1$$

Where,

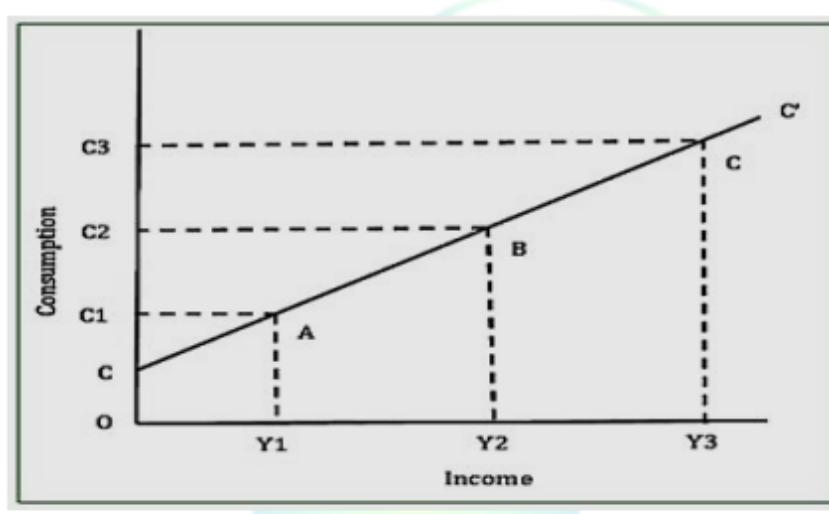
MPC = marginal propensity to consume (c) = change in consumption for one unit change in income.

MPS = marginal propensity to saving (s) = change in saving for one unit change in income

Income (Y)	Consumption (C)	APC = C/Y	MPC = DC/DY
200	200	1 or 100%	-
300	280	0.93 or 93%	0.8 or 80%
400	360	0.90 or 90%	0.8 or 80%
500	440	0.88 or 88%	0.8 or 80%

It reflects the rate of change in APC or slope of consumption curve. When both income and consumption increase at a constant rate. MPC remains constant. when income increases from Rs. 200 to Rs. 300 crores and consumption increases from Rs. 200 to Rs. 280 crores, then $MPC = DC/DY = 80/100 = 0.8$ or 80%. Here, the value 80% or 0.8 indicates that 80% increased income is spent on consumption.

When both income and consumption increase at a constant rate i.e. by Rs. 100 and Rs. 80 respectively as shown in the table above, APC declines continuously i.e. 1, 0.93, 0.9 and 0.88.



In the above figure:

$$APC \text{ at point A} = OC_1/OY_1 = 200/200 = 1$$

$$APC \text{ at point B} = OC_2/OY_2 = 280/300 = 0.93$$

$$APC \text{ at point C} = OC_3/OY_3 = 360/400 = 0.90$$

$$\text{Hence, } OC_1/OY_1 > OC_2/OY_2 > OC_3/OY_3$$

This expression reflects that APC decline continuously with an increase in both income and consumption at a constant rate.

Similarly, geometrically, the marginal propensity to consume is computed by the slope or gradient of the consumption curve.

$$MPC \text{ between point A and B} = C_1C_2/Y_1Y_2 = 80/100 = 0.8$$

$$MPC \text{ between point B and C} = C_2C_3/Y_2Y_3 = 80/100 = 0.8$$

This expression implies that when both income and consumption increases at a constant rate, MPC remain constant.

Properties of MPC:

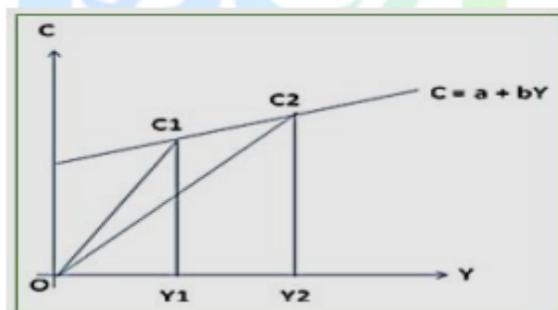
1. The value of MPC is always positive and less than one. ($0 < C < 1$)
2. In short-run, MPC is stable (constant). It is because the psychological and other factors on which MPC depends do not change in the short-run.
3. MPC of the poor is greater than rich. ($MPC_{poor} > MPC_{rich}$). Generally, poor people are unable to satisfy even their basic needs. So, they tend to spend larger amount of their increased income on consumption.

Difference between APC and MPC:

$$1. \text{ } APC = \frac{C}{Y} \text{ and } MPC = \frac{\Delta C}{\Delta Y}$$

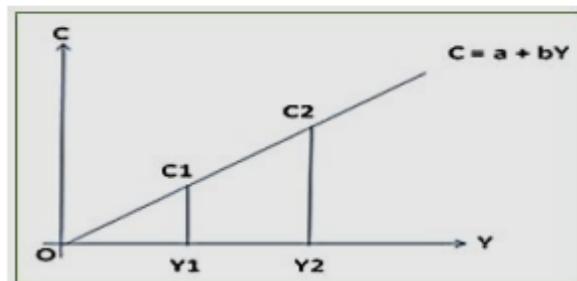
APC is the ratio of absolute consumption to absolute income at a particular point of time. MPC is the ration of change in consumption to change in income for a particular period of time.

2. For linear consumption function not passing through the origin, when income increases APC falls but MPC remains constant. APC is always greater than MPC.



APC at Y_1 and Y_2 income level are respectively $C_1 Y_1 / OY_1$ and $C_2 Y_2 / OY_2$ which are also the slopes of the lines OC_1 and OC_2 . The slope of OC_1 is greater than the slope of OC_2 , i.e. APC at Y_1 level of income is greater than at Y_2 level of income. Also, MPC is constant. Similarly, the slope of OC_1 and OC_2 is greater than the slope of the consumption line or b .

3. For linear consumption function passing through origin, $APC = MPC = \text{constant}$



Determinants of Consumption:

According to Keynes, there are two types of factors which determine the consumption function. They are a subjective factor (or internal factor) and objective (external factor).

The subjective factor is related to psychological behavior which changes the slope (or b), whereas the objective factor causes a shift in consumption function or change in slope (or a).

A. Subjective Determinants:

Subjective determinants are related to human behavior and the social system. Following are the subjective determinants of the consumption function.

1. Security Motive:

People save more for unforeseen and future needs. Programs such as old age allowance, unemployment allowance, medical insurance, etc. reduce saving pattern and increase in consumption.

2. Demonstration Effect:

People in lower and middle-class income groups imitate the lifestyle of or consumption pattern of higher class income group. It increases consumption.

3. Increasing Social Status:

People are motivated to save more and accumulate large wealth which will increase their social status. This helps to reduce consumption.

4. Financial Prudence:

Business firm desires to save more (increase undistributed corporate profit) for the expansion and modernization of business. If the business firm keeps a relatively larger amount of its profit for financial prudence and pays a smaller amount of profit as dividends to the shareholders, this will generally, reduce the propensity to consume of the society.

B. Objective Determinants:

1. Income Of The People:

The income of the people is the most influencing factor for consumption and there is a positive relationship between income and consumption. Similarly, past income also influences consumption.

2. Income Distribution:

If there is a large disparity between rich and poor, the consumption is low, because, rich people have a low propensity to consume than poor people. Similarly, a community with a very equal distribution of income tends to have a high propensity to consume and low propensity to save.

3. Price Level:

The price level affects the consumption level. When the price falls, this will induce people to consume more and propensity to consume of the society increases.

4. Wage Level:

The increased wage has a direct effect on consumption which increases the propensity to consume in the economy.

5. Interest Rate:

Rate of interest also affects the propensity to consume of the community. Higher rate of interest induces people to save more and reduces consumption.

6. Fiscal Policy:

When government reduces the tax, the propensity to consume of the community increases. The progressive tax system increases the propensity to consume of the people by altering the income distribution.

Measures to Raise Consumption:

Increase in consumption expenditure increases aggregate demand, then increases effective demand and employment level. The propensity to consume should be increased in any economy. Followings are important measures to increase the propensity to consume.

1. Income Redistribution:

Redistribution of income in favor of poor tends to raise the propensity to consume, because MPC for poor people is high than rich people. The progressive tax should be levied on income, wealth, capital gains, etc. for the redistribution.

2. Wage Policy:

When the wages of labors increase, they consume more goods and services as it leads to increase the propensity to consume. But, the policy of high wage should be along with the increase in the marginal productivity of labor, otherwise it reduces employment level.

3. Social Security:

Social security like unemployment allowance, old age allowance, health facility, etc. remove the future uncertainty and tendency to save is reduced. It leads to an increase in the propensity to consume.

4. Credit Facilities:

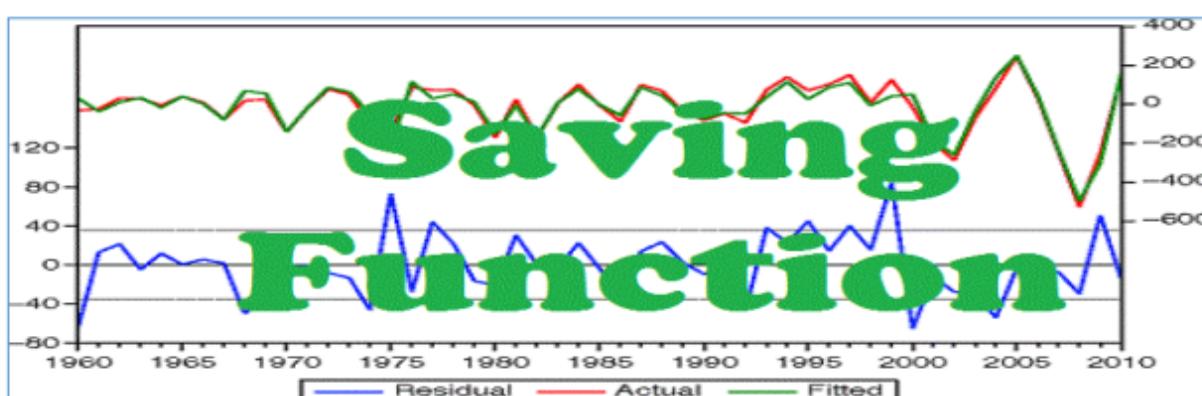
When loans are easily and cheaply available to the people, they buy more goods and services as it increases the propensity to consume.

5. Advertisement:

Consumers get information about the goods and services through the advertisement and attract consumer which raises their propensity to consume.

Saving and Saving Function:

Saving is the excess of income over consumption expenditure. It is the part of income which is not spent on consumption. Saving depends on income and higher the income, higher will be the saving and vice-versa.



Saving function is the quantitative relationship between saving and determinants of saving. Since income is the most important determinant of saving, it is generally defined as the quantitative relationship between saving and income.

$$S = f(Y)$$

Where,

S = saving

F = function

Y = income

If the slope of saving curve remains constant throughout its length, it is said to be linear saving function. In other words, if both saving and disposable income changes at a constant rate, saving function will be linear. The saving function can also be derived as a linear form with the help of linear consumption function.

$$Y = C + S$$

$$\text{Or, } S = Y - C$$

$$\text{Or, } S = Y - (a + bY)$$

$$\text{Or, } S = -a + (1 - b)Y$$

$$\text{Or, } S = -a + sY$$

Where,

S = saving

Y = income

s = $(1 - b)$ = marginal propensity to saving

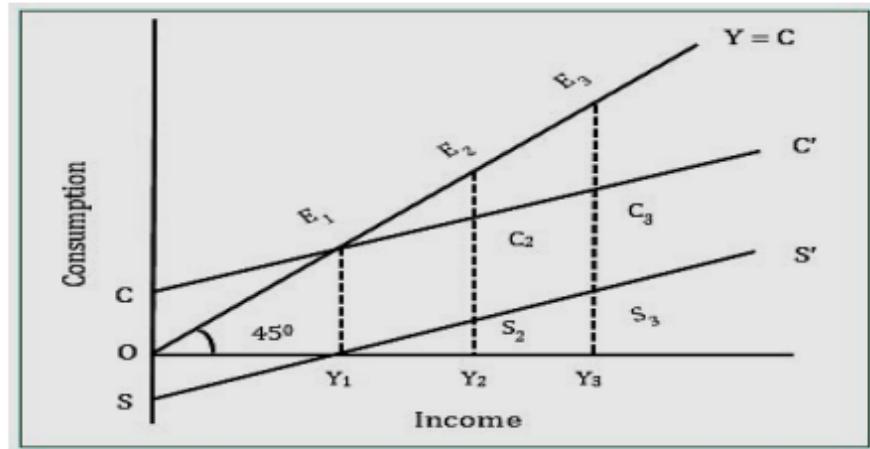
-a = autonomous negative saving which implies until income is not more than a, which is autonomous consumption, there will be no saving. Thus, saving starts when $Y > a$. The income ($Y - a$) is partly consumed ($= cY$) and partly saved ($= sY$).

Derivation of Saving Curve:

Income (Y)	Consumption (C)	Saving ($S = Y - C$)	APS = S/Y	MPS = DS/DY
0	40	-40	¥	-
100	120	-20	-0.2	0.2
200	200	0	0	0.2
300	280	20	0.07	0.2
400	360	40	0.10	0.2
500	440	60	0.12	0.2

The table above shows the saving function. When income increases from Rs. 0 to Rs. 100, Rs. 100 to Rs. 200 and so on then consumption also increases from Rs. 40 to Rs. 120, Rs. 120 to Rs. 200 and so on, similarly saving increases from Rs. -40 to Rs. -20, Rs. -20 to Rs. 0 and so on.

It implies that when income and consumption increase at a constant rate (i.e. by 100 and 80 respectively), saving also increase at a constant rate (i.e. by 0.2).



The saving curve can be derived with the help of the consumption curve as shown in the above figure. The 45° lines (or, $Y = C$) indicates income equals consumption or zero saving at all points of the line.

CC' is the consumption line and SS' is the saving curve. At zero level of income, autonomous consumption is OC . It implies that there is negative saving equals to $-OS$ and is also called as dissaving.

At OY_1 income level, the whole of income is consumed and nothing is saved. It is denoted by point E_1 which is also called break-even point or zero saving. At OY_2 income level consumption and saving are S_2C_2 and Y_2S_2 respectively.

Similarly, at OY_3 income level consumption and saving will be S_3C_3 and Y_3S_3 . Join S, Y_1, S_2, S_3 extend it to S' . Thus SS' is the saving curve showing a different amount of saving at various level of income.

Technical Attributes of Saving function:

Average Propensity to Save (APS):

It is the ratio between total saving and total income. When both income and consumption increase at a constant rate, saving also increases at constant rate. Hence, APS increases continuously. It is expressed as $APS = S/Y$

Where,

APS = average propensity to saving

S = total saving

Y = total income

As disposable income is partly consumed and partly saved, we have, $C + S = Y$. Dividing both sides by Y , we get:

$$\frac{C}{Y} + \frac{S}{Y} = \frac{Y}{Y}$$

$$\therefore APC + APS = 1$$

According to above table income, consumption and saving increase at constant rate at each stage (i.e. -0.2, 0, 0.07, 0.10 and 0.12 respectively).

$$\text{According to above graph, } APS = \frac{OS}{OY} < \frac{Y_2S_2}{OY_2} < \frac{Y_3S_3}{OY_3}$$

This expression implies that APS increases continuously with an increase in income and saving at a constant rate. Since, $APC + APS = 1$

Marginal Propensity to Save (MPS):

It is the ratio of the change in saving, with the change in income. Algebraically, it is written as **MPS = DS/DY**.

Where,

MPS = Marginal Propensity to Save

DS = Change in a total saving

DY = Change in total income

It reflects the rate of change in saving. When both income and consumption increase at a constant rate, saving also increases at a constant rate.

Hence, MPS also remains constant. As a change in income goes either to change in consumption or to change in saving, we have $DY = DC + DS$. Dividing both sides by DY, we get:

$$\frac{\Delta C}{\Delta Y} + \frac{\Delta S}{\Delta Y} = \frac{\Delta Y}{\Delta Y}$$

It gives the precise relationship between MPC and MPS. As MPC increases MPS declines and vice versa.

According to above table income, consumption and savings increase at a constant rate at each stage MPC remains constant (i.e. 0.2).

$$\text{According to above graph, } MPS = \frac{Y_1S_2}{Y_1Y_2} = \frac{S_2S_3}{Y_2Y_3}$$

This expression implies that MPS remains constant at any level of income. In other words, when income and saving increase at a constant rate, MPS remains constant.

Relationship between APC and MPC, APS and MPS:

1. Short-run consumption function is considered as non-proportional consumption function. Hence, $APC > MPC$ at all levels of income but $APS < MPS$.

2. Since, $APC + APS = 1$. This expression implies that if APC decreases steadily as disposable income increases APS must increase steadily as income rises.
3. If autonomous consumption is zero, all values i.e. APC, MPC, APS and MPS remain constant, positive and less than one [i.e. $0 < APC (=MPC) < 1$ and $0 < APS (=MPS) < 1$].

These relationships are presented below with the help of previous table:

Y	C	S	APC	APS	MPC	MPS
0	40	-40			-	-
100	120	-20	1.2	-0.2	0.8	0.2
200	200	0	1	0	0.8	0.2
300	280	20	0.93	0.07	0.8	0.2
400	360	40	0.9	0.10	0.8	0.2
500	440	60	0.88	0.12	0.8	0.2

Above table shows:

$Y = C + S$ at all level of disposable income.

$APC + MPC = 1$ at all level of disposable income except $Y = 0$.

$MPC + MPS = 1$ at all level of disposable income except for $Y = 0$.

When disposable income, consumption and savings increase at a constant rate, both MPC and MPS remain constant and, When disposable income, consumption and saving increase at a constant rate, APC decreases, but APS increases.

Types of Saving:

There are four major types of savings:

1. Personal Saving:

The saving made by individuals and households is called personal saving. People sacrifice present consumption and save for future purpose.

2. Corporate Saving:

The saving made by business firms are called corporate saving or business saving. When business firms earn a corporate profit, they retain undistributed corporate profit for the expansion and development of the organization.

3. Government Saving or Public Saving:

The positive gap between government income and expenditure is government saving or public saving. If government income is greater than government expenditure, then only public saving occurs.

4. Forced Saving or Compulsory Saving:

If the government compels individual and firms to invest in government securities, it is forced saving or compulsory saving.

Determinants of Saving:

1. Income:

There is a positive relationship between income and saving. When income increases, saving also increases and vice-versa. With the increase in income, consumption increases slower and saving increases faster according to Keynes.

2. Interest Rate:

Interest is the reward for saving. When interest rate increases one can earn more by saving more. So, if the rate of interest increases, people save more and if the rate of interest decreases, people spend more.

3. Price Level:

If price level increases in society, people have to spend more income on consumption and they cannot save more. On the other hand, if the price level decreases, people can save more. It is because they spend less than before for the same commodity.

4. Fiscal Policy:

If taxes are imposed on necessary commodities, people cannot save more. Similarly, if taxes are reduced on the basic goods it leads to an increase in the level of saving.

5. Distribution of Income:

If income distribution is more equal, the level of saving will be low and if it is more unequal the level of saving will be high.

Paradox of Thrift:

The term "Paradox of Thrift" refers to the situation where an increase in savings ultimately reduces to productive capacity, employment and saving itself. J.M. Keynes introduced the concept of paradox of thrift while discussing the great depression of the 1930s.

Thriftiness means the tendency of saving more. The classical economists regarded saving as a great social virtue. According to them, investment is determined by saving. They thought that individual savings would create national saving and this saving would be converted into national investment. Therefore, saving is a virtue or good for the economy.

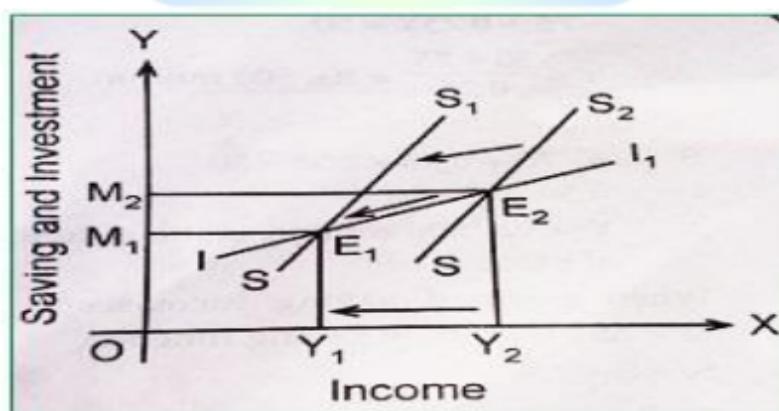
J.M. Keynes does not accept the concept of savings described by classical economists. Keynes said that saving, which is good or bad depends upon its use. Savings in the forms of hoarding would decrease the consumption of the society.

From an individual point of view, saving maybe a virtue but from an economic point of view, saving is social vice or evil.

Keynes said that savings reduce expenditure. But in society, the expenditure of one person is the income of another person. So, saving in the form of hoardings decreases consumption. This would lead to the situation of a decrease in effective demand.

As a result of this, there will be over-production, unemployment and economic crisis in the economy. It reduces the profit and the investors will be discouraged for investment i.e. Investment will also decrease. Ultimately, it reduces national income and saving.

Therefore, low investment reduces income. When income is low, the amount of saving will also low. Thus, the process of reduction in savings due to an increase in savings, in the beginning, is called Paradox of Thrift.



In the figure shown above, the economy position at point E₂ where the investment curve (I₁) intersects saving curve (S₂). This equilibrium shows that the equilibrium level of income is OY₂. At this income level, equilibrium saving and investment are Y₂E₂.

When saving in the community is increases, the saving curve shifts upwards from S₂ to S₁. It leads to a decrease in consumption, investment and income.

As a result, a new equilibrium is established at point E₁ where new saving curve SS₁ intersects investment curve (I_{I1}). This equilibrium shows the new equilibrium level of income and equilibrium saving and investment are OY₁ and Y_{1E1}.

Here, income decrease from OY₂ to OY₁. It implies that an increase in saving at current period leads to a decrease in both income and saving in future.

Investment Function:

Meaning of Capital and Investment:

The term capital and investment are the two different concepts. Capital is a stock concept and it refers to the accumulation of capital assets over a period of time.

The term capital means the stock of productive assets including business fixed investment in machinery and equipment; residential land and buildings; and inventories. Investment is a flow concept and it is an addition to the stock of capital at t period of time.

Thus, capital at time t is the accumulated investment until this time and is given as:

$$K_t = \sum_{t=0}^t I_t \text{ and } I_t = K_t - K_{t-1}$$

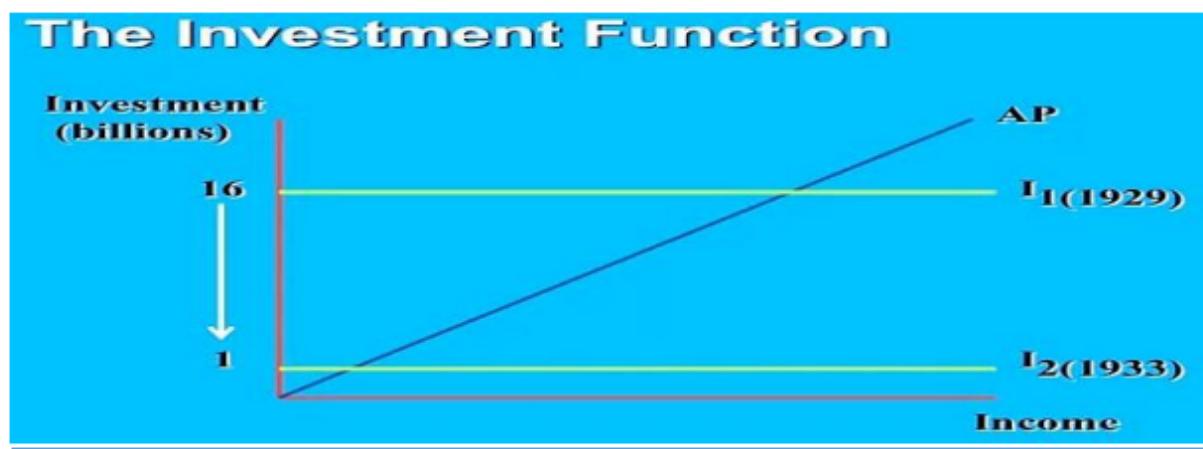
Where,

K_t = Capital at time period t

I_t = Investment at time period t

Investment is the addition to the nation's capital stock in one year which generates income, employment and output. Purchase of existing shares, bonds, debentures, properties, etc. is merely a transfer of ownership of assets from one person to another person.

These purchases do not increase the nation's physical stock of capital thus are not considered as an investment. It may be an investment from one's point of view but not from the nation's point of view.

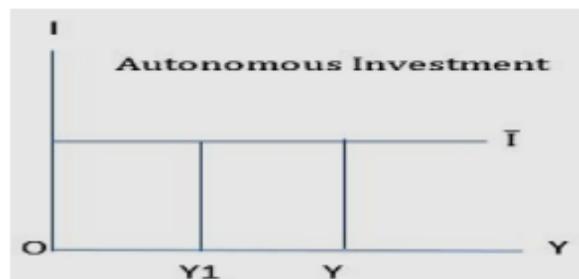


Types of Investment:

Generally, the investment can be classified into two types. They are autonomous and induced investment.

1. Autonomous Investment:

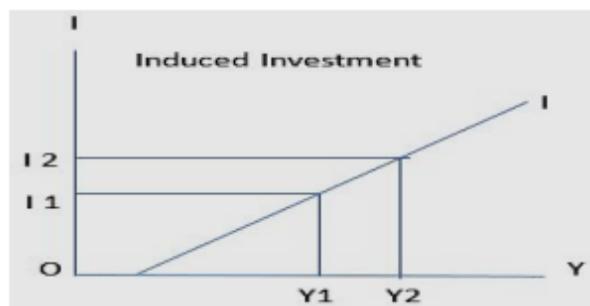
Autonomous investment refers to the investment which does not depend upon changes in the income level. This investment generally takes place in houses, roads, public undertakings and economic infrastructures such as water supply, electricity, transport and communication. Most of the autonomous investment is undertaken by the government. Autonomous investment can be explained graphically as follows:



2. Induced Investment:

Induced investment is that investment which is affected by the changes in the level of income. Induced investment depends upon the level of income. Higher the level of income, higher will be the induced investment.

The induced investment is income elastic. In general, induced investment is made by the private sector with a profit motive. Graphically this investment is explained as follows:



Other Types of Investment:

1. Gross and Net Investment:

Gross investment means aggregate investment. It includes net investment as well as depreciation. It refers to total expenditure on capital goods in the given period of time.

Net investment is the difference between gross investment and depreciation. So, net investment occurs due to an increase in capital stock. The relationship between gross investment and net investment is expressed as $GI = NI + Depreciation$

2. Private and Public Investment:

The investment which is made by the private sector or individual with the main objective of maximizing profit or direct benefit is private investment. In the other hands, public investment means the investment which is made by public or government sectors to increase public utilities.

To fulfil the demand of social overheads, public investment plays a crucial role. This type of investment has indirect benefits because it stressed public benefits than that of profit-maximizing. Investment in construction of roads, bridges, hospitals, educational institutions etc. is the example of public investment.

3. Ex-ante and Ex-post Investment:

The estimated or planned investment is called ex-ante investment. The actual investment or the realized investment is called ex-post investment. These are also known as estimated and actual investment.

Marginal Efficiency of Capital (MEC):

The concept of the marginal efficiency of capital was developed by Keynes in 1936. It is an important determinant of autonomous investment. The marginal efficiency of capital is the highest rate of return expected from an additional unit of a capital asset over its cost.

Example – If the supply price of capital assets or the amount of money that any entrepreneur invests on capital goods such as machine is Rs 40000 and its annual yields are Rs 4000, then MEC becomes

$$MEC = \frac{4000}{40000} \times 100\% = 10\%$$

Thus, MEC is the percentage of profit expected from given investment.

Kurihara defines MEC is the ration between the prospective yield of additional capital assets and its supply price. Keynes defines MEC is the rate of return from the employment of a marginal or additional unit of a capital asset over cost or supply price of the assets.

MEC is equal to the discount rate when the present value of expected returns from the capital asset during its life is just equal to its supply price.

The MEC measurement includes prospective yields or the income expected from the capital and supply price or the cost of capital assets. It is given by the equation as:

$$SP = \frac{Q_1}{1+r} + \frac{Q_2}{(1+r)^2} + \frac{Q_3}{(1+r)^3} + \dots$$

Where,

SP = supply price;

Q1, Q2, Q3 ... is the series of prospective annual returns; and

r = discount rate or MEC

Example 1: Supply price of a capital asset is Rs 2000 and its life span is two years. The expected yields for the first year and second year are respectively Rs 1100 and 1210. MEC can be calculated as:

$$SP = \frac{Q_1}{1+r} + \frac{Q_2}{(1+r)^2}$$

$$\text{Or, } 2000 = \frac{1100}{1+r} + \frac{1210}{(1+r)^2}$$

$$\text{Or, } 2000 (1+r)^2 - 1100 (1+r) - 1210 = 0$$

$$\text{Or, } (1+r) = \frac{1100 \pm \sqrt{1100^2 + (4 \times 2000 \times 1210)}}{(2 \times 2000)} = 1.1 \rightarrow r = 0.1 = \text{MEC}$$

This result implies if the expected future returns are discounted at 10%, the sum of the discounted future returns will be equal to the supply price. In the example, the present values of the first year's return are 1000 and the second year's return is 1000 and the sum of these values is 2000 which is equal to the supply price.

In general, MEC refers to the discount rate at which the expected returns of capital at different times are discounted so that the sum of discounted values is equal to the supply price of that capital.

Once MEC is estimated, investment decision can be taken by comparing MEC with the market rate of interest. The general investment decision rules are:

If $\text{MEC} > I$ then the investment project is acceptable.

If $\text{MEC} = I$ then the project is acceptable on nonprofit consideration.

If $\text{MEC} < I$ then the project is rejected.

Classical economists considered that investment mainly depends upon interest rate. Keynes emphasized MEC. Since the interest rate in a country generally remains stable, changes in MEC mainly determines changes in investment.

So, MEC is assumed to be a more important determinant of investment. In fact, MEC represents the return part and interest rate represents the expense part of the

investment. Thus, the investment decision depends upon both the determinants interest rate and MEC.

Determinants of Investment:

Induced investment is influenced by endogenous factors and autonomous investment is influenced by exogenous factors. Thus, gross investment in the economy is the sum of induced investment and autonomous investment.

Keynes argues the investment rate in the economy is mainly influenced by the two factors – marginal efficiency of capital and rate of interest. Besides, there are other determinants of investment.

1. Cost of Capital Assets:

The cost of capital assets is also called the supply price of the capital. The supply price of capital is the original cost of the capital asset. Higher is the supply price of capital, lower is the inducement to investment and vice-versa.

2. Marginal Efficiency of Capital:

Marginal efficiency of capital means the productivity or the efficiency of capital. In general, MEC shows the possible income from additional capital investment. Any entrepreneur, before investment, compares the prospective yield from the investment and the interest for the investment loan taken.

If the rate of return from the investment is more than the rate of interest for the capital, then he will invest, otherwise not. According to Keynes, MEC is the most important factor of investment capital.

3. Rate of Interest:

The current market rate of interest influences the inducement or motive to investment because an investor always compares between MEC and current market rate of interest while making investment.

4. Income Level:

If the level of income increases, it leads to an increase in the demand for consumption of goods through increasing purchasing power and finally induces to increase investment.

5. Propensity to Consume:

The demand for a capital good is high where the propensity to consume is high. The increased demand for capital good leads to an increase in investment demand.

6. Growth of Population:

The growth of population causes an increase in demand for good which finally increases the investment level.

7. Technological Progress:

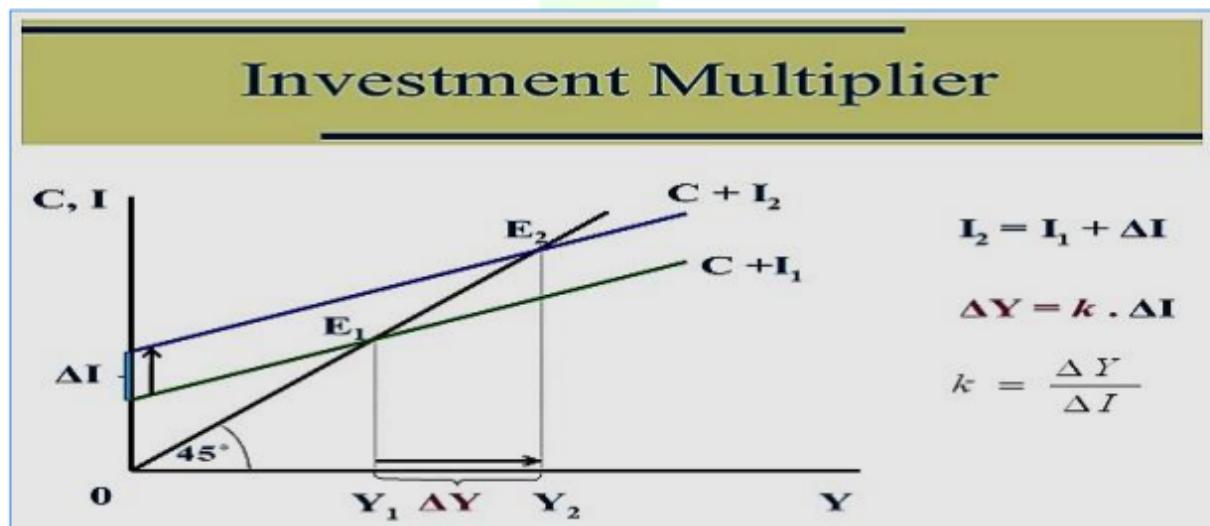
If there is improvement in the technique of production, it reduces the supply price or cost of capital and increases MEC which finally induces for more investment.

Investment Multiplier:

The concept of the multiplier is a component of the Keynesian theory of employment. It is an important tool of income propagation and business cycle analysis.

The concept of the multiplier as a form of 'employment multiplier' was first developed by F.A. Kahn in his article "The Relation of Home Investment to Unemployment" in the Economic Journal of June 1931.

But Keynes later further refined it and propounded the concept of 'investment multiplier' with reference to the increase in employment and output.



According to Keynes, "Investment multiplier tells us that when there is an increment of aggregate investment income will increase by an amount which is K times the increment of investment".

In short, the multiplier refers to the effects of changes to investment outlays on aggregate income through induced consumption expenditures. Thus, the multiplier establishes a quantitative relationship between an initial increment of investment and the resulting increase to aggregate income.

In other words, it tells us how many times the income increase as a result of an increase in investment. Mathematically, it is expressed as: $K = DY/DI$ where, K = multiplier, DY = change in income, DI = change in investment.

The basic idea behind the theory of multiplier is that of the induced consumption as a result of increased investment. Whenever an investment is made, the effect is to increase income not only by the amount of original investment but by a multiple of it.

The initial effect of an increase in investment expenditure is the increase in income by the same amount. But as income increases, consumption also increases.

Consumption expenditure, in turn, becomes an additional income of those employed in the consumer goods industries. Thus, there is a further increase in income due to induced consumption and so on.

To sum up, the investment does not increase income in the industries where investment is originally made, but also in other industries whose products are demanded by the men employed in the investment industries.

Assumption:

1. The original propensity to consume remains constant during the process of income propagation.
2. There is no change in autonomous investment and that induced investment is absent.
3. There is a closed economy unaffected by foreign influence.
4. There are no changes in prices.
5. The accelerator effect of consumption on investment is ignored.
6. There is less than the full employment level in the economy.
7. Consumption is a function of current income.
8. There is a net increase in investment.

Relation between MPC and Multiplier:

The size of the multiplier depends upon the size of Marginal Propensity to Consume (MPC). In other words, the size of the multiplier varies positively with the size of MPC. Higher the value of MPC, higher the value of multiplier and vice versa.

The formula of multiplier which highlights the close relationship between the MPC and the size of the multiplier can be derived in the following manner.

Let, a two-sector economy is in equilibrium. It is expressed as: $Y = C + I \dots\dots (1)$

When there is an increase in investment, the equilibrium condition of the economy will be changed. It is expressed as: $Y + DY = C + DC + I + DI \dots\dots\dots (2)$

Subtracting equation (1) from equation (2), we get

$$\Delta Y = \Delta C + \Delta I$$

$$\text{Or, } \frac{\Delta Y}{\Delta Y} = \frac{\Delta C}{\Delta Y} + \frac{\Delta I}{\Delta Y} \text{ [Dividing by } \Delta Y \text{ on both sides]}$$

$$\text{Or, } 1 = MPC + \frac{1}{K} \left[\because \frac{\Delta C}{\Delta Y} = MPC \text{ and } \frac{\Delta Y}{\Delta I} = K(\text{multiplier}) \right]$$

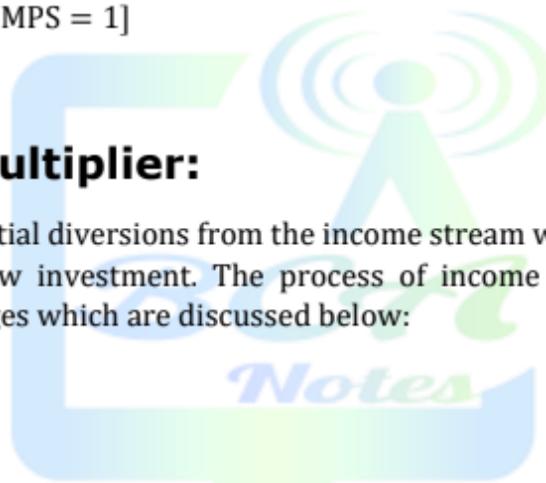
$$\text{Or, } 1 - MPC = \frac{1}{K}$$

$$\therefore K = \frac{1}{1 - MPC}$$

$$\text{Or, } K = \frac{1}{MPS} [\because MPC + MPS = 1]$$

Leakage of Multiplier:

Leakages are the potential diversions from the income stream which tend to weaken the multiplier effect of new investment. The process of income propagation peters out because of these leakages which are discussed below:



1. Saving:

Saving is the most important leakage of the multiplier process. Since the marginal propensity to consume is less than one, the whole increment in income is not spent on consumption.

A part of it is saved which peters out of the income stream and the increase in income in the next round declines. Thus, the higher the marginal propensity to save, the smaller the size of the income stream and vice versa.

For instance, if $MPS = 1/6$, the multiplier is 6, according to formula $K = 1/MPS$ and the MPS of $1/3$ gives a multiplier of 3.

2. Undistributed Profits:

If profits accruing to joint-stock companies are not distributed to the shareholders in the form of dividend but are kept in the reserve fund, it is a leakage from the income stream. Undistributed profits with the companies tend to reduce the income and hence further expenditure on consumption goods thereby weakening the multiplier process.

3. Taxation:

Taxation policy is also an important factor in weakening the multiplier process. Progressive taxes have the effect of lowering the disposable income of the taxpayers and reducing their consumption expenditure.

Similarly, commodity taxation tends to raise the prices of goods, and a part of increased income may be dissipated at higher prices. Thus, increased taxation reduces the income stream and lowers the size of the multiplier.

4. Debt Cancellation:

If people use a part of the increment of income to repay old bank debts, then instead of spending it for further consumption that part of the income disappears from the income stream.

5. Purchase of Old Shares and Securities:

If a part of the newly earned income is spent on buying old stocks, shares and securities or on the financial investments, consumption will be less and correspondingly the multiplier will be lower.

6. Hoarding of Cash Balance:

If people prefer to hoard cash balance in the form of inactive bank deposits, with a strong liquidity preference to satisfy transaction, precautionary or speculative motives, there will be a leakage from the income stream.

This type of leakage will be greater if business prospects are bad and smaller when business prospects are good. Whenever new-created money income is hoarded, it cannot reappear as income in the next round, and the multiplier effect will be arrested.

7. Inflation:

When there is a rise in the price of consumption goods, a good part of the increased money expenditure out of the increased will be dissipated on higher prices instead of promoting consumption, income and employment.

8. Net Imports:

A leakage in the domestic stream also occurs when there is excess of imports over exports, causing a new outflow of funds to foreign countries.

Importance of Multiplier:

- 1. To Evaluate the Extent of Business Cycles:** It is of great importance for evaluating the extent of different phases of trade cycles and for its accurate forecasting and control.
 - 2. To Highlight Role of Public Spending:** The concept of multiplier highlights the special significance of public investment or government development expenditure in achieving a high level of employment and growth rate.
 - 3. To Highlight Role of Deficit Financing:** It also highlights the significance of deficit financing to accelerate the process of economic expansion.
 - 4. To Understand the Process of Equilibrium:** The multiplier process helps to understand how equality between saving and investment is brought about. An increasing investment leads to increases and becomes equal to investment.
 - 5. To Formulate Economic Policies:** The concept of the multiplier is a very useful tool for formulating suitable economic policies.
 - 6. To Examine Role of Investment in Income Propagation:** The concept of multiplier highlights the importance of investment as the major dynamic element in the process of income generation in the economy.

Accelerator Principle:

The principle of acceleration was first introduced by J.M. Clark in 1917. Later on, economists like, Hicks, Samuelson and Harrod, further developed this principle to explain the business cycle.

The principle of acceleration is based on the fact that the demand for capital goods is derived from the demand for consumer goods. It explains the process by which a change in demand for consumption goods leads to a change in investment on capital goods.



According to Kurihara, "the accelerator coefficient is the ratio between induced investment and an initial change in consumption".

Symbolically, the coefficient of acceleration is expressed as $V = DI/DC$ or $DI = VDC$, where V is the acceleration coefficient, DI is a net change in investment and DC is the net change in consumption expenditure.

Hicks has broadly interpreted the concept of acceleration as the ration of induced investment (DI) to changes in income or output (DY). Thus, the accelerator $V = DI/DC$ (or the capital-output ratio).

This implies that the demand for capital goods is not derived from consumer goods alone, but from any demand for output. Now it has become customary to explain the principle of acceleration in terms of the final output (Y).

The production of any given demand for output generally requires for technical reasons an amount of capital several times larger than the output produced with it.

Therefore, an increase in the demand for final output will give rise to an additional demand for capital goods several times larger than the new demand for output. If for example, a machine worth Rs. 3 lakh produces output worth Rs. 1 lakh, the accelerator (V) will be 3 (i.e. $V = DI/DC = 3 \text{ lakh}/1 \text{ lakh} = 3 \text{ lakh}$).

Equational Model:

The principle of acceleration can be expressed in the form of the equational model is given below:

$$I_{gt} = V(Y_t - Y_{t-1}) + R$$

$$I_{gt} = V\Delta Y + R \quad \dots \dots \quad (i)$$

Equation (i) tells that gross investment during period t (i.e. I_{gt}) depends on the change in output from period $t - 1$ to period t (i.e. $Y_t - Y_{t-1}$ or DY) multiplied by the accelerator (V) plus replacement investment (R) in order to know net investment (I_{nt}), replacement (R) must be deduced from gross investment. Thus, net investment in period t is:

$$I_{nt} = V(Y_t - Y_{t-1})$$

$$\text{Or, } \Delta I = V\Delta Y$$

$$\text{Or, } V = \frac{\Delta I}{\Delta Y} \quad \dots \dots \quad (ii)$$

Thus, it is clear from equation (i) and (ii) that the gross investment in the economy is equal to net investment plus replacement investment. Assuming replacement investment to be constant, gross investment varies with the level of net investment at each level of output.

Unit X: Business Cycle - Applied Economics

Introduction of Business Cycle:

The business in an economy sometimes grows well and enlarges, at the other time business slows down contrasts and declines. If the overall business phenomenon reveals sometimes contraction and sometimes expansion regularly in an economy, it is called a trade cycle.



In other words, business cycles are those fluctuations which recur in the aggregate economic activity with a certain degree of regularity following a pendulum-like oscillation. Trade or business cycle as a tendency of recurring rise and fall in the aggregate level of output, income, employment, price and aggregate demand.

The business cycle is a part of the capitalist economic system. It is because there is a free environment to play by the private sector which has a crucial role in the economy. Business sector becomes more optimistic during the boom and it becomes pessimistic during the recession.

Types of Business Cycle:

1. Short Run Kitchin Cycle:

It is also known as a minor cycle which is of approximately 40 months duration. The British economist Joseph Kitchin propounded this cycle.

2. Long Juggler Cycle:

This cycle was named after the French economist Clement Juggler in 19th century. It is defined as fluctuations in business activities between successive crises. The time period of the Juggler cycle is around 10 years.

3. Very Long Kondratieff Cycle:

This cycle was propounded by Russian economist N.D. Kondratieff in 1925 A.D. He said that there are long waves of cycles of more than 50 or up to 60 years duration.

4. Building Cycle:

This cycle, which is related to the construction of the building, is of fairly regular duration. The duration of this cycle is about 18 years.

5. Kuznets Cycle:

This cycle was propounded by American economist Simon Kuznets. The time period of this cycle is from 16 to 22 years.

Causes of Business Cycle:

Business Cycle occurs due to numbers of factors and causes, these causes are classified into:

1. External Factors of Business Cycle:

a. Wars:

In war days all the available resources are utilized for the production of weapons which greatly affect the product of both capital and consumer goods. This fall in production decreases income, profits which further create unemployment. These create a contraction in economic activity.

b. Postwar Period:

In the post-war period, the level of consumption and investment goes upward. Both the government and individuals involve the construction (houses, roads, bridges etc.). All these activities increase the effects due to which the economic variables, output, income and employment go upward.

c. Scientific Development:

Another cause of the business cycle is scientific development. Every day new products come to the markets like mobile phone, laptops etc. These products require a huge amount of investment through which new technology of production is adopted. All this

increases income, employment and profit etc. and plays an important part in the revival of the economy.

d. Gold Discoveries:

The discoveries of gold and mines stimulate the volume of international trade and help in adjusting trade deficit, loans etc. the rising income leads to an expansion in economic activity.

e. Surplus, Exports and Foreign Aid:

Surplus, exports and foreign aid raises the level of consumption and investment spending which helps in increasing output, income and employment level.

f. Weather:

Weather is one of the causes of the business cycle. It is an important factor which can cause economic activities. If in any year, weather is good the output of the agricultural sector will go upward.

g. Population Growth Rate:

The population growth rate is one of the factors of the business cycle. If the population growth rate is higher than the economic growth rate, income level and consumption expenditure and savings will be low.

2. Internal Factors of Business Cycle:

Internal causes of the business cycle are those, which are built-in within the economic system. These are the internal factors of the business cycle:

a. Psychological Factors:

According to Pigou business cycle appears because of the optimistic and pessimistic mood of the entrepreneur. When entrepreneurs are in optimistic about future market conditions they take up investment.

Here the expanses phase of the business cycle starts which ultimately ends in a boom. On the contrary, the pessimism reduces investment, production, employment and shifts to a downward trend in business activity.

b. Money Supply:

Hawtrey and Friedman relate trade cycle to fluctuation in money and credit supply. If there is an expansion in money and credit supply, there will be a rise in economic activity. If there is contraction there will be a downfall in economic activity.

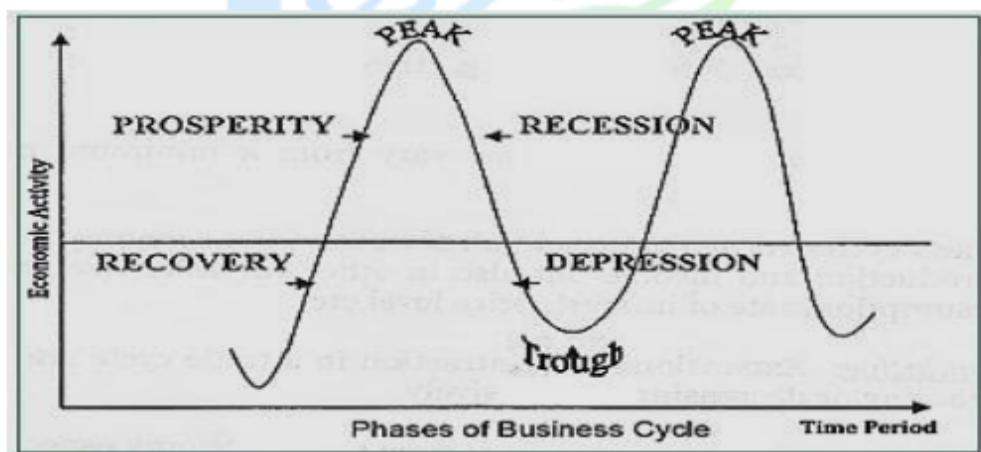
c. Over Investment:

Hayek relates business cycle to variation in capital goods industries. Excessive investment in capital goods industries brings upswing and downswing when there is a fall in investment.

d. Marginal Efficiency of Capital (MEC):

According to Keynes changes in the rate of the marginal efficiency of capital are responsible for the business cycle. When the rate of the marginal efficiency of capital gets higher the expansion phase of the trade cycle commences. There is a contraction phase when the rate of the marginal efficiency of capital is lower.

Phases of the Business Cycle:



1. Depression Phase:

There is a considerable reduction in the production of goods and services, employment, income, demand and prices. The general reduction in economics activities leads to a fall in bank deposits.

Credit expansion stops because the business community is not willing to borrow. Depression is characterized by mass unemployment, general fall in prices, profits, wages, interest rates, consumption, expenditure, investment, bank deposits and loans, factories close down and construction of all types of capital goods, building etc.

2. Trough:

It is defined as the lowest point of depression or lower turning point of aggregate economic activities. Various economic activities are very low at the bottom of the cycle. There exists mass unemployment in the economy so that consumption investment and imports will be very low.

3. Recovery Phase:

It implies the increase in business activities after the lowest point of depression or trough has been reached. When depression has ended and the lower turning point starts, it is called the recovery phase of the trade cycle.

In the early stages of the phase, there is considerable excess or idle capacity in the economy so that output increases without a proportionate increase in total costs.

The cumulative process of increase in investment and employment, output, income and prices will feed upon itself and becomes self-reinforcing. Ultimately it enters into the prosperity phase.

4. Prosperity Phase:

In the prosperity phase, demand, output, employment and income are at a high level. They tend to raise prices. But wages, salaries, interest rates, rentals and taxes do not rise in proportion to the rise in prices.

The gap between prices and costs increases the margin of profit. The increase in profit and prospect of its continuance commonly cause a rapid rise in stock market values. The outstanding change is in stocks that reflecting the capitalized values of prospective earnings register in an exaggerated form the rising profits of the enterprise.

They lead to considerable expansion in the economic activities by increasing the demand for consumer goods and further raising the price level. This encourages retailers, wholesalers and manufacturers to add the inventories which create the situation of near to full employment.

5. Boom or Peak Phase:

It is called the upper turning point of the trade cycle. When the economy is in the boom, national income is the highest point. It is likely that the economy will be working at beyond full employment.

It is the stage of rapid expansion in business activities with new heights, resulting in high stocks and prices, high profits and overall employment. In this stage:

- a. There is a scarcity of labor, raw materials, leading to rising in costs relative to prices.
- b. Rise in the rate of interest due to the scarcity of capital.
- c. Additional pressure on factors of production, which are fully employed, causing a sharp rise in factor prices.
- d. The number of jobs exceeds the number of workers which is the situation of over full employment.

6. Recession Phase:

Recession phase starts when there is a downturn from the peak or boom which is of short duration. It makes the turning period during which the forces that make for contraction finally win over the forces of expansion. In this stage, there is:

- a. Real output is decreasing.
- b. The unemployment rate is rising.
- c. As the contraction continues, inflation pressure fades.
- d. If the recession is prolonged, the price may decline (deflation)
- e. The government determinant for a recession is two consecutive quarters of declining output.

Measures to Control Trade Cycle:

The government uses two policies to control trade cycle: They are

1. Monetary Policy Measures:

It is one of the macroeconomic policies of the government. This policy is implemented by the central bank on behalf of the government. It means the policy action taken by the central bank to influence economic activities.

So, the policy of the central bank to influence the money supply and credit to achieve specific objectives like growth, stability, employment, low inflation etc. is called monetary policy.



There are two types of monetary policies i.e. expansionary and deflationary monetary policy.

When the economy is passing through the prosperity phase with the high rate of inflation, then the central bank uses deflationary monetary policy to control the high rate of inflation and other effects.

The following policies are used by the central bank to control inflation and unexpected economic activities:

- a. Increase in bank rate
- b. Increase in cash reserve ratio(CRR)
- c. Sell securities in open market operation
- d. The decrease in money supply and increase in the rate of interest in the market

But, if the economy is passing through a depression phase with the decrease in economic activities and deflation is existing, then the central bank uses expansionary monetary policy to stimulate economic activities.

- a. Decrease in bank rate
- b. Decrease in cash reserve ratio(CRR)
- c. Purchase securities in open market operation
- d. Increase in money supply and increase in the rate of interest in the market

Objectives of Monetary Policy:

- a. To promote higher economic growth
- b. To increase the higher level of employment opportunities
- c. To stabilize domestic price and interest rates
- d. To stabilize financial markets
- e. To stabilize the external sector (BOP, Foreign exchange reserves and exchange rates)

2. Fiscal Policy Measures:

A policy in which the government uses its expenditure and revenue programs to produce desirable effects and avoid undesirable effects on the income, production and employment are called fiscal policy.

Fiscal policy is implemented by the government. The major instruments of fiscal policy are government budget, government expenditure including taxation, subsidies, transfer payment and public borrowing.

Fiscal policy may be expansionary and deflationary. The government uses appropriate fiscal policy to control the undesirable effects of business cycle.

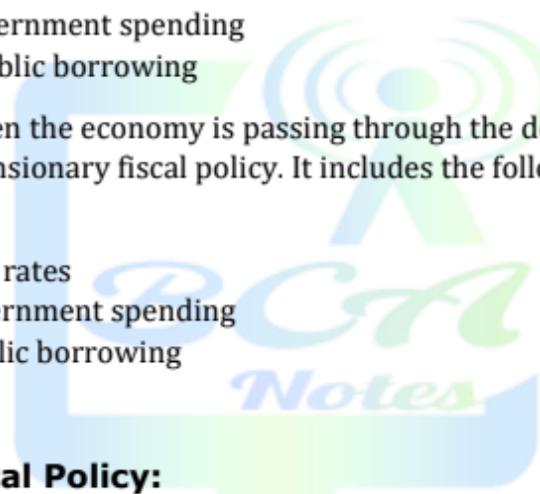


When the economy is passing through the prosperity phase with the high rate of inflation, then the government uses deflationary fiscal policy to control the high rate of inflation and other effects. It includes the following policies:

- a. Surplus budget
- b. Increase in Tax rates
- c. Decrease in government spending
- d. Reduction in Public borrowing

On the other hand, when the economy is passing through the depression phase, then the government uses expansionary fiscal policy. It includes the following policies;

- a. Deficit budget
- b. Decrease in Tax rates
- c. Increase in government spending
- d. Increase in Public borrowing



Objectives of Fiscal Policy:

- a. Attainment of higher economic growth
- b. Achieving a higher level of employment opportunities
- c. Reducing inequality of income and wealth
- d. Maintenance of economic stability
- e. Optimum Allocation of resources

Unit XI: The Mechanism of Foreign Exchange - Applied Economics

Introduction of the Mechanism of Foreign Exchange:

An exchange rate is a rate at which one currency can be exchanged for another. In other words, it is the value of another country's currency compared to that of our own. If we are travelling to another country, we need to "buy" the local currency.

Just like the price of any asset, the exchange rate is the price at which we can buy that currency. If we are travelling from Nepal to the US, for example, and the exchange rate for the U.S. dollars is 1: 110.09 Nepali Rupee, this means that for every U.S. dollar, we can buy 110.09 Nepali Rupee.

Theoretically, identical assets should sell at the same price in different countries, because the exchange rate must maintain the inherent value of one currency against the other.



The Determination of the Rate of Foreign Exchange:

In a system of the flexible exchange rate, the exchange rate of a currency (like the price of a good) is freely determined by forces of market demand and supply of foreign exchange.

Expressed graphically the intersection of demand and the supply curves determine the equilibrium exchange rate and equilibrium quantity of foreign currency. This is called equilibrium in the foreign exchange market.

Determination Of Foreign Exchange Rate

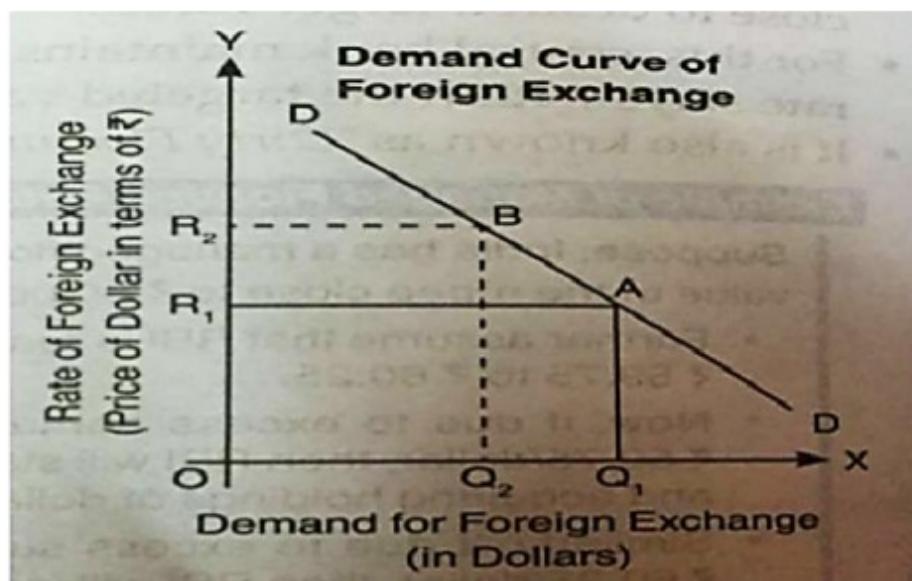
Let us assume that there are two countries India and USA and the exchange rate of their currencies, viz., rupee and dollar are to be determined. Presently there is a floating or flexible exchange regime in both India and the USA.

Therefore, the value of the currency of each country in terms of the other currency depends upon the demand for and supply of their currencies.

Demand for Foreign Exchange (Currency):

Demand for foreign exchange is caused because of the following reasons:

- To Purchase Abroad Goods and Services by Domestic Residents
- To Purchase Assets Abroad
- To Send Gifts Abroad
- To Invest Directly In Shops, Factories Abroad
- To Undertake Foreign Tours
- To Make Payment Of International Trade, Etc.

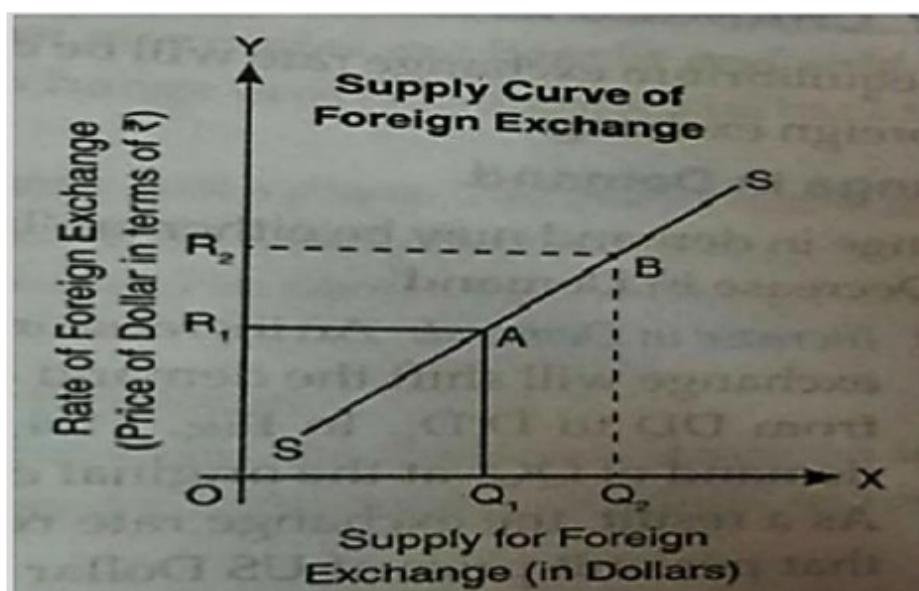


The demand for dollars varies inversely with rupee price of the dollar, i.e., higher the price, the lower is the demand. The demand curve in Figure below is downward sloping because there is an inverse relationship between foreign exchange rate and its demand.

Supply of Foreign Exchange:

Supply of foreign exchange is caused because of the following reasons:

- When foreigners purchase home country's (say, India's) goods and services through our exports.
- When foreigners make a direct investment in bonds and equity shares of the home country.
- When speculation causes an inflow of foreign exchange.
- When foreign tourists come to the home country.

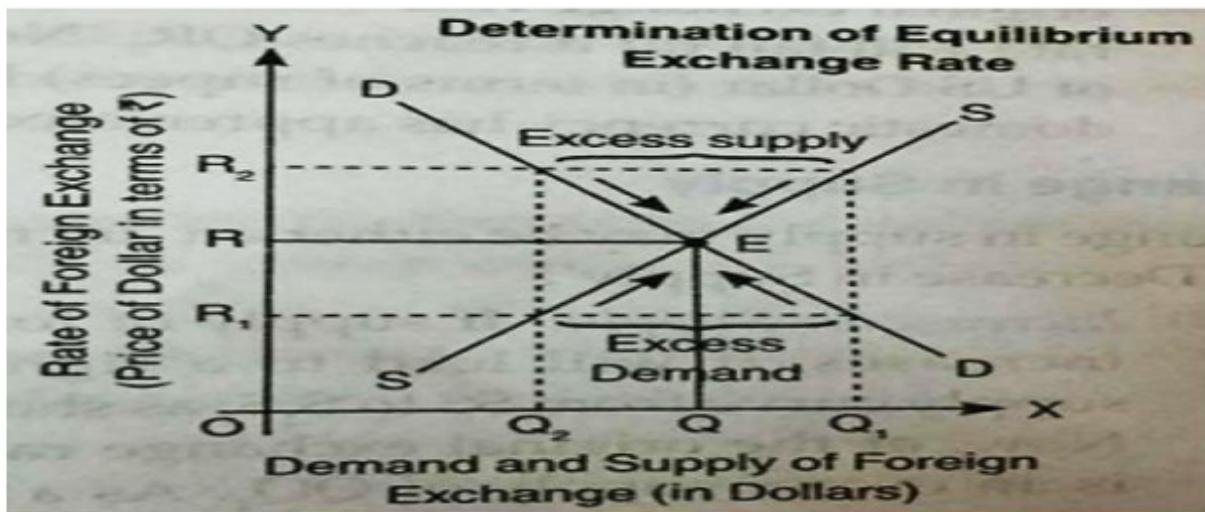


The supply curve is upward sloping because there is a direct relationship between the foreign exchange rate and its supply.

Determination of Exchange Rate:

This is determined at a point where demand for and supply of foreign exchange are equal. Graphically, the intersection of demand and supply curves determines the equilibrium exchange rate of foreign currency.

At any particular time, the rate of foreign exchange must be such at which quantity demanded of foreign currency is equal to quantity supplied of that currency. It is proved with the help of the following diagram. The price on the vertical axis is stated in terms of domestic currency (i.e., how many rupees for one US dollar).



The horizontal axis measures quantity demanded or supplied of foreign exchange (i.e., dollars). In this figure, the demand curve is downward sloping which shows that less foreign exchange is demanded when the exchange rate increases (i.e., inverse relationship).

The reason is that the rise in the price of foreign exchange (dollar) increases the rupee cost of foreign goods which makes them more expensive. The result is a fall in imports and demand for foreign exchange.

The supply curve is upward sloping which implies that the supply of foreign exchange increases as the exchange rate increases (i.e., direct relationship). Home country's goods (here Indian goods) become cheaper to foreigners because the rupee is depreciating in value.

As a result, the demand for Indian goods increases. Thus, our exports should increase as the exchange rate increases. This will bring a greater supply of foreign exchange. Hence, the supply of foreign exchange increases as the exchange rate increases which proves the slope of the supply curve.

In the Figure below, demand curve and supply curve of dollars intersect each other at point E which implies that at an exchange rate of OR (QE), quantity demanded and supplied are equal (both being equal to OQ). Hence, the equilibrium exchange rate is OR and the equilibrium quantity is OQ.

Change in Exchange Rate:

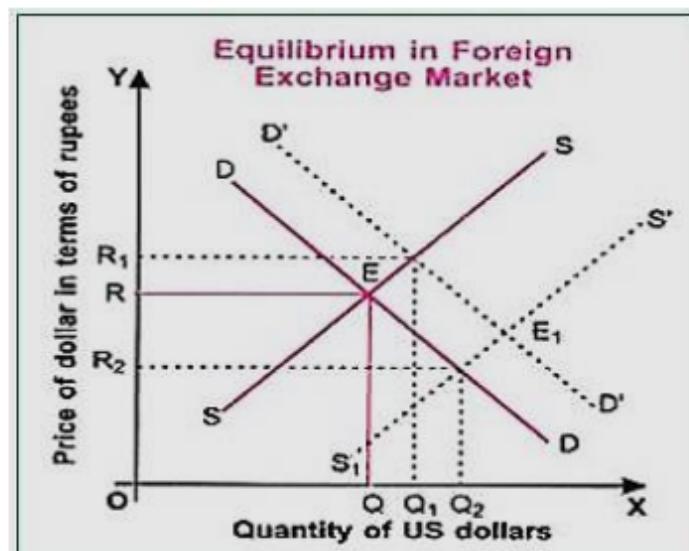
Suppose, exchange rate is 1 dollar = Rs 50. An increase in India's demand for US dollars, supply remaining the same, will cause the demand curve DD to shift to D'D'.

The resulting intersection will be at a higher exchange rate, i.e., an exchange rate (the price of the dollar in terms of rupees) will rise from OR to OR', (say, 1 dollar = 52 rupees). It shows depreciation of Indian currency (rupees) because more rupees (say, 52 instead

of 50) are required to buy 1 US dollar. Thus, depreciation of currency means a fall in the price of home currency.

Likewise, an increase in the supply of US dollar will cause supply curve SS shift to S'S' and as a result exchange rate will fall from OR to OR₂.

It indicates appreciation of Indian currency (rupees) because the cost of US dollar in terms of rupees has now fallen, say, 1 dollar = Rs 48, i.e., fewer rupees are required to buy 1 US dollar or now Rs 48 instead of Rs 50 can buy 1 dollar. Thus, appreciation of currency means 'a rise in the price of home currency'.



The Adjustable 'Peg' System:

An adjustable peg exchange rate is a system where a currency is fixed to a certain level against another strong currency such as the Dollar or Euro. Usually, the peg involves a degree of flexibility of 2% against a certain level.

However, if the exchange rate fluctuates by more than the agreed level, the Central bank needs to intervene to maintain the target exchange rate peg.

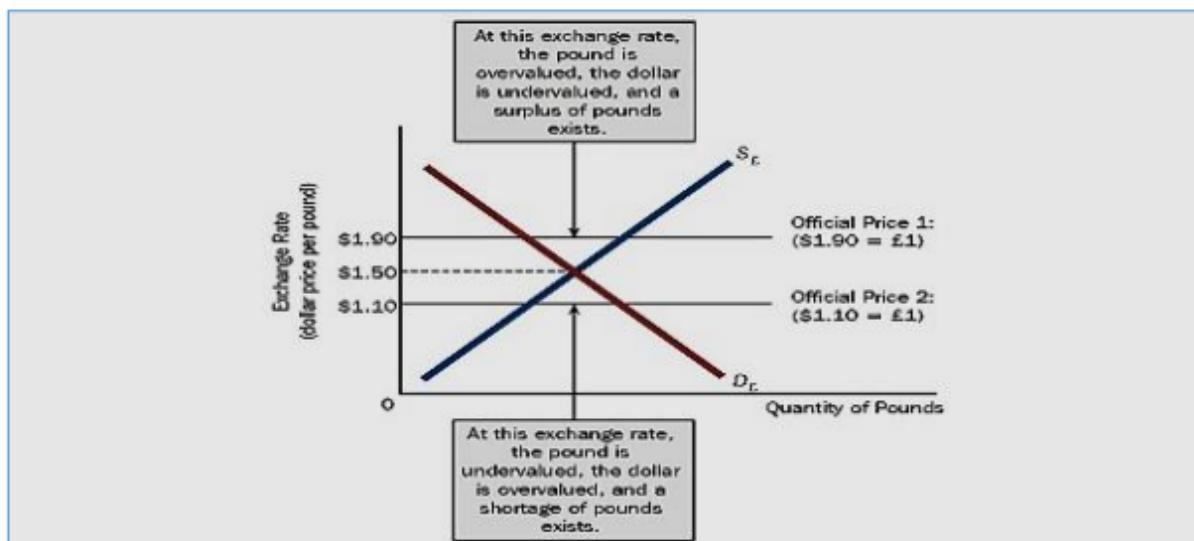
ADJUSTABLE PEG SYSTEM

An adjustable peg system usually allows countries to revalue their peg if it is necessary to regain competitiveness. The adjustable peg is effectively a semi-fixed exchange rate.

The Bretton Woods system of the 1960s and 1970s was an example of an adjustable peg system. Many Asian countries have an unofficial peg against the dollar. However, with the weakening dollar, many countries are considering revaluing their target exchange rate.

Fixed Exchange Rates:

A country's exchange rate regime under which the government or central bank ties the official exchange rate to another country's currency (or the price of gold). The purpose of a fixed exchange rate system is to maintain a country's currency value within a very narrow band. Also known as the pegged exchange rate.



A fixed exchange rate, sometimes called a pegged exchange rate, is a type of exchange rate regime where a currency's value is fixed against the value of another single currency, to a basket of other currencies, or to another measure of value, such as gold.

A fixed exchange rate is usually used to stabilize the value of a currency against the currency it is pegged to. This makes trade and investments between the two currency areas easier and more predictable and is especially useful for small economies in which external trade forms a large part of their GDP.

It can also be used as a means to control inflation. However, as the reference value rises and falls, so does the currency pegged to it.

There are two ways the price of a currency can be determined against another. A fixed, or pegged, rate is a rate the government (central bank) sets and maintains as the official exchange rate.

A set price will be determined against a major world currency (usually the U.S. dollar, but also other major currencies such as the euro, the yen or a basket of currencies). In order

to maintain the local exchange rate, the central bank buys and sells its own currency on the foreign exchange market in return for the currency to which it is pegged.

Advantages of Fixed Exchange Rates:

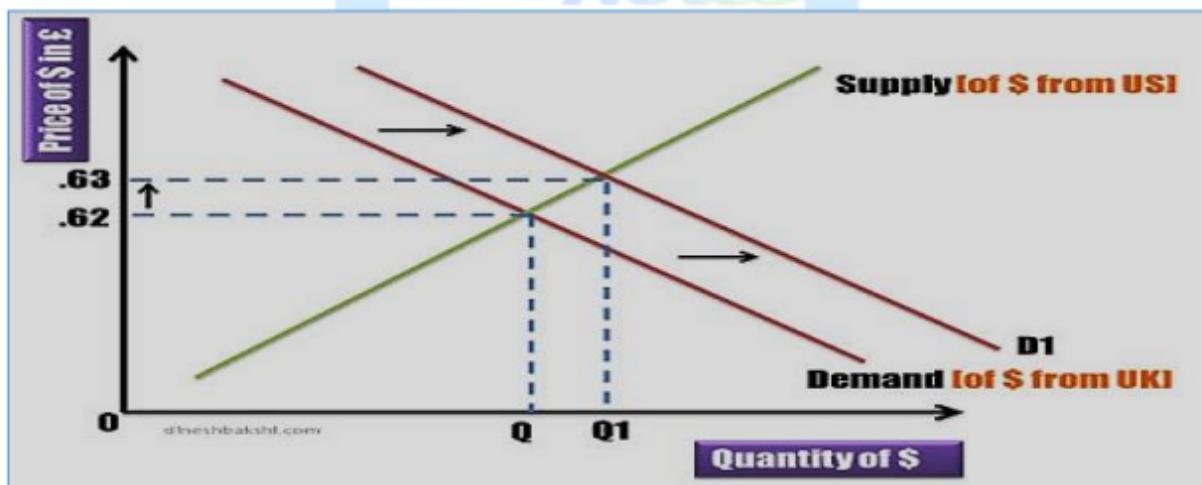
Fixed rates provide greater certainty for exporters and importers and under normally circumstances there is less speculative activity - although this depends on whether the dealers in the foreign exchange markets regard a given fixed exchange rate as appropriate and credible.

Sterling came under intensive the speculative attack in the autumn of 1992 because the markets perceived it to be overvalued and ripe for a devaluation.

Fixed exchange rates can exert a strong discipline on domestic firms and employees to keep their costs under control in order to remain competitive in international markets. This helps the government maintain low inflation which in the long run should bring interest rates down and stimulate increased trade and investment.

Floating Exchange Rates:

A floating exchange rate or fluctuating exchange rate is a type of exchange-rate regime in which a currency's value is allowed to fluctuate in response to market mechanisms of the foreign exchange market. A currency that uses a floating exchange rate is known as a floating currency. A floating currency is contrasted with a fixed currency.



Unlike the fixed rate, a floating exchange rate is determined by the private market through supply and demand. A floating rate is often termed "self-correcting," as any differences in supply and demand will automatically be corrected in the market.

Look at this simplified model: if demand for a currency is low, its value will decrease, thus making imported goods more expensive and stimulating demand for local goods and

services. This, in turn, will generate more jobs, causing an auto-correction in the market. A floating exchange rate is constantly changing.

In reality, no currency is wholly fixed or floating. In a fixed regime, market pressures can also influence changes in the exchange rate. Sometimes, when a local currency reflects its true value against its pegged currency, a "black market" (which is more reflective of actual supply and demand) may develop.

A central bank will often then be forced to revalue or devalue the official rate so that the rate is in line with the unofficial one, thereby halting the activity of the black market.

In a floating regime, the central bank may also intervene when it is necessary to ensure stability and to avoid inflation. However, it is less often that the central bank of a floating regime will interfere.

Advantages of Floating Exchange Rates:

Fluctuations in the exchange rate can provide an automatic adjustment for countries with a large balance of payments deficit. If an economy has a large deficit, there is a net outflow of currency from the country.

This puts downward pressure on the exchange rate and if depreciation occurs, the relative price of exports in overseas markets fall (making exports more competitive) whilst the relative price of imports in the home markets goes up (making imports appear more expensive).

This should help reduce the overall deficit in the balance of trade provided that the price elasticity of demand for exports and the price elasticity of demand for imports is sufficiently high.

A second key advantage of floating exchange rates is that it gives the government/monetary authorities' flexibility in determining interest rates. This is because interest rates do not have to be set to keep the value of the exchange rate within pre-determined bands.

A Currency Can Operate Under One Of Four Main Types Of Exchange Rate System:

1. Free Floating:

- a. Value of the currency is determined solely by market demand for and supply of the currency in the foreign exchange market.
- b. Trade flows and capital flows are the main factors affecting the exchange rate.
- c. In the long run it is the macroeconomic performance of the economy (including trends in competitiveness) that drives the value of the currency.

- d. No pre-determined official target for the exchange rate is set by the Government. The government and/or monetary authorities can set interest rates for domestic economic purposes rather than to achieve a given exchange rate target.
- e. It is rare for pure free-floating exchange rates to exist - most governments at one time or another seek to "manage" the value of their currency through changes in interest rates and other controls

2. Managed Floating Exchange Rates:

- a. Value of the pound determined by market demand for and supply of the currency with no the pre-determined target for the exchange rate is set by the Government.
- b. Governments normally engage in managed floating if not part of a fixed exchange rate system.

3. Semi-Fixed Exchange Rates:

- a. Exchange rate is given a specific target.
- b. Currency can move between permitted bands of fluctuation.
- c. Exchange rate is the dominant target of economic policy-making (interest rates are set to meet the target).
- d. Bank of England may have to intervene to maintain the value of the currency within the set targets.
- e. Re-valuations possible but seen as last resort.

4. Fully-Fixed Exchange Rates:

- a. Commitment to a single fixed exchange rate.
- b. No permitted fluctuations from the central rate.
- c. Achieves exchange rate stability but perhaps at the expense of domestic economic stability.
- d. Gold Standard in the inter-war years - currencies linked with gold.

Unit XII: Macro Stabilizing Policies - Applied Economics

Introduction of Macro Stabilizing Policies:

Macroeconomic stabilization is a condition in which a complex framework for monetary and fiscal institutions and policies are established to reduce volatility and encourage welfare-enhancing growth.

Achieving this condition requires aligning currency to market levels, managing inflation, establishing foreign exchange facilities, developing a national budget, generating revenue, creating a transparent system of public expenditure, and preventing predatory actors from controlling the country's resources.



It also requires a framework of economic laws and regulations that govern budgetary processes, central bank operations, international trade, domestic commerce, and economic governance institutions.

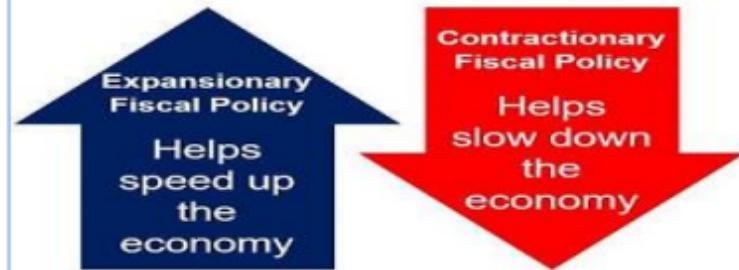
Stabilization of the economy is a prerequisite for economic growth. Empirical evidence shows that creating an environment that is conducive to higher rates of investment can reduce the likelihood of violence, while economic growth has a positive correlation with job creation and higher living standards.

Fiscal Policy:

The word **fiscal** is derived from the word **Fisc** which means treasury, therefore, fiscal policy deals with the matters of treasury or public finance. Fiscal policy refers to the government policy of public expenditure and taxes.

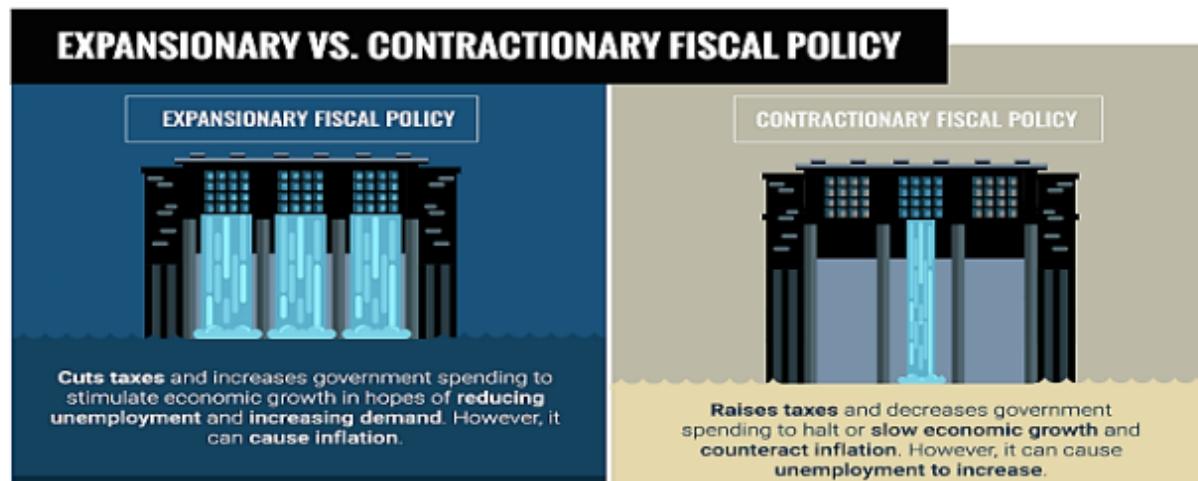
Fiscal policy plays an important role in determining the stability of an economy because it affects the level of income and employment in a country. For example, income and employment increase with an increase in government expenditure and vice versa.

Fiscal Policy



Stances of Fiscal Policy:

There are two important stances of fiscal policy which are given and explained below:



1. Contractionary Fiscal Policy:

Contractionary fiscal policy refers to the reduction in government aggregate expenditures and raising taxes. During business-cycle expansion, inflationary problems arise in an economy which is corrected with the help of contractionary fiscal policy.

In the case of contractionary fiscal policy, government expenditures, as well as transfer payments, are reduced whereas taxes are increased. This reduces the purchasing power of people due to which aggregate demand for goods and services. In this way, inflation is controlled.

2. Expansionary Fiscal Policy:

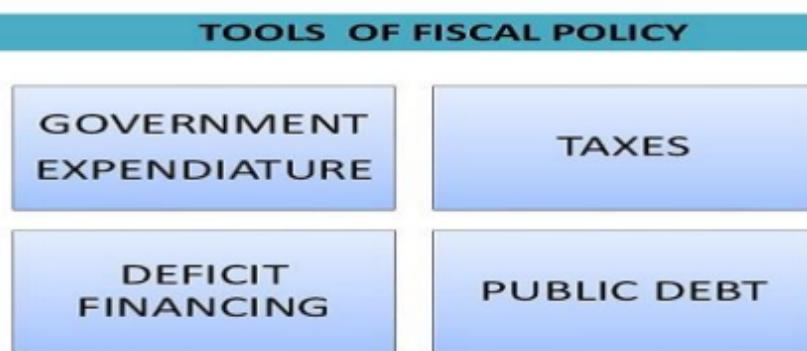
Expansionary fiscal policy refers to the increase in government aggregate expenditures and a decrease in taxes. In the case of business cycle contraction, the rate of unemployment increases very rapidly.

Therefore in order to tackle the problem of unemployment, expansionary fiscal policy is used in which government expenditures, as well as transfer payments, are increased whereas taxes are reduced.

Due to the increase in government expenditures such as the construction of dams, roads, railways, parks etc. various job opportunities are created and the problem of unemployment is addressed.

Tools of Fiscal Policy:

Tools of fiscal policy are generally divided into two i.e. discretionary fiscal policy and automatic stabilizers.



1. Discretionary Fiscal Policy:

Discretionary fiscal policy refers to the tools employed with the discretion in order to achieve the desired objectives. Such tools include government expenditures, taxation, transfer payments etc. Among these tools, government expenditures and taxation are important ones.

a. Changes in Government Expenditures:

The government can change the aggregate demand directly by altering its own purchases of goods and services. For example a government places \$30 billion order for the construction of a new dam.

This order increases the demand for cement which induces the cement manufacturers to hire more workers and increase the production. Due to an increase in the demand for cement at each price level, the aggregate demand will shift.

Now in order to know whether the shift in aggregate demand is higher or lower than the government purchases we must know two important macroeconomic concepts.

i. The Multiplier Effect:

Multiplier shows how the economy can amplify the impact of changes in spending, therefore, it is an important concept of macroeconomics. When the government decides to construct a dam for \$30 billion it causes various impacts in the economy.

For example, cement is widely used in the construction of the dam, therefore, the demand for cement will increase. This increase in demand increases the profits of producers and thus they try to produce more for which they need additional workers.

In this way purchasing power of both producers and working group rises due to which they increase their own spending on consumer goods. Therefore the decision of the government to construct a dam raises the demand for the products of many other firms in the economy which means that the decision has a multiplier effect on the aggregate demand.

The Formula for Spending Multiplier:

The size of the multiplier effect that arises when an increase in government purchases induce an increase in consumer spending can be achieved with the help of simple formula given below.

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

Here MPC is the marginal propensity to consume which shows the fraction of extra income that a household consumes rather than saves. This formula shows that the size of the multiplier is dependent upon the marginal propensity to consume. It means that the size of multiplier increases with the increase in MPC and vice versa.

Suppose that marginal propensity to consume is $\frac{3}{4}$ and the government decides to construct a dam for \$30 billion. Now we can easily find the size of the multiplier effect for the particular spending of government with the help of the above formula.

$$\text{Multiplier} = 1/(1-0.75)$$

$$\text{Multiplier} = 1/0.25$$

$$\text{Multiplier} = 4$$

Therefore, the Size of Multiplier = $4 \times 30 = \$120$ billion

It means that an increase in government spending by 30 billion will increase the aggregate demand by 120 billion.

ii. The Crowding-Out-Effect:

When the government increases its expenditure in a particular sector, the aggregate demand for goods and services could rise by more or less than the spending of the

government. It depends on whether the multiplier effect or the crowding-out effect is larger.

The multiplier effect suggests that the aggregate demand for goods and services will be higher than the government spending whereas the crowding-out effect indicates that the aggregate demand for goods and services will be lower than the government spending.

Crowding-out the effect occurs when fiscal expansion raises the interest rates because of excessive demand for money. Due to high-interest rates, borrowings become more expensive therefore demand for business investment goods declines. In this way, government spending may also crowd out investment.

b. Changes in Taxes:

Another important instrument of fiscal policy is the level of taxation. The government can increase or decrease the tax rates depending upon the prevailing economic conditions.

For example, if the government wants to increase the aggregate demand for goods and services it can do so by reducing personal income taxes. The decrease in income taxes boosts the purchasing power of people due to which they demand more goods and services and the aggregate demand increases.

However, the shift in aggregate demand is also affected by the multiplier and crowding-out effects. When the government cut taxes, spending of people increases along with the aggregate demand for goods and services.

This is the multiplier effect. On the other hand reduction in taxes increases the income of consumers due to which they demand more money whereas the supply of money is fixed.

Therefore interest rates rise due to an imbalance between demand and supply of money. Higher interest rates discourage borrowings for investment purposes, therefore, it is called crowding-out effect.

2. Automatic Stabilizers:

All those tools which operate automatically to stabilize the economy are commonly known as an automatic stabilizer. These tools include progressive taxes, unemployment allowances, support prices and stable government expenditures. The explanation of these tools is given below in detail.

a. Progressive Taxes:

A progressive tax is one in which the rate of tax increases with the increase of the size of income e.g. personal income tax, corporate profit tax etc. such type of taxes play a vital role in stabilizing the economy.

For example, in the case of expansion, more people enter the tax bracket because the tax exemption ceiling is fixed so an increase in the money income of people makes them liable to pay more tax.

Collection of more taxes results in the surplus budget which can be used to stabilize the economy. On the other hand in case of contraction, the money income of people decreases due to which they pay fewer taxes.

The lower amount of tax collection results in deficit budget which can be used to make developmental expenditures, therefore, it takes the economy out of depression.

b. Unemployment Allowances:

Social security payments and unemployment allowances are important automatic stabilizers. During the phase of expansion, there is a tendency towards full employment, therefore, government expenditures are reduced by cutting down the social security payments.

This results in the automatic stabilization of the economy. On the other hand, in the case of contraction government expenditures are increased by providing more social security payments.

This increases the purchasing power of people along with the increase in demand for goods and services. Increase in the aggregate demand boosts the investment in a country and the slump in the economy is eliminated automatically.

c. Stable Government Expenditures:

In case of economic fluctuations, stable government expenditures are very helpful to stabilize the economy automatically. If the economy is in the phase of expansion then the government expenditure is lower than the government revenue, therefore, the budget would become surplus.

This surplus budget can be used to stabilize the economy. Similarly, during the phase of contraction, government expenditures exceed its revenues, therefore, the budget becomes a deficit. This deficit budget will automatically stabilize the economy.

d. Support Policy for Farm Prices:

The fluctuation in the prices of agricultural products is higher than the prices of all other products. Such fluctuations in the prices of agricultural products have a great impact on the overall economy.

Therefore stabilizing the prices of agricultural products automatically stabilize the economy. For example in the phase of contraction, the prices of agricultural products are very low due to which government purchases these products at higher prices and build

up a stock of the products. In this way prices of the agricultural products as well as the overall economy is stabilized.

On the other hand, in case of contraction, the prices of agricultural products are very high due to which the government releases the stocks to bring down the prices at the desired level.

Objectives of Fiscal Policy:

Following are some of the important objective of fiscal policy.



1. Desirable Price Level:

The main purpose of fiscal policy is to maintain a desirable price level in the country. It means that there should be a mild change in the general price level for a long period of time.

If the prices are increasing rapidly then it will affect different sections of society such as fixed income groups, consumers, working classes, farmers etc. On the other hand, if prices are falling, then the business community suffers due to the shrinking of their profits.

2. Desirable Level of Consumption:

With the help of fiscal policy, the government can adjust the consumption habits of the people and can also maintain a certain desirable level of consumption.

If the government wants to encourage or discourage the consumption of a commodity it can do so by simply changing its market price. The market price of a commodity can be changed by increasing or decreasing the sales tax or excise duty on the commodity.

3. Desirable Level of Employment:

Both developed and developing countries try to achieve a full level of employment because it reflects a dynamic growth in the economy. This desirable level of employment

can be achieved with the help of fiscal policy. For example, developed countries can attain the full level of employment by increasing their expenditures under the assumption that the capital expenditure in the private sector remains constant.

This will increase the aggregate demand due to which the level of employment will be increased. On the other hand, developing countries can increase employment opportunities by increasing their expenditures through the construction of new dams, roads, bridges, rail-lines etc.

4. Desirable Level of Income Distribution:

Equal distribution of wealth is very important for the socio and economic development of a country. In the case of unequal distribution of wealth, the lower class of society suffers more.

The government can check the unequal distribution of wealth through progressive taxes in which the rate of tax rises with the rise in the size of income. In this way, the government can increase the rate of direct taxes so that the upper class of society pays more out of their high income.

The amount collected from such taxes can be used in various sectors such as education, health care, etc. so that the low-income groups of society could be benefited.

5. Economic Growth and Development:

Achieving a desirable level of economic growth and development is the first priority of all developing countries. Therefore in order to achieve this level of economic growth, a large part of the developmental expenditure is done out of the deficit financing.

Government increases the financial resources internally as well as externally to boost investment opportunities. Similarly, it provides various incentives such as tax concessions to the entrepreneurs and Multi-National Companies for this purpose.

The government can achieve a high rate of economic growth and development if all these measures are carried out through fiscal policy.

6. Equilibrium in the Balance of Payments:

The position of balance of payments of a country has a close relationship with the overall economic situation of a country. If the value of total imports exceeds the value of total exports there will be disequilibrium in the balance of payments.

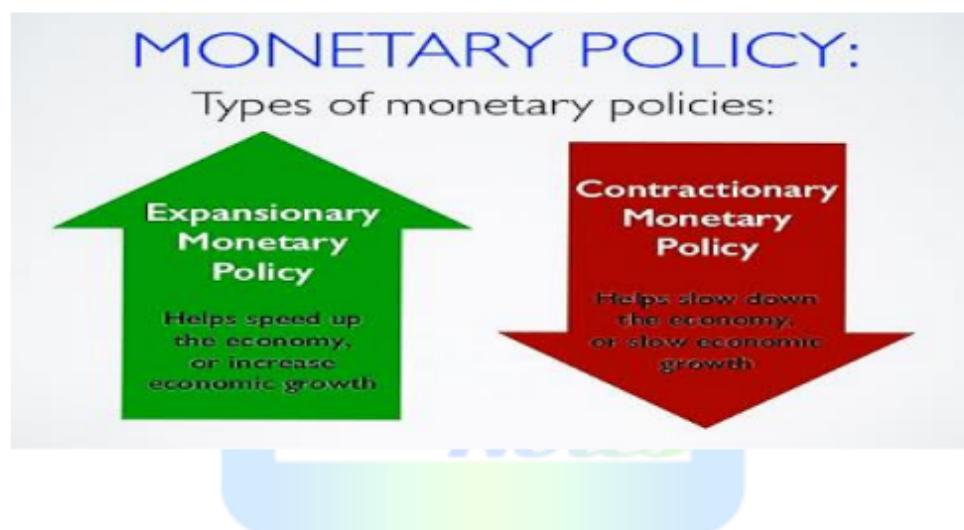
This disequilibrium in the balance of payments can be corrected with the help of fiscal policy. The government can use fiscal policy to promote exports and reduce imports. It can do so by increasing the import duties and reducing export duties along with providing various subsidies to the exporters.

Monetary Policy:

There are a number of instruments of monetary policy, which are important for the business to understand, but, here it is also important to know what Monetary Policy is? Credit performs important functions.

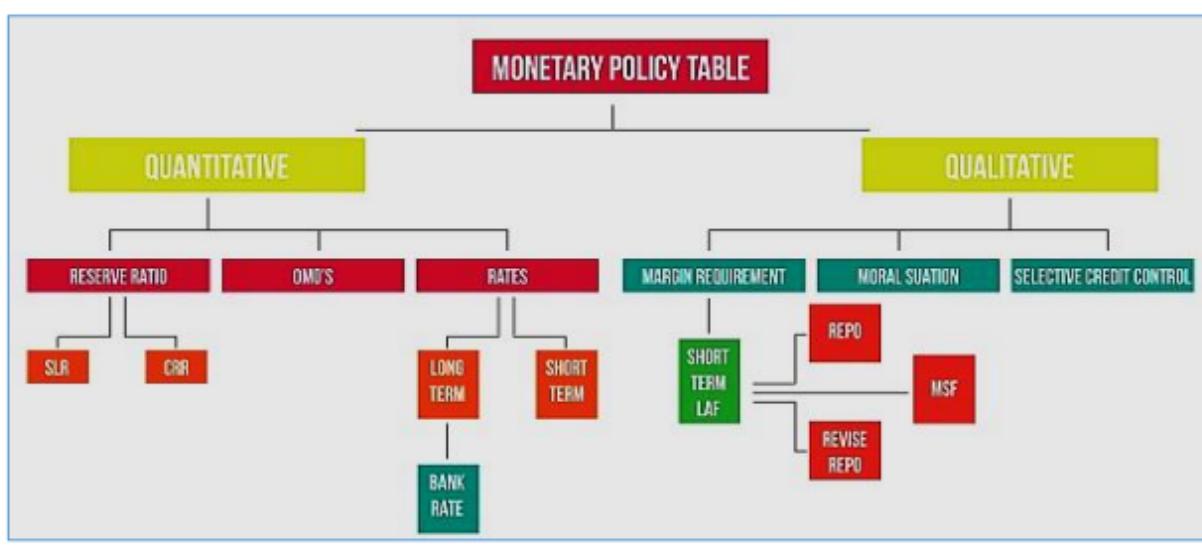
Being the major part of the total supply of money in a modern economy, the value of money is influenced by the volume of credit. The volume of credit in the country is regulated for economic stability. This regulation of credit by the central bank is known as "Monetary Policy". It is also called Credit Control.

Monetary policy refers to the measure which the central bank of a country takes in controlling the money and credit supply in the country with a view for achieving certain specific economic objectives. It is also being defined as the regulation of cost and availability of money and credit in the economy.



Instruments of Monetary Policy:

The instruments or methods of credit control or instruments of monetary policy are of two kinds:



1. Quantitative Control:

It seeks to control the total quantity of money and bank credit or to make the bank lend more or less. These are four ways of quantitative control.

a. Bank Rate Policy:

The bank rate is the rate at which the central bank is willing to discount the first-class bill of exchange. Bank rate is different from "Market Rate". The market rate is that rate of which the money market is willing to discount bill of exchange.

The market rate is influenced by the bank's rate. A rise in the bank-rate is generally followed by a rise in market rate and similarly, a fall or rise in the bank rate is followed by an increase and decrease in the borrowing and the volume of credit will be adjusted accordingly to the requirements of the market.

b. Open Market Operation:

Open market operation is the most important instrument of monetary policy. It refers to purchase or sale of government securities, short term as well as long term, at the initiative of the central bank, as deliberate credit policy. These Bonds and securities are purchased or sold from or to the commercial banks and the general public in the country.

c. Change in Reserve Ratio:

The commercial banks are required to keep a limited percentage of their deposits by law with the central bank. The central bank charges the ratio according to the need of controlling the credit.

If the ratio is raised, the cash available with the bank will be reduced, which will compel them to contract the volume of credit. Similarly, when the ratio will be lowered, the credit power will expand.

d. Credit Rationing:

This instrument of monetary policy is applied only in time of financial crises. The bank can collect by re-discounting bill of exchange when credit is rationed by fixing the amount.

This method of controlling credit can be justified only as a measure to meet exceptional emergencies because it is open to serious abuses. There can be a danger, the rationing may not be satisfactory and the central bank may abuse the power by giving preferential treatment to favorite customers.

2. Qualitative Control:

It aims to influence the special type of credit or to divert bank advances into certain channels, or to discourage from lending for certain purpose. These methods for managing monetary policy are:

a. Consumer Credit Rationing:

The consumer credit method of money management can be applied only when there is a rise in the scarcity of certain listed articles in the country. The central bank will impose specific restraints on consumer credit by raising the required down payments and shortening the maximum period of payment.

b. Moral Persuasion:

The central bank of the country also implies a minor instrument of moral persuasion to influence the total borrowing at the central bank. Moral Persuasion, refers to the appeal to the commercial bank to act according to the directive of the central bank. The central bank may issue directives to commercial banks to follow the policies of the central bank.

c. Direct Action:

The central bank may take direct action if his policies are not followed by commercial banks. Direct action involves direct dealings of a central bank with the commercial banks. Direct action may be a refusal on the part of the central bank to re-discount the bill of exchange or it may be in the shape of penalty rate of discounting for the banks not following the required policies.

Objectives of Monetary Policy:

The main objectives of monetary policy are here below:



**Objectives of
Monetary policy**

1. Stability of Internal Prices:

Heavy fluctuation in the general price level is not good for an economy. They result in uncertainty, damaging production and un-employment. To ensure healthy growth of the economy, stability in prices is advised through monetary policy.

2. Stability in Exchange Rate:

Fluctuations in the external value of currency reduce the volume of foreign trade. So the stability in the exchange rate is essential, and this objective is achieved by regulating the volume of currency to stabilize the rate of exchange.

3. Full Employment:

Another major objective of monetary policy is to achieve full employment of resources. Central bank adopts a suitable policy for this purpose.

4. Economic Growth:

In order to raise the living standard of people through higher production and general economic growth, the volume of credit is regulated for the proper supply of credit to the producers.

Fiscal Policy vs Monetary Policy:

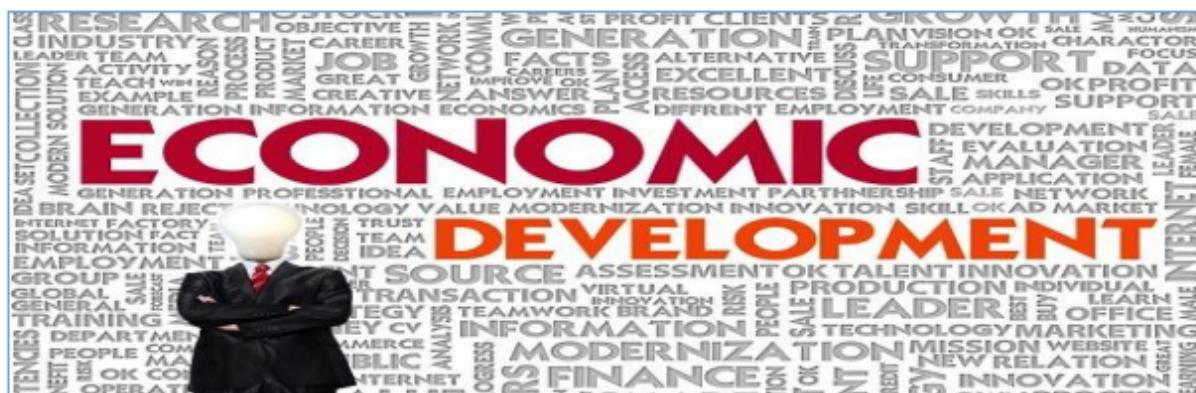
Basis	Monetary Policy	Fiscal Policy
Tool	Interest rates	Tax and government spending
Effect	Cost of borrowing/mortgages	Budget deficit
Distribution	Higher interest rates hit homeowners but benefit savers	Depends which taxes we raise
Exchange rate	Higher interest rates cause appreciation	No effect on exchange rate
Supply side	Limited impact	Higher taxes may affect incentives to work
Politics	Monetary policy set by independent central bank	Changing tax and government spending highly political
Liquidity trap	Cuts in interest rates may not work in liquidity trap	Fiscal policy advised in very deep recessions

Unit XIII: Economics of Development - Applied Economics

Meaning of Economic Development:

Economic development is the development of economic wealth of countries, regions or communities for the well-being of their inhabitants.

From a policy perspective, economic development can be defined as efforts that seek to improve the economic well-being and quality of life for a community by creating and/or retaining jobs and supporting or growing incomes and the tax base.



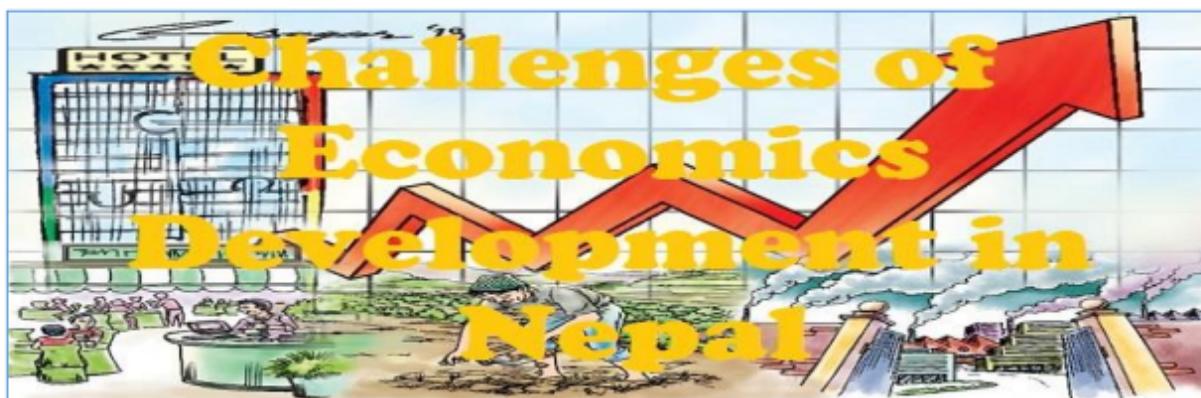
In Its Broadest Sense, Economic Development Encompasses Three Major Areas:

1. Policies that governments undertake to meet broad economic objectives such as price stability, high employment, expanded tax base, and sustainable growth. Such efforts include monetary and fiscal policies, regulation of financial institutions, trade, and tax policies.
2. Policies and programs to provide infrastructure and services such as highways, parks, affordable housing, crime prevention, and educational programs and projects.
3. Policies and programs explicitly directed at job creation and retention through specific efforts in business finance, marketing, neighborhood development, small business start-up and development, business retention and expansion, technology transfer, workforce training and real estate development. This third category is a primary focus of economic development professionals.

Challenges of Economics Development in Nepal:

Nepal is a small landlocked country having area 147,181 square km with a length about 500 miles and wide 100 miles, and a population about 30 million with the annual population growth rate of 2.37 percentage.

She has neighbors China in the north and India in the south, east and west. Nepal is a developing country in the world with a small size of the economy having Rs 550 billion GDP and \$ 561 per capita income in FY 2009/10.



The gross domestic savings and investment are about 7 percentage and 5 percentage respectively, which are very low compared to other nations. Nearly one-third of the people live below the absolute poverty line in Nepal.

Historically, Nepal hinges upon the foreign aid for its economic development. Because of the lack of infrastructure, small domestic market, and limited natural resources, Nepal's trade deficit is very high and widening rapidly over time.

As a developing nation, Nepal has been facing several challenges in the path of economic development. There are so many development issues entailed to be addressed as far as possible through economic policy measures.

Development Issues And Challenges Can Be Outlined As Follows:

1. Mass Poverty and Inequality:

Reducing the percentage of people below the absolute poverty line, narrowing the ever-widening poverty gap between rich and poor with the implementation of the poverty reduction measures, at the present is one of the major development issues in Nepal.

Data reveals that 25.4 percentage of Nepalese people live below the absolute poverty line in FY 2008/09 whereas inequality, measured by Gini coefficient, increased from 0.41 in FY 2004/05 to 0.46 in FY 2008/09.

The alarming figure of extremely low per capita income and mass poverty present an awful image of the overall economic condition. Low growth rate about only 2 percentage in the last 50 years period reveals the presence of the structural bottlenecks in the economy.

Against this backdrop, one of the major development challenges to Nepal at present is to break the vicious circle of poverty and underdevelopment through rapid economic growth along with equitable distribution of the income.

2. Lack of Physical Infrastructure:

Inadequate and disproportionate development of the physical infrastructure like transportation, communication, electricity is also a major development issue which has retarded the overall development of the nation.

Majority of the rural areas in Nepal have not been integrated into the mainstream of the economy because of basic infrastructure including road, electricity, communication has not yet reached out to these areas.

We have been facing the severe problem of energy crisis including huge the burden of load shedding despite the huge hydroelectricity potential within the country. Failure to match demand with adequate production and supply of electricity has adversely affected all sectors of the economy.

There is a lack of drinking water and inadequate development of the irrigation system within the economy.

One of the challenges to the economy is, thus, how to develop adequate physical infrastructure in a proportionate manner in the economy including the expansion of the agricultural roads, access of remote districts to the road networks, production and supply of hydroelectricity as per the demand through the investment in this area.

3. Widespread Unemployment:

Issue of unemployment, disguised unemployment, and underemployment is also a serious one. About 400000 workers have added annually in the labor market in Nepal.

But, the opportunities for entrepreneurship, quality skill development and creation of employment opportunities are extremely low in the economy. We all know that youth force is one of the major prospective resources of our country.

Unfortunately, because of the lack of employment opportunities within the nation Nepalese youth are compelled to engage in painful foreign unemployment. The brain drain of the educated and trained manpower is also alarming.

Therefore, it has become a major challenge to generate employment opportunity for the youths including those who are marginalized from the mainstream of development and make all to participate in the process of development.

In addition, the challenges in this sector are: producing the skilled manpower capable of competing in the international labor market, doing help and protection of workers going abroad for foreign employment, increasing access to employment opportunities for marginalized groups like women, Dalits, Tribes, Madhesis, disabled etc., developing and creating the sector generating more employment.

4. Stagnation of Agriculture:

One of the major identified causes of underdevelopment and poverty is the stagnation of agriculture. Despite the agriculture sector is a source of employment for about 68 percent of manpower, its contribution to GDP is only 34 percent.

Poverty is widespread among the people engaged in agriculture since the per capita output is low in agriculture. Since the majority of the Nepalese people are engaged in agriculture, poverty alleviation is possible only when we can increase agricultural productivity and shift the excess manpower from agriculture to other sectors of the economy by way of creating opportunities of gainful employment.

Agricultural production still remains capricious due to high dependency on monsoon owing to weak irrigation facility. Nepalese agricultural sector has low competitiveness in the international arena because of the dearth of fertilizer, seeds, irrigation and other facilities necessary for raising productivity.

Therefore, one of the prime development challenges to Nepal is to push up the agricultural growth alongside the increased agricultural productivity through various policy measures (like the commercialization of the agriculture, expanding irrigation facilities, road networks, storage, fertilizers and inputs etc.) and to sustain its competitiveness by giving continuity to emphasis on investment and subsidy facilities being provided to this sector.

5. Economic Dependency:

Growing economic dependency of Nepal on a foreign nation is one of the grave issue entailing solutions as far as possible. The trade deficit has been growing annually at an astronomical scale.

We are importing not only capital goods but also the basic goods of daily necessities at large scale. Imports exceed exports by about 6 times resulting trade deficit of Rs 31352 crores.

About 60 percent of total foreign trade has been with India in the last 10 years suggesting poor country-wise trade diversification and excessively high dependency on India.

In the national budget also, the huge portion is funded by foreign aid due to the meagre mobilization of the domestic resources. For example, about 10 percent of the budget in FY 2011/12 is expected to be funded through foreign aid.

Since the outstanding foreign debt is also very high and at an ever-increasing state, the debt servicing (principal repayment and interest) is in the growing trend. Balance of payment deficit was observed in FY 2009/10 for the first time in the previous eight years.

It has resulted in the gradual depletion of the foreign exchange reserve and exerted the pressure with the added challenge of sustaining the external sector. Economic dependency is, thus, on rising in all sectors.

In the face of economic dependency and time of transition, it a major challenge for Nepal to reduce such economic dependency and build nationally self-reliant economy.

6. Political Stability and Good Governance:

It is observed that corruption is rampant, in various forms and from the lower to the upper level of the government machinery. Since Nepal is in transition directed toward building a new constitution, she has suffered from a high degree of political instability including frequent changes in government, programs and policies, conflict due to the presence of several interest groups.

Problem of governance includes weak institutions and procedures, lack of ownership of the development projects and programs, lack of accountability and mismanagement of the resources, deteriorating law and order, absence of well-functioning judicial system etc.

Thus, the key challenge is to make the peace process reach logical conclusion by building a new constitution based on common consensus and also in line with the aspirations of all class, caste, gender and the suppressed and neglected communities and region.

Also, the creation of corruption-free environment to ensure radical improvement in the public service delivery mechanism has become a challenge.

7. Low Level of Savings and Investment:

The slight concern of most policymakers goes to the worst state of savings and investment. It is observed that Nepalese economy is slowly becoming consumption-oriented because of the increased flow of remittance income and thereby resulting in a hopeless drop in savings and investment rates.

For example, consumption to GDP ratio has been 93.3 percent in FY 2010/11, which has resulted savings rate down to 6.7 percent. Consumption oriented economy gradually leads to increased economic dependency on others resulting scarcity of resources for investment.

Thus, it is a challenge to create the foundation of economic growth through raising levels of savings and investment by discouraging unnecessary consumption.

8. Natural Resources Utilization:

One of the key development issues in Nepal is how to harness the natural resources available in the economy. We are rich in some resources such as water, forest, minerals etc.

Nepal has about 6000 rivers and rivulets. Theoretical potential hydropower of Nepal is estimated to be about 83000 MW whereas sites those are technically feasible for development could generate 44000 MW.

However, Nepal has so far been able to produce only a small fraction of this potential resource- only 697MW up to FY 2009/10. We have also minerals deposits of Iron, limestone, Zink and others in many places in the economy, but no detailed survey of these resources has been conducted yet.

We have also land with different altitudes capable of producing several type cash and food crops, medicinal herbs, flowers, fruits; vegetables etc. Harnessing forest alongside bio-diversity could also become a potential resource.

We can harness water resources through hydroelectricity generation and exporting it to India, and expanding irrigation and drinking water facilities. Nepal has been a tourists' paradise for many years because of incredible natural beauty and man-made to some extent.

Nepal can create tourists magnetic atmosphere and can earn huge amount of foreign exchange if the government and private sector both take initiative in constructing tourism infrastructure development.

It is also a challenge of developing a country as a tourist destination by conserving and expanding the existing tourists' locations with adequate publicity; and exploration, identification and expansion of the new tourist's sites.

Thus, a major challenge to the economy is to harness available natural resources in an optimum manner and preserve the renewable as well as non-renewable resources for the future generation.

9. Human Resources:

Nepal has a huge potential of human resources, which, if utilized effectively, can be a major source for the factor of development. But, a large portion of the people are still illiterate, and there is a lack of skilled and trained manpower in a different field.

Human development indicators are also very worse compared to other nations in the south Asia. Due to the lack of employment opportunities within the country, about

250000 people leave the country for foreign employment and the number is on the rise. Even though foreign employment is a major source of foreign exchange earnings and sustaining the BOP, we are supplying only untrained, unskilled or semi-skilled workers for foreign employment.

It is also necessary to make this sector systematic and making institutional arrangement for imparting training and skill for raising the demand for Nepalese workers at the international level.

Now it is a challenge of engaging the youths in the nation's development by creating employment opportunity within the country itself.

Furthermore, one of the major challenges is to eradicate illiteracy by ensuring production of efficient manpower to cope with the need of the time and production and utilization of the manpower needed for the modern and developed economy.

10. Benefiting from Globalization:

The issue of taking advantage of liberalization and globalization is also a prominent one. Privatization of public enterprises and liberalization of the sectors like foreign trade, financial sector are in progress.

Nepal is a member of WTO, SAFTA and BIMISTIC. We cannot move ahead without the integration of our economy with the global economy. Trade liberalization in Nepal has become only import liberalization because of the many reasons like poor infrastructure, low competitiveness of domestic products etc.

The export sector is in the severe problems due to lack of physical infrastructure, failure in maintaining the set quality and standards in the production of exportable goods, failure to identify niche products and niche markets for export promotion, low competitiveness in the international market.

There is a lack of investment and trade-friendly environments due to weak peace and security situation, uneasy labor relations, and shortage of energy in the country. Thus, raising the level of production and employment of the industrial sector by attracting domestic and foreign investment through the investment-friendly environment has become also a challenge.

In the face of globalization, it is a challenge for our nation to take maximum advantage of a greater degree of liberalization and globalization by ensuring appropriate policies, legal and structural reforms, adequacy of physical as well as administrative infrastructures etc.

In addition to the above-mentioned issues and challenges, there are so many development challenges we are facing continuously in the path of building a well-advanced, egalitarian and discrimination-free society.

In the financial sector, we are facing a problem of weak institutional governance of the financial institutions. Therefore, one of the challenges is to build financial sector strong and stable alongside making institutional governance and self-regulatory system of the banks and financial institutions effective.

Addressing the issue of financial inclusiveness is also a prominent one because of the difficulty in increasing access to banking and financial services of the ultra-poor, remote and rural areas.

One additional challenge is of simultaneously sustaining both monetary and demand management for avoiding the undesired pressure on the price level. As the least developing country, Nepal has several development changes in its way of economic development, which needs immediate policy consideration and implementation from all Nepalese.

Prospects of Economics Development in Nepal:



1. Employment Trends:

Economic transformation has been taking place in Nepal as the economy slowly moves away from the agriculture sector to other sectors. There is a growing displacement of the labor force from the agriculture sector. This transformation has various implications for the national economy.

The Emerging Labor Market Trends Are As Follows:

1. The people are giving up their traditional family occupations like a cottage and small industries and informal farming. They are now attracted toward new occupations. These displaced agricultural workers thus need to be absorbed by other modern sectors.
2. Due to shrinking employment opportunities in rural areas, the population has now been migrating to urban areas for employment. Some people are even migrating abroad for employment.

3. Immigration is also a factor that significantly influences the Nepalese population and labor forces. Over the past few decades, migration has grown gradually. This trend has an important impact on the composition of the labor force.
4. The impacts of economic transformation taking place in the country can be observed by the development of the settlements along the highways. In many places, new townships have developed generation new employment opportunities for people.
5. With the frequent rise in the literacy and educational level, educated women are now seeking out employment opportunities. They continue to join the Nepalese labor force in record numbers. This trend provides business firms with more talent from which to choose.

The more diverse workforce has its advantages. However, organizations have to make certain that they provide equality and fair treatment concerning employment, advancement opportunities, and compensation.

Strategic plans must be made for recruiting, retaining, training, motivation and effectively utilizing people of diverse demographical backgrounds with skills needed to achieve the firm's mission.

These demographic trends also lead to policies such as part-time employment, contract work, job sharing, child-care assistance, and flexible work schedules.

2. Labor Market Issues:

Labor market mechanisms are crucial for the stability and productivity of the workforce. Particularly, the labor market regulations play a major role in these areas. In the context of Nepal, labor market regulatory frameworks are rigid and the quality of education is relatively lower.

These regulations include the Labor Act, 1992, which prohibits the dismissal of permanent employees (i.e. all employees with more than 240 days of employment). Also, minimum wages regulations cover skills categories in firms with more than 10 employees, the mandatory payment of 10 percent of profit to a workers' benefit fund.

Rigid regulatory frameworks have thus been affecting the labor market and productivity in the following negative ways (MICS, 20040):

- a. There is a disincentive for labor to be efficient and productive.
- b. Business firms are inclined toward the use of a more capital-intensive system.
- c. There is a disincentive for firms to invest in training and education of their workforce.
- d. Business firms are inclined to employ Indian labor in highly skilled positions rather than Nepali workers.

- e. Performance-related pay and incentive system cannot be implemented due to trade union resistance.

Without the labor market improvements, Nepal will find it difficult to increase competitiveness and formal sector employment significantly.

Global Economy:

The international spread of capitalism, especially in recent decades, across national boundaries and with minimal restrictions by governments. The global economy has become hotly controversial.

Critics allege that its props, free markets and free trade, take jobs away from well-paid workers in the wealthy nations while creating sweatshops in the poor ones. Its supporters insist that the free movement of capital stimulates investment in poor nations and creates jobs in them. The process is also called globalization.



Concepts of Liberalization, Privatization and Globalization:



1. Privatization:

In general, Privatization means leaving the economy from government control to the market. In the broad sense, privatization implies the policy meant to give a greater role to the market mechanism and lessen the government intervention in the economy.

It means the production of goods and services by NGOs or private limited. It covers various ideas and policies and evokes political reactions.



In the current scenario, privatization is an international phenomenon, and it is on the progress in every country of the world. The prime purpose of privatization is to make industries competitive by transforming public sector ownership and control to the private sector.

Privatization, in fact, envisages the shifting of control or ownership of the means of production from the state to common people, so that these enterprises are not more under the domain of the political system.

Due to effectiveness and efficiency, governments rely on the private sector for commercial activities.

Political Economist Have Interpreted Defined Privatization Differently:

World Bank (1988): is broadly defined as increased private sector participation in the management and ownership of activities and assets controlled and owned by the government.

Mary Shirley: not only the state of state assets but also privatization the management of state activities through contras and leases and contracting out activities that were previously done by the state.

Kikeri et.al. Privatization is the transfer of responsibilities from the state to the private sector of the economy.

Rondinelli and Nellis (1986): it is the transfer of responsibility for certain government functions to nongovernmental organizations voluntary organizations community associations and private enterprises.

Types of Privatization:

There are five types of privations:

1. **Mega:** advocates the concept of minimalist state and the reduction of stasis power in all sectors, dimensions and spheres and activating private sector in this direction.
2. **Macro privatization:** refers to the greater use of market forces and ensures the maximum degree of competition reducing the active role of the state or the state as a regulator, facilitator welfare provider and producer.
3. **Micro privatization:** refers to the transfer of ownership of public assets/enterprises to private sector /individuals.
4. **Liberal democratic privatization:** refers to the process of privatization adopted in the liberal democratic system.
5. **Socialistic privation:** refers to the deregulation to enhance the competition among the various economic actors, reducing the role of all powerful or active state and converting it into a minimalistic state or state acting as simply facilitator than acting as the initiator of development.

Importance of Privatization in Nepal for Rural Development:

Our country Nepal has the experience of privatization since the period of Panchayat. The Panchayat government to meet the growing challenges of increasing the quality and quantity of basic services, facilities, basic needs of the people, particularly the rural poor, made several efforts and undertook several policies to invest public money in several governments owned, controlled and regulated enterprises.

During the Panchayat period, some attempts were made to encourage the process of privatization. During the sixth five year plan period two public enterprises i.e. "Nepal Cehuri Ghee Plant" and "Chandeshwori Textile Factory" were privatized.

In the year 1985, HMG attempted to privatize twelve PEs, which could not be materialized in practice. With the formation of the first elected government in 1991 under the prime ministership of G.P. Koirala in 1991, privatization policy got encouraged in different forms.

Immediately after assuming power, the NC government in 1991 issued a policy paper on privatization as an integral part of its economic reform policy and consequently adopted certain policies, programs administrative mechanism and modalities for it.

Three PEs i.e. "Bhrikuti Paper Mills", "Harisiddhi Brick and Tile Factory" and "Bansbari Leather and Shoe Factory" were sold to private individuals from India at a cheap rate. The objectives of the phase-wise program of privatization was reducing the financial and administrative burden of government, improving operational efficiency and involving the participation of general public and the private sector in the management of public enterprises.

As privatization encourages industrialization, it also provides/ generates employment opportunities in private sectors. Privatizations help the capable and competent persons/ firms to involve in economic activities and thus contributes in most cases, for the just distribution of wealth and income in society but the state has to check the trend of over contraction of capital in the hands of few economic elites and market actors.

It may be the process of converting black money into white money because it encourages private investment.

2. Liberalization:

Economic liberalization is taken as the reform processes directed at freeing economic agents and activities from state control. It may be associated with an enhanced role of the private sector as opposed to the state sector.

Liberalization is simply to relieve the economy from governmental control and directives and to promote the private sectors. Liberalization is analyzed in terms of internal economic reform which can be discussed in terms of reforms in the fiscal and the financial sectors.



Liberalization according to John Black is a program of changes in the direction of moving towards a free market economy. This normally includes the reduction of direct controls on both internal and international transactions and a shift towards relying on the price mechanism to coordinate economic activities.

In such a program, less use is made of licenses, permits and price controls, and there is more reliance on prices to clear markets. It also involves a shift away from exchange controls and multiple exchange rates towards the convertible currency.

The extent to which an economy is controlled can vary greatly, liberalization is a matter of degree and does not imply a shift to total laissez-faire. A liberalization is an act of freeing somebody from political or moral restrictions.

According to "World Development Report 1996", liberalization means 'freeing prices trade and entry of markets from state controls while establishing the economy'.

Importance of Liberalization in Nepal for Rural Development:

The need and importance of liberalization in Nepal in the post-1990 period was felt due to various reasons. The supporters of economic liberalization advocated that the existing government investment in most cases had proved unproductive and unfruitful to the people and the nation, consequently creating a deficit budget every year.

As the economic policies including market prices, production, consumption and distribution were government-controlled, the private sector and individual investors remained passive in economic activities often directly encouraging their capital to invest in foreign banks or invest outside the country in different forms.

The supporters of liberalization advocate that it can reduce the growing government deficit every year. The liberalized economic reform measures in post-1990 periods have played very significant roles in the economic life of Nepal. Its role in Nepal's particular context can be outlined as:

1. Since the economic liberalization measures in post-1990, Nepal have contributed to the all-round development and rapid economic growth inside the country, though economic development in Nepal in post days remained negatively affected by the political factor.
2. Like in other liberalized economies, liberalization in Nepal has also benefited people in different ways and has reduced the role of a command economy.
3. Liberalization contributed much for the development of Nepal in different ways including improving the quality of Nepalese people and their living standard by generating income in different ways.
4. As liberalized economic reforms have encouraged the establishment of new industries or enterprises of new industries or enterprises, it would encourage the increase the volume of export items and contents, contributing to earn foreign currency and making economy self-sustaining.

5. Liberalization the process has also contributed much to the utilization of the country's existing resources and the development of raw materials based industries, new enterprises and business/ commercial activities.
6. The liberalization in Nepal has contributed to generate employment opportunities to Nepalese in newly established enterprises, firms, industries and business houses.
7. The state-owned enterprises, after the liberalization process was encouraged and have also made several attempts to improve their working styles in the course of competing with private sector banks.
8. A number of financial institutions, aid services, film industries, media houses, insurance companies and joint venture companies in different sectors, travel agencies and manpower companies were established which have brought positive impacts in Nepalese economy in the different form including the increment in revenues and taxes.
9. It has promoted the private sector, prices have been freed from government control and the economy has been more or less stabilized.

3.Globalization:

Globalization is a worldwide phenomenon and has become quite a fashionable term among political economist, planners, development practitioners, media persons, which generally means the free flow of ideas, information, goods and services.

It is generally referred to as the international the flow of trade and capital, growing integration of economies and societies around the world through free movements of goods, services, people, and information across boundaries.



It has both descriptive and prescriptive interpretation. It refers to widening and deepening of the international flow of trade capital and technology, ideology, culture and information within a single and integrated market and also involves the liberalization of

national and global markets in the belief that free flow of trade, capital and technology, and information would produce box outcome of growth and human welfare.

Globalization is the process by which activity becomes worldwide in scope. It is a process of integration of the world as one market. The free movements of the elements like information, economy, technology and ideas are well-knitted production network help to create a bigger market which in turn is expected to generate opportunities for product specialization.

Globalization according to Todaro is the increasing integration of national economics into global markets.

Speaking from a political point of view, globalization refers to the integration of the national economy with the powerful global economy through several processes and measures including privatization, liberalization, marketization and liberal economic reforms, removing existing trade barriers consequently leading the world towards "one huge market" and increasing the process of "interdependence" among sovereign nation-states on the ground of mutual interest and benefit.

Globalization in most cases leads to an integrated global economy. The process of globalization ultimately converts the huge globe into a small global village.

Structurally speaking, structural globalization refers to the activation of global economic actors including Britton woods the institution, multinational corporations and enterprises virtually establishing their organization networks though out the world powerfully controlling the economy in the independent nation-states.

Importance of Globalization in Nepal for Rural Development:

Increasing globalization has a direct/ indirect impact and consequences on an individual, business groups, national economy, political system, socio-cultural and other sectors which may be both negative and positive.

The major effects of globalization are on liberalized international trade, import penetration, foreign direct investment, multinational companies and competitive environment. In this connection, it would be appropriate to study the regional reaction to the increasing globalization.

Late his majesty king Birendra addressing in the inaugural session of form for Asia in the capacity of chief guest stated that this phenomenon of opportunities for economic and social development yet are facing several challenges on the same occasion.

Chinese President Jiang Zemin viewed that the forum reflected the aspirations of the Asian countries for common development through enhanced dialogue and cooperation against the backdrop of economic globalization.

Malaysian Prime minister Mohammad Mahathir stated when the weak countries are forced to open their borders to globalization; giant banks and the corporation would come in and destroy the small local counterparts.

In such a terrible situation can the states ignore the growing wave of globalization and the answer would be strictly no because in today's globalized world, these nation-states which are mostly the members of the international community and have to depend on them on several sectors cannot get international support and thus cannot remain in complete isolation.

Moreover, these states cannot explore and exploit the opportunities for economic growth and efficiency to the maximum possible extent provided by the increasing wave of globalization.

They also need to protect their national interest, adjust with the changing world, redefine their foreign policy, goals, objectives, strategies, interests, and re-orient their diplomatic practices in the light or context of globalization.

The only thing small countries like Nepal in this context can do is that it can make attempts to minimize the negative impacts of globalization, increase its capacity to cope with the changing regional and international environment.

The factors responsible for global economic boom during the 1990s include growing economic interdependence, technological revolution and low transport costs, globalization, increasing gross national product, changing the structure of the world economy, increasing global trade, increasing foreign direct investment, foreign aid, increasing subsidies and current transfers.

Globalization has impacts on the Nepalese economy in several areas both positive and negative ones. It attempts to widen or broaden individual attitudes, encourages tough competition and consumer satisfaction encourages access to global markets, an increase in investment and improvement in the quality of products influence on performances.

However, globalization in today's world is relevant to the Nepali context and has contributed much positive impact on rural development of Nepal. The Nepalese rural areas have taken better advantage of the process of globalization in several ways.

The rural population have become conscious about their human rights including their right to development and right to protect their own clean and beautiful environment and protect rural natural resources.

Conclusion:

From the above discussion, it can be concluded that the process of liberalization, privatization, and globalization has done a lot and can do a lot for the development of the rural area of Nepal. For the development of the country, we should go from the rural area and should apply the weapon of liberalization, privatization and globalization properly. As most of the places of our country are rural, the development step should be started

from the rural place and the media of liberalization, privatization and globalization can play a very important role in this step.

Regional Trade Agreement:

Regional Grouping or Integration is a way in which neighboring states participate in an agreement to increase cooperation through common institutions and rules.

The aim of the agreement could extend from economic to political to environmental, although it has particularly accepted the form of a political economy initiative where commercial interests are the center for achieving security and broader socio-political goals, as explained by national governments.

Regional integration has been managed either via intergovernmental decision-making or through supranational institutional structures, or a combination of both.



Past efforts made at regional integration have often centered on reducing barriers to free trade in the region, improving the free movement of people, labor, goods, and capital across national borders, decreasing the possibility of regional armed conflict (for instance, through Confidence and Security-Building Measures), and accepting cohesive regional stances on policy issues, such as migration, the environment and climate change.

Regional integration has been explained as the way through which national states "voluntarily merge, mingle and mix with their neighbors to sleep off the factual qualities of sovereignty while achieving new techniques for resolving conflicts among themselves."

According to Van Langenhove, Regional integration initiatives should fulfil at least eight essential functions:

1. Making strong trade integration in the region.
2. The creation of a proper enabling environment for private sector growth.
3. The development of infrastructure programs in respect of regional integration and economic growth.
4. The development of good governance and strong public sector institutions.
5. The development of an inclusive civil society and the decrement of social exclusion.

6. Contribution to security and peace in the region.
7. The development of environment programs at the regional level.
8. The increasing and strengthening of the region's interaction with other regions of the world.

Regional integration agreements (RIAs) have led to major developments in international relations among and between many countries, particularly increases in international trade and investment and in the arrangement of regional trading blocs.

As fundamental to the multi-faceted way of globalization, regional integration has been an important development in the international relations of recent years. As such, Regional Integration Agreements has achieved high importance.

Not only some nations, almost all the industrial nations part of such agreements, but also a large number of developing nations too are a part of at least one, and in cases, more than one such agreement.

The quantity of trade that takes place within the scope of such agreements are about 35%, which calculates to more than one-third of the trade in the world. The main goals of these agreements are to decrease trade barriers among those concerned nations, but the structure may differ from one agreement to another.

The liberalization or removal of the trade barriers of many economies have had double impacts, in most of the cases increasing Gross domestic product (GDP), but also leading in the larger concentration of wealth, global inequality and an increasing frequency and intensity of economic crises.

Regional Trade Agreements in South Asia:

1. SAARC (The South Asian Association for Regional Cooperation):

The South Asian Association for Regional Cooperation (SAARC) is an economic and geopolitical organization of eight countries that are primarily located in South Asia. The SAARC Secretariat is based in Kathmandu, Nepal.

SAARC nations are having 3% of the world's area and in contrast, has 21% (Around 1.7 Billion) of the world's total population. India makes up over 70% of the area and population among these eight nations.

The idea of regional political and economic cooperation in South Asia was first raised in 1980 and the first summit was held in Dhaka on 8 December 1985, when the organization was established by the governments of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

Since then the organization has expanded by accepting one new full member, Afghanistan, and several observer members.

The SAARC policies aim to promote welfare economics, collective self-reliance among the countries of South Asia, and to accelerate socio-cultural development in the region. The SAARC has developed external relations by establishing permanent diplomatic relations with the EU (European Nation), the UN (United Nation) and other multilateral entities.

The official meetings of the leaders of each nation are held annually whilst the foreign ministers meet twice annually. The 18th SAARC Summit was finished in Kathmandu in November 2014.



Guiding Principles of SAARC Are:

1. Respect the principles of sovereign equality, territorial integrity, political independence, non-interference in internal affairs of other States and mutual benefit.
2. It is no substitute for bilateral and multilateral cooperation but complements them.
3. Its obligation shall not be inconsistent with bilateral and multilateral obligation; the charter excluded bilateral and contentious issues from its deliberations.

Goals and Objectives:

1. It promotes quality of life and economic growth in the region.
2. It strengthens collective self-reliance.
3. It encourages active collaboration in economic, technical and scientific fields.
4. It aims at increasing people to people contact and sharing of information among the SAARC members.
5. It aims at increasing people to people contact and sharing of information among the SAARC members.

2.BIMSTEC (Bay of Bengal Initiative for Multi-Sectorial Technical and Economic Cooperation):

The Bay of Bengal Initiative for Multi-Sectorial Technical and Economic Cooperation (BIMSTEC) is an international organization involving a group of countries in South East Asia and South Asia. These countries are: India, Sri Lanka, Bangladesh, Myanmar, Thailand, Nepal and Bhutan.

On 6 June 1997, a new sub-regional grouping was established in Bangkok and given the name BIST-EC. Myanmar attended the inaugural June Meeting as an observer and participate the organization as a full member at a Special Ministerial Meeting held on 22 December 1997 in Bangkok, upon which the name of the grouping was altered to BIMSTEC. Nepal was given observer status at the second Ministerial Meeting in December 1998 in Dhaka. Later on, full membership has been provided to Nepal and Bhutan in 2003.

On 31 July 2004, in the first Summit, leaders of the group believed that the name of the grouping should be called as BIMSTEC or the Bay of Bengal Initiative for Economic Cooperation and Multi-Sectorial Technical and.

BIMSTEC Headquarters established by Bangladeshi Prime Minister Sheikh Hasina (13 September 2014) and is situated in Dhaka, Bangladesh and the main aim of BIMSTEC is economical and technological cooperation among southeast Asian and South Asian countries along the coast of the Bay of Bengal.

Investment, human resource development, leather commerce, technology, tourism, agriculture, communication and transport, textiles, fisheries, etc. have been involved in it.



BIMSTEC Priority Sectors:

BIMSTEC has 14 priority sectors that enclose all areas of cooperation. 6 priority sectors of cooperation were determined at the 2nd Ministerial Meeting on 19 November 1998 in Dhaka. They include the following:

1. Communication and Transport, led by India
2. Investment and Trade, led by Bangladesh
3. Energy, led by Myanmar
4. Technology, led by Sri Lanka
5. Fisheries, led by Thailand
6. Tourism, led by India

Since 2005, The Asian Development Bank has become BIMSTEC's development partner, to operate a study which is designed to improve transport infrastructure and help promote and logistic among the BIMSTEC countries.

So far, ADB has already completed the project so-called BIMSTEC Transport Infrastructure and Logistic Study. The final report of the said study from ADB has already been suggested to all members and being waited for the feedback.

Other fields of cooperation will be designed later on. Its headquarters is located at Mandaluyong, Philippines.

BIMSTEC Free Trade Area Framework Agreement:

Free Trade Area Framework Agreement to stimulate investment and trade in the parties, and attract outsiders to trade with and invest in BIMSTEC at the upper level.

Except for Bangladesh, all members because of domestic procedure became signatories to the Framework Agreement in the 6th Ministerial Meeting, as witnessed by the Prime Minister of Thailand and BIMSTEC's Foreign Ministers.

Later on, Bangladesh joined the Framework Agreement on 25 June 2004. The Trade Negotiating Committee (TNC) was maintained and had its 1st 'Khyoiujholiach country's chief negotiator act as TNC's spokespersons, while TNC's chairperson will inform the result via STEOM to the Trade and Economic Ministerial Meeting.

TNC's negotiation areas enclose trade in services and goods, economic cooperation, investment, as well as trade assistance and also technical assistance for LDCs in BIMSTEC. It was believed that once bargaining on trade in goods is finished, the TNC would then proceed with bargaining on trade in investment and services.

3. SAPTA (SAARC Preferential Trading Arrangement):

The Sixth Summit held in Colombo in December 1991, approved the development of an Inter-Governmental Group (IGG) to regulate an agreement to develop SAARC Preferential Trading Arrangement (SAPTA) by 1997.

The given consensus within SAARC, the Agreement on SAPTA was signed on 11 April 1993 and participated in force on 7 December 1995 well in advance of the date provided

by the Colombo Summit. The Agreement shows the desire of the Member States to sustain and encourage economic cooperation and mutual trade within the SAARC region through the interchange of concessions.



Basic Principles Underlying SAPTA Are:

1. Overall mutuality and reciprocity of advantages to advantage equitably all Contracting States, taking into consideration their respective level of industrial and economic development, the process of their external trade and tariff systems and policies.
2. Bargaining of tariff reform step by step increased and enhanced in successive stages through periodic reviews.
3. Identification of the special needs of the developing States and agreement on practical preferential process in their favor; and
4. Involvement of all manufacturers, products and commodities in their raw, semi-processed and processed forms.

There are four rounds of trade negotiations have been defined under SAPTA enclosing over 5000 commodities. Each Round dedicated to an incremental trend in the product coverage and the intensifying of tariff concessions over previous Rounds.

5. South Asian Free Trade Area (SAFTA):

The South Asian Free Trade Area (SAFTA) is a contract made on 6 January 2004 at the 12th SAARC summit in Islamabad, Pakistan. It is created with the motive of a free trade area of 1.6 billion people in Bangladesh, Afghanistan, Bhutan, India, Maldives, Nepal, Sri Lanka and (as of 2011, the total population is 1.8 billion people).

The seven foreign ministers of the region signed a framework agreement on SAFTA to decrease customs duties of all traded goods to zero within the year 2016.

The SAFTA agreement came into an act on 1 January 2006 and is operational following the confirmation of the agreement by the seven governments. SAFTA needs the developing countries in South Asia (Pakistan, India and Sri Lanka) to carry their duties down to 20 percent in the first stage of the two years ending in 2007.

In the final five-year stage ending 2012, the 20 percent duty will be decreased to zero in a series of annual cuts. The least developed nations in South Asia (Bhutan, Nepal, Bangladesh, Maldives and Afghanistan) have an additional three years to decrease tariffs to zero.

Pakistan and India provided the treaty in 2009, whereas Afghanistan as the 8th member state of the SAARC provides the SAFTA protocol on the 4th of May 2011.

SAPTA was predicted primarily as the first step towards the transition to a South Asian Free Trade Area (SAFTA) leading eventually towards a Common Market, Customs Union and the Economic Union.

In 1995, the Sixteenth session of the Council of Ministers agreed on the requirement to struggle for the realization of SAFTA and to this end, an Inter-Governmental Expert Group (IGEG) was set up in 1996 to define the necessary steps for developing a free trade area.

The Tenth SAARC Summit (Colombo, 29-31 July 1998) comes up to set up a Committee of Experts (COE) to draft an all-around treaty framework for creating a free trade area within the region, taking into discussion the irregular in development within the region and supporting in mind the demand to fix achievable and realistic targets.



Purpose Of The Agreement:

SAFTA aims to persuade and elevate the usual contract among the countries such as long term and medium contracts. Contracts including trade operated by states, supply and import assurance regarding particular products etc.

It includes agreement on tariff concessions like national duties concession and non-tariff concession.

Objective:

The main objective of the agreement is to encourage competition in the area and to give equitable benefits to all the involved countries. It aims to advantage the people of the countries by bringing integrity and transparency among the nations.

SAFTA was also established in order to improve the level of economic cooperation and trade among the SAARC nations by decreasing the barriers and tariff and also to provide special importance to the Least Developed Countries (LDCs) among the SAARC nations.

Instruments:

The instrument involved in SAFTA is: Rules of Origin, Consultations and Dispute Settlement Procedures, Safeguard Measures, Trade Liberalization Programmer, Any other instrument that may be agreed upon and Institutional Arrangements.

Multinational Companies:

Multinational companies are like the tree which has multiples branches having one operating root. Multinational companies are entering too many countries due to the international trade act of globalization.

Every entity has the right to cross the border with their product and services all around the world. No, any intervention can be done by the nation because of it's the rule of international trade.

That is why we can see then, various foreign companies have rooted their business in Nepalese territory with product and services. They may have different product and services and some have substitute goods, while some are doing the business of complementary goods.



If we talk about the features and their grounding in the landlocked country like Nepal, then they have captured the large Nepalese market with their product features and facilities.

Many names come in the list racially when we put our eyes on multinational companies. Many have also said that the Nepalese economy is handling and existing the pressure of economic fluctuation and surviving due to their paying of tax to the government of Nepal.

A lot of multinational companies is day by day entering to Nepal with their huge capital, unique technology and substitute and well as complement goods and services which is also helping the country to move towards the national development in every sector.

Multinational companies are important factors in today's international business. They are the outgrowth of international business. They control and manage a large part of the world's productive assets. They are created by foreign direct investment.

Multinational companies are giant enterprises. They operate across national boundaries. They have headquarters in a home country with business operations in several countries. The home country is mostly a developed country. The host countries are generally developing countries anywhere in the world.

Characteristics of Multinational Companies:

Multinational companies have the following characteristics:

1. Big Size Business:

Big Size Business is one of the characteristics of multinational companies. They are giant business enterprises. They are big in size and high in complexity. They command huge resources and capabilities. However, smaller firms can also operate as multinationals.

2. Multi-Country Operations:

Multi-country Operation is one of the characteristics of multinational companies. They operate in two or more countries. Their operations are diversified. They can have production, service, marketing or other types of operations. They have a geographically dispersed portfolio of investments. They treat the world as one market.

3. Various Environments:

Various Environments is one of the characteristics of multinational companies. They operate in various host country environments. The environments provide the context in which they operate. Political-legal, economic and socio-cultural forces vary from country to country. The sources of laws and regulations are multiple. Cultural differences are pronounced.

4. Centralized Ownership and Control:

Centralized Ownership and Control is one of the characteristics of multinational companies. Ownership and control are centralized. The managerial headquarters are located in the home country.

Resource transfers are done from a common pool of resources between the home country and host countries. They are integrated with local resources. MNCs repatriate profits to the home country.

5. Multiple Currencies:

Multiple Currencies is one of the characteristics of multinational companies. They deal in multiple currencies of host countries. The values of these currencies keep changing. The risks of future exchange rate shifts are high.

6. Common Strategic Vision:

Common Strategic Vision is one of the characteristics of multinational companies. MNCs have a common strategic vision. All their operations in various host countries are linked together by this common strategic vision. Their management has a geocentric orientation. It is globalized.

Types of Companies:

1. Multinational Company (MNC):

It is a company that takes a global approach to foreign markets and production. It is willing to consider market and production location anywhere in the world. It lies operations in more than two countries.

2. Transnational Company (TNC):

UNO uses this term for MNCs. It means a company in which capabilities and contributions differ by country but are developed and integrated into worldwide operations.

3. Global Company:

It has operations in many countries in the world. The home country integrates the operations located in different countries.

Some Of The Multinational Companies Of Nepal Are:

1. Unilever Nepal Limited:



It is an old multinational company which is doing their business with many products and making their branches and product expansion day by day in the large circle.

In Nepal, it is selling many products of national production or by importing the international product. Its brand has well valued and has gained the trust of Nepalese customer.

As it deals with multiple products, Nepalese do not want to get connected with others for using or choosing the next one. Many customers also comment on its product but the huge group is using the product happily.

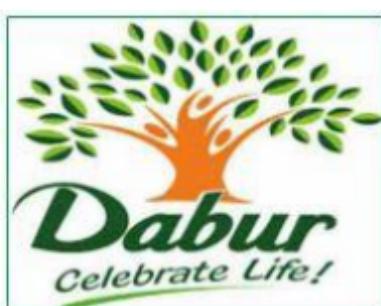
Approximately, it is treated as one of the top largest companies selling over 100 items in every shop. Unilever product includes Sunsilk Shampoo, Soap, Ice-cream, Salt and flour, Foods and Beverages, Tea, Coffee, Milk, Cooking oil, Lighter, Butter jams, Soups, Smoked Sausage, Dove Shampoo, Surf, Magnum, Surf Excel, Persil Rexona, Sure Degree Shield etc. in large quantities.

The company is serving the product services in Nepal from the long-time its products include foods, beverages, cleaning agents and personal care products. The company have drawn good remarks in almost Nepalese community by their well-known product and have become able to gain the trust and trapped the emotion in their own hands by the influence of products consequences.

There is much product which is familiar to most of the groups. Unilever has to make connections to every home by any of their classified products. Unilever Nepal is treated as one of the largest conglomerates in South Asia as it is expanding its product and services wings more and more part of Nepal.

Unilever is also selling its product in more than 50 countries including the USA, Germany, UK, Brazil, India etc.

2. Dabur Nepal:



There are only a few people who has not used the product of Dabur Company and those who have not used the product of Dabur Company has surely listened to its name.

It is a popular company across Nepal and India by their product influences and reaching in almost every home through any of its company marked product.

It is mostly famous for its Ayurvedic medicine and product which is very much useful and beneficial. The company have drawn the shining image in the mirror of Nepal and Indian market. Dabur is very much popular product and mostly the medicine is used by many patients who mostly trusts on Ayurveda.

Dabur's ChawYanprash is one of the high qualitative and most deserving product that is supplied and sale in Nepal by hiring the brand ambassador Rajesh Hamal, the Megastar of Nepal. In Nepal, also it was able to made and capture the large market by its product features and quality.

The product of Dabur company is especially very much favorable and even affordable by lower class to higher class people. It mostly deals with biotech and Pharma industry.

Dabur has started its business in Nepal by 1989 having prospection relating to manufacturing, fabricating, or processing of drugs in pharmaceutical preparations for human or veterinary use but later on, increases its expansions sectors in other relevant fields too.

Dabur's Healthcare The division has over 260 products for treating a range of ailments and body conditions, from the common cold to chronic paralysis dealing and picking out the people from their suffered problem because of the impact of the product released from its hub.

Dabur is also one of the top multinational companies of Nepal working in the sector of Health, Digestives, Foods, Homecare, Personal care Ayurvedic medicines in Nepal and renovating the health of Nepalese people.

3. Coca-Cola:



It would not be wrong if we say Coco-cola is one of the largest beverage company in the world. Coca-Cola has made its different remarks in the mind of the customer.

Its beverage is found easily in almost every country and every part due to its easily supplying and roots establishment.

According to the reports and research, 98% of American drink Coca-Cola. Its tastes are popular all over the world. Nevertheless, there is saying by many people that, its tastes are different according to the country. In a developed country, it has a superior taste while in developing and the undeveloped country it has other tastes.

Turning the story towards Nepal in the therapy of Coca-Cola, it was able to make the Nepalese addict too by its flavor or tastes by giving the slogan "Chiso Vanekai Coca-Cola", that means cold means Coca-Cola.

It has ranked its name in the top under the FMCG companies levelling its level in high speed. Coca-Cola was able to acquire the large groups mostly the youth by providing the

taste of thunder in a different pack from small, bottle to jumbo pack by giving the additional offers and other schemes in its buying.

When people need breakfast they also add or ask for Coca-Cola. Coca-Cola is high-level multinational companies which are operating its server in many countries by providing the different tastes in beverages. When people get thirsty, their minds first notice them for Coca-Cola.

4. Pepsi:



It is the competitor of Coca-Cola and also standing in the Nepalese market with its own taste of beverages. Pepsi is also the largest beverage company which is operating its network from the USA.

Pepsi is the substitute for Coca-Cola because both are in the same version and same color even almost having the same taste. But there is a great difference in Pepsi and Coca-Cola as said by the manufacturers. Pepsi has also trapped the huge market and has listed their name under the FMCG Company.

The company is also producing the other beverages but Pepsi has taken the large market due to its high demand due to sweetness in taste. The taste has understood the demand of the tongue of Nepal too.

Pepsi is also one of the largest beverage suppliers of Nepal having the unique version of bottling and packaging and also different schemes. It has also achieved a high reputation in Cola world.

It is producing the beverage in many variants like Diet Pepsi, Pepsi Wild, Cherry Crystal Pepsi, Caffeine-Free Pepsi, Pepsi-Cola Made with Real Sugar, Pepsi Vanilla Pepsi, Zero Sugar, Pepsi Next, variants are popular according to country basis.

Once it was also the situation when the Coca-Cola Company has given offers to the Pepsi for purchasing it but they declined their offer. They have made their own umbrella in the world of beverages.

Thus, it is also one of the top multinational companies of Nepal having their own standard and stamps in the Nepalese market in the sector of beverage. Pepsi has acquired the largest choices of youth who are mostly interested to get together with friends and in the celebration ceremony.

5. L.G. Television:

There are many television companies in Nepal but the LG television has made qualitative remarks in the mind of Nepalese customer. LG is one of the oldest brands of Nepal and serving from 22 years in various forms of electronic goods.



LG has multiple products in electronic forms that are helping people to buy at cheap and affordable rates having qualitative installation inside.

LG television has created his own unique appreciation and brand by giving modern technology on the screen of the television and its internal programming.

LG is one of the most selective and favorable brands that Nepalese mostly want to purchase it due to its long life of existence. Due to its assembling and production in Nepal, it's also easy to find out the parts in the case of any error and default. LG is also running its systems and approach to the surveillance of the group.

And we know that the CG group is one of the leading brands of Nepal which was able to reach in very homes through any electronic goods even affordable characteristics. CG has made the Nepalese trusted and followed the brand LG and CG products. LG has been able to acquire the No. 1 position in the Nepalese market through its effective product that has made people more likely to use and purchase by its working phenomenon.

LG is also multinational companies which have made its roots and qualitative fruits in the means of production in the Nepalese market. LG has made its brands more auspicious through mobile technology and other electronic goods like refrigerator, television, iron etc.

Foreign Direct Investment:

Foreign Direct Investment (FDI) can be defined as the process of controlling business enterprise in one country by an entity based on other countries. It may include merge and acquisition, building new facilities, reinvestment of profit earned from the overseas operation and intra company loans.



FDI helps in free movement of capital, technology and resources. In simple term, foreign direct investment is those investment made by a company or entity based on one country to other foreign countries.

Such investment typically differs from an indirect investment like portfolio investment, where foreign company investment in equity listed in the national stock exchange. But here on direct investment investors do have a certain degree of control and influence over the company.

Types of FDI:

1. Horizontal FDI:

This type of FDI occurs where home country Firms duplicates its activity at the same value chain with host country.

2. Platform FDI:

When FDI is made by the host country to destination country with the propose of exporting to the third country.

3. Vertical FDI:

Such type of FDI arises when activity between two firms duplicates at the different value chain.

Methods of FDI:

1. By establishing a fully owned subsidiary or company anywhere.
2. Merge and acquisition
3. Equity a joint vendor with other investors or enterprise
4. Reinvesting profit earned from foreign investment.

It reflects the long term relationship between investors and investing company with the involvement of investors in the management of the company. FDI here is an important source for developing countries like Nepal where there are plenty of resources but lacks capital, technology and management capabilities.

Foreign investment is categorized into foreign portfolio investment and foreign direct investment. Portfolio investment is equity of investment without control on the management of the entity.

Whereas FDI is a direct investment in the entity with a certain degree of control along with the inclusion of technology, skills and other required resources. FDI is a relatively new term for the global economy. It was introduced in the early 19th century and its growth and development continued over the period since the first UN development decade in 1960.

Along with its development voice against and for of FDI have been raised. Some argued that it is totally unhelpful, a threat to national sovereignty and culture and most of the time transfer inappropriate technology to the developing country.

Merits of FDI:

1. Helps to raise the level of investment. FDI often helps to fulfil the gap of desired investment and locally available saving. Generally in a country like Nepal capital for a large project cannot be raised locally.
2. Technological transfer is an important aspect of foreign direct investment. It helps to upgrade the technological standard in developing countries.
3. Helps in the employment generation with the establishment of larger projects.
4. Provide benefits to the local customer with new, innovative and quality product.
5. Helps in the proper utilization of unused resources.
6. With the industrial development, the export of the developing countries increases which helps in the balance of payment.
7. Finally FDI helps to generate revenue to the host country government through various taxes.

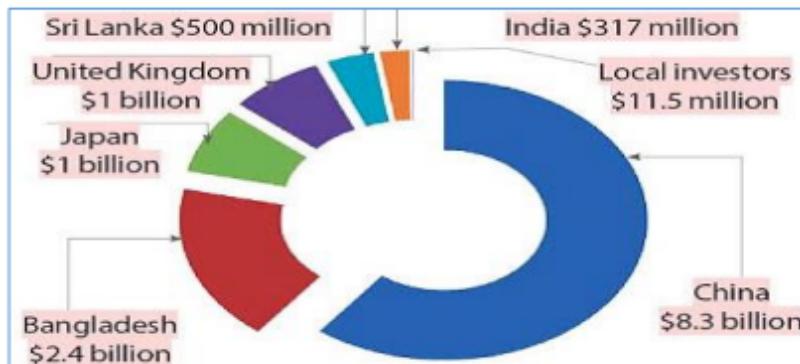
Demerits of FDI:

1. Can hamper in the growth and development of local industries.
2. Benefits to host country might be very less due to liberal tax policy, investment allowance, tariff protection etc.
3. Foreign the firm may overexploit the available natural resources.
4. Sometimes the foreign firm does hurt the socio-cultural aspect of the host country.
5. With large size and huge capital, they have bargaining power with the government of host can influence the political decision. Moreover, in developing countries, they can be close to a certain political party to have undue favor. Hence it can be a threat to national sovereignty

FDI in Nepalese Context:

Till now Nepal had attracted modest FDI in niche sectors such as tourism, herbal products, mineral deposits (limestone), and light manufacturing apparel; hydropower and that it had positive impacts on exports, particularly garments.

Similarly, FDI has also facilitated the country to export non-traditional manufactured products such as micro-transformers and personal consumer products (Te Velde and by UNCTAD 2006) Investment is basically concentrated in low-technology and labor-intensive production.



The impact of FDI had on job creation is below moderate. According to the study, the inflow of FDI has been constrained by political instability, geographical structure, rigid labor regulations and poor physical infrastructure.

This situation remains current due to political instability and the phase of political transition. Foreign investment in Nepal is regulated, monitored and controlled by foreign investment and technology transfer and industrial enterprise act.

The department of industry (DOI) is responsible to implement and administrate foreign investment and technology transfer act in Nepal.

Foreign investment in Nepal can be in various forms as listed below:

1. Equity/ investment in share
2. Reinvestment of earning from dividend
3. Investment in kinds. Example: equipment and machinery
4. The investment made in forms of loan and loan facility

Any investment below US dollar 50,000 (NRP 50000000) per investors is not approved for investment. By act, there are some defined sectors where 100% equity share cannot be obtained by foreign investors. They are:

1. Cottage industry
2. Personal service business
3. Radioactive materials
4. Real estate. (Except construction)
5. Film
6. Security printing

7. Arms and ammunition
8. Banknotes and coins
9. Retail except for international chain retail
10. Tobacco
11. International courier
12. Atomic
13. Poultry
14. Fishery
15. Beekeeping
16. Processing of food grains
17. Consultancy
18. Local catering service
19. Rural tourism

Each investor should go through a certain procedure to set up the entity. Brief of the procedure are:

- a. Need to obtain of Department of the industry for Foreign Investment.
- b. Incorporate the company at the company register's office.
- c. Industry register in the department of industry.
- d. Obtain PAN from the inland revenue office
- e. Register trademark, design, patent etc. at DOI.

World Trade Organization:

World Trade Organization (WTO) is a worldwide legally accepted organization for maintaining trade relation among different countries. The organization officially commenced on 1, January 1995.

Nepal got the membership or Baisakh 11, 2061 B.S. from WTO. Nepal is 147th member of WTO. WTO helps in settling trade disputes among countries and creates a healthy environment for trading globally.



World Health Organization

The organization deals with regulation of trade between participating countries by providing a framework for negotiating and formalizing trade agreements and dispute between the participatory countries. The head office of WTO is situated at Geneva, Switzerland.

WTO helps and promotes world trade. It works for the implementation and operation of the various agreements made among two different countries. It monitors the trade policies, rules of the member country and helps in the improvement.

It conducts various programs for the livelihood upliftment and ensuring employment opportunities for the people of the member countries.

WTO facilitates in increasing the production and productivity and increasing the income level of the ordinary people. Recently, WTO is active in ensuring food security in most of the countries of Africa. It determines the Terms of Trade, International Policies, and Rules for Global Trade.

Benefits of WTO in Nepal:

- a. Market access opportunities
- b. Policy stability
- c. Attract foreign direct investment
- d. Gearing up domestic institutional capability
- e. Benefits of positive discrimination
- f. Establishment of trade and transit rights

Opportunities for WTO Membership:

- a. Government will become more rational in decision-making
- b. Rent-seeking activities will decrease
- c. Problem of transit will be less
- d. Provisions of technical support
- e. Access to markets, duty-free-quota-free access among member countries

WTO Challenges for Developing Countries:

- a. Improving national policies
- b. Amending some laws and developing new laws
- c. Changing trade administration attitude
- d. Human resource development and infrastructure development
- e. Quality control of goods and services