மனோன்மணியம்சுந்தரனார் பல்கலைக்கழகம்

MANONMANIAM SUNDARANAR UNIVERSITY

TIRUNELVELI – 12

தொலைநிலைதொடர்கல்வி இயக்ககம்

DIRECTORATE OF DISTANCE & CONTINUING EDUCATION

BBA - FIRST YEAR

MANAGERIAL ECONOMICS

Syllabus

Unit - I - Demand Analysis

Meaning, Nature and Scope of Managerial Economics - Demand – Law of Demand - Exceptions to the law of demand - Determinants of Demand-Elasticity of demand – Supply – Law of Supply – Elasticity of Supply. Demand Forecasting: Meaning Significance, methods of demand forecasting

Unit - II - Cost Analysis and Production Analysis

Cost Concept- Types of cost – Cost Curves – Cost- Output Relationship in the short run and long run, LAC curve. Production function with one variable input – Law of variable Proportions. Production function with two variable inputs and Law of returns to scale, Indifference curves, Iso-Quants and Iso-cost line, Least cost combination factor, Economies of scale.

Unit - III - Market structure and Pricing Practice

Perfect Competition, Features, Determination of price under perfect competition. Monopoly- features, Pricing under monopoly, Price Discrimination. Monopolistic Competition- Features, pricing under monopolistic competition, product differentiation. Oligopoly- features, Kinked demand curve, cartels, Price leadership.

Unit - IV - Money

Money- meaning – types- functions –- Foreign Exchange – Meaning – Exchange Rate- Spot rate and forward rate-Types of forex market- Inflation – Meaning – Types- causes and effects. Inflation Vs Deflation. Corrective mechanism (Monetary and fiscal measures).

Unit - V - National Income and Business Cycle

National Income - Meaning - Concepts (GDP, GNP, NNP, NDP, Private Income, Personal Income, Disposable Income and Per Capita Income) - Methods of Measurement (Product method, Income Method and Expenditure Method) - Difficulties in Measuring National Income. Business Cycle - Meaning-phases and effects.

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UNIT I

Introduction

Economics is a social science concerned with the production, distribution, and consumption of goods and services. It studies how individuals, businesses, governments, and nations make choices about how to allocate resources. Economics focuses on the actions of human beings, based on assumptions that humans act with rational behavior, seeking the most optimal level of benefit or utility. The building blocks of economics are the studies of labor and trade. Since there are many possible applications of human labor and many different ways to acquire resources, it is the task of economics to determine which methods yield the best results.

Economics can generally be broken down into macroeconomics, which concentrates on the behavior of the economy as a whole, and microeconomics, which focuses on individual people and businesses.

Meaning and Definition of Managerial Economics

Managerial Economics as a subject gained popularity in U.S.A after the publication of the book "Managerial Economics" by Joel Dean in 1951. Joel Dean observed that managerial Economics shows how economic analysis can be used in formulating policies.

Managerial economics bridges the gap between traditional economic theory and real business practices in two ways. Firstly, it provides number of tools and techniques to enable the manager to become more competent to take decisions in real and practical situation. Secondly, it serves as an integrating course to show the interaction between various areas in which the firm operates.

According to Prof. Evan J Douglas, Managerial economics is concerned with the application of business principles and methodologies to the decision making process within the firm or organization under the conditions of uncertainty. It seeks to establish rules and principles to facilitate the attainment of the desired economic aim of management. These economic aims relate to costs, revenue and profits and are important within both business and non business institutions.

To quote Mansfield, "Managerial Economics is concerned with the application of economic concepts and economic analysis to the problems of formulating rational managerial decisions."

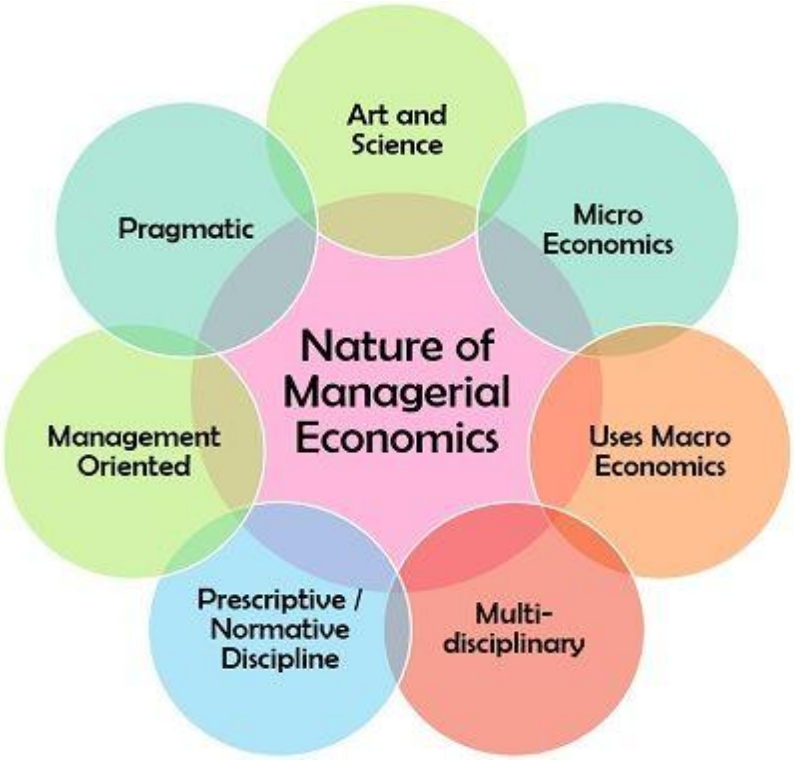
According to McNair and Meriam, "Managerial economics is the use of economic modes of thought to analyse business situations."

Spencer and Siegelman define it as "The integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management."

According to Hailstones and Rothwel, "Managerial economics is the application of economic theory and analysis to practice of business firms and other institutions."

In the words of Michael Baye, “Managerial Economics is the study of how to direct scares resources in a way that mostly effectively achieves a managerial goal”.

Nature of Managerial Economics



Art and Science:

Managerial economics requires a lot of logical thinking and creative skills for decision making or problem-solving. It is also considered to be a stream of science by some economist claiming that it involves the application of different economic principles, techniques and methods, to solve business problems.

Micro Economics:

In managerial economics, managers generally deal with the problems related to a particular organisation instead of the whole economy. Therefore it is considered to be a part of microeconomics.

Uses Macro Economics:

A business functions in an external environment, i.e. it serves the market, which is a part of the economy as a whole. Therefore, it is essential for managers to analyse the different factors of macroeconomics such as market conditions, economic reforms, government policies, etc. and their impact on the organisation.

Multi-disciplinary:

It uses many tools and principles belonging to various disciplines such as accounting, finance, statistics, mathematics, production, operation research, human resource, marketing, etc.

Prescriptive / Normative Discipline:

It aims at goal achievement and deals with practical situations or problems by implementing corrective measures.

Management Oriented:

It acts as a tool in the hands of managers to deal with business-related problems and uncertainties appropriately. It also provides for goal establishment, policy formulation and effective decision making.

Pragmatic:

It is a practical and logical approach towards the day to day business problems.

Scope of Managerial Economics

Managerial economics is concerned with the application of economic concepts and analysis to the problem of formulating rational managerial decisions. There are four groups of problem in both decision making and forward planning.

Resource allocation: Scarce resources have to be used with utmost efficiency to get optimal results. These include production programming, problem of transportation, etc.

Inventory and queuing problem: Inventory problems involve decisions about holding of optimal levels of stocks of raw materials and finished goods over a period. These decisions are taken by considering demand and supply conditions. Queuing problems involve decisions about

installation of additional machines or hiring of extra labour in order to balance the business lost by not undertaking these activities.

Pricing problems: Fixing prices for the products of the firm is an important part of the decision making process. Pricing problems involve decisions regarding various methods of pricing to be adopted.

Investment problems: Forward planning involves investment problems. These are problems of allocating scarce resources over time. For example, investing in new plants, how much to invest, sources of funds, etc.

Study of managerial economics essentially involves the analysis of certain major subjects like:

- Demand analysis and methods of forecasting
- Cost analysis
- Pricing theory and policies
- Profit analysis with special reference to break-even point
- Capital budgeting for investment decisions
- The business firm and objectives
- Competition.

Characteristics of Managerial economics

- Managerial economics is **Micro economic** in character. Because it studies the problems of abusiness firm, not the entire economy.
- Managerial economics largely uses the body of economic concepts and principles which isknown as **"Theory of the Firm" or "Economics of the firm".**
- Managerial economics is **pragmatic.** It is purely practical oriented. So Managerial economicsconsiders the particular environment of a firm or business for decision making.
- Managerial economics is **Normative** rather than positive economics (descriptive economics). Managerial economics is **prescriptive** to solve particular business problem by giving importanceto firms aim and objectives.
- **Macro economics is also useful** to managerial economics since it provides intelligent understanding of the environment in which the business is operating.
- **It is management oriented.**

Objectives and importance of managerial Economics

Objectives: The basic objective of managerial economics is to analyze the economic problems faced by the business. The other objectives are:

- To integrate economic theory with business practice.
- To apply economic concepts and principles to solve business problems.
- To allocate the scares resources in the optimal manner.
- To make all-round development of a firm.
- To minimize risk and uncertainty
- To helps in demand and sales forecasting.
- To help in profit maximization.
- To help to achieve the other objectives of the firm like industry leadership, expansion implementation of policies etc...

Importance: In order to solve the problems of decision making, data are to be collected and analyzed in the light of business objectives. Managerial economics provides help in this area. The importance of managerial economics maybe relies in the following points:

- It provides tool and techniques for managerial decision making.
- It gives answers to the basic problems of business management.
- It supplies data for analysis and forecasting.
- It provides tools for demand forecasting and profit planning.
- It guides the managerial economist.
- It helps in formulating business policies.
- It assists the management to know internal and external factors influence the business.

Functions and Responsibilities of managerial economist

A managerial economist can play an important role by assisting the management to solve the difficult problems of decision making and forward planning. Managerial economists have to study external and internal factors influencing the business while taking the decisions. The important questions to be answered by the managerial economists include:

- Is competition likely to increase or decrease?

- What are the population shifts and their influence in purchasing power?
- Will the price of raw materials increase or decrease?

Managerial economist can also help the management in taking decisions regarding internal operation of the firm. Following are the important specific functions of managerial economist;

- Sales forecasting
- Market research
- Production scheduling
- Economic analysis of competing industry
- Investment appraisal
- Security management analysis
- Advise on foreign exchange management
- Advice on trade
- Environmental forecasting
- Economic analysis of agriculture Sales forecasting

The **responsibilities** of managerial economists are the following;

- To bring reasonable profit to the company.
- To make accurate forecast.
- To establish and maintain contact with individual and data sources.
- To keep the management informed of all the possible economic trends.
- To prepare speeches for business executives.
- To participate in public debates.
- To earn full status in the business team.

Meaning of Demand

Demand is a common parlance means desire for an object. But in economics demand is something more than this. In economics 'Demand' means the quantity of goods and services which a person can purchase with a requisite amount of money.

According to Prof.Hidbon, "Demand means the various quantities of goods that would be purchased per time period at different prices in a given market. Thus demand for a commodity is

its quantity which consumer is able and willing to buy at various prices during a given period of time. Simply, demand is the behavior of potential buyers in a market.

In the opinion of Stonier and Hague, "Demand in economics means demand backed up by enough money to pay for the goods demanded". In other words, demand means the desire backed by the willingness to buy a commodity and purchasing power to pay. Hence desire alone is not enough. There must have necessary purchasing power that is cash to purchase it. For example, everyone desires to posses Benz car but only few have the ability to buy it. So everybody cannot be said to have a demand for the car. Thus the demand has three essentials- Desire, Purchasing power and Willingness to purchase.

Demand Analysis

Demand analysis means an attempt to determine the factors affecting the demand of a commodity or service and to measure such factors and their influences. The demand analysis includes the study of law of demand, demand schedule, demand curve and demand forecasting. Main objectives of demand analysis are;

- To determine the factors affecting the demand.
- To measure the elasticity of demand.
- To forecast the demand.
- To increase the demand.
- To allocate the recourses efficiently.

Law of Demand

The law of Demand is known as the „first law in market". Law of demand shows the relation between price and quantity demanded of a commodity in the market. In the words of Marshall "the amount demanded increases with a fall in price and diminishes with a rise in price".

According to Samuelson, "Law of Demand states that people will buy more at lower price and buy less at higher prices". In other words while other things remaining the same an increase in the priceof a commodity will decreases the quantity demanded of that commodity and

decrease in the price will increase the demand of that commodity. So the relationship described by the law of demand is an inverse or negative relationship because the variables (price and demand) move in opposite direction. It shows the cause and effect relationship between price and quantity demand.

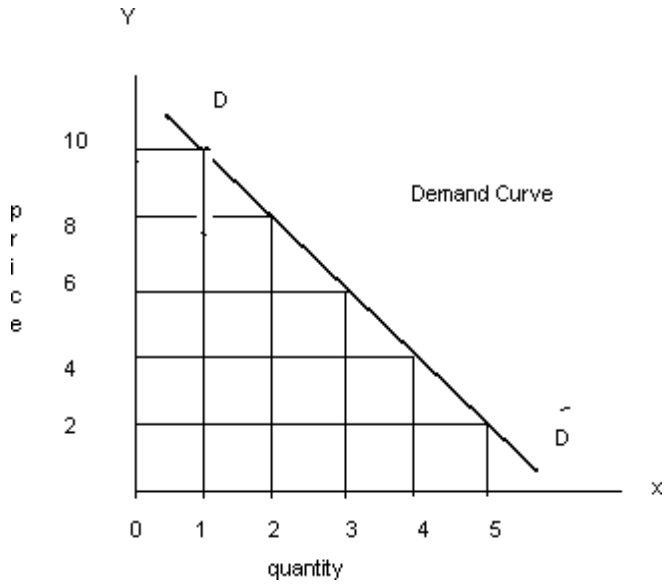
The concept of law of demand may be explained with the help of a demand schedules.

Individual demand Schedule

An individual demand schedule is a list of quantities of a commodity purchased by an individual consumer at different prices. The following table shows the demand schedule of an individual consumer for apple.

Price of Apple (In Rs.)	**Quantity demanded**
10	1
8	2
6	3
4	4
2	5

When the price falls from Rs 10 to 8, the quantity demanded increases from one to two. In the same way as price falls, quantity demanded increases. On the basis of the above demand schedule we can draw the demand curve as follows;



The demand curve DD shows the inverse relation between price and demand of apple. Due to this inverse relationship, demand curve is slopes downward from left to right. This kind of slope is also called "negative slope"

Market demand schedule

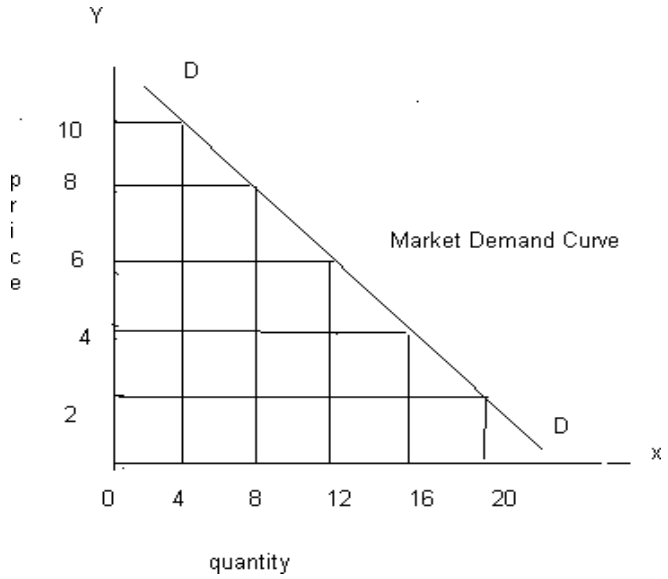
Market demand refers to the total demand for a commodity by all the consumers. It is the aggregate quantity demanded for a commodity by all the consumers in a market. It can be expressed in the following schedule.

Market Demand Schedule for egg

Price per dozen(Rs)	Demand by consumers				Market Demand
	A	B	C	D	
10	1	2	0	0	3
8	2	3	1	0	6
6	3	4	2	1	10
4	4	5	3	2	14
2	5	6	4	3	18

Derivation of market demand curve is a simple process. For example, let us assume that

there are four consumers in a market demanding eggs. When the price of one dozen eggs is Rs.10, A buys one dozen and B buys 2 dozens. When price falls to Rs.8, A buys 2 , B buys 3 and C buys one dozen. When price falls to Rs.6, A buys 3 b buys 4,C buys 2 and D buys one dozen and so on. By adding up the quantity demanded by all the four consumers at various prices we get the market demand curve. So last column of the above demand schedule gives the total demand for eggs at different price that is Market Demand as given below;



Assumptions of Law of Demand

Law of demand is based on certain basic assumptions. They are as follows

1) There is no change in consumers' taste and preference
2) Income should remain constant.
3) Prices of other goods should not change.
4) There should be no substitute for the commodity.
5) The commodity should not confer any distinction.
6) The demand for the commodity should be continuous.
7) People should not expect any change in the price of the commodity.

Why does demand curve slopes downward?

Demand curve slopes downward from left to right (Negative Slope). There are many causes for downward sloping of demand curve:-

1) Law of Diminishing Marginal utility

As the consumer buys more and more of the commodity, the marginal utility of the additional units falls. Therefore the consumer is willing to pay only lower prices for additional units. If the price is higher, he will restrict its consumption

2) Principle of Equity- Marginal Utility

Consumer will arrange his purchases in such a way that the marginal utility is equal in all his purchases. If it is not equal, they will alter their purchases till the marginal utility is equal.

3) Income effect

When the price of the commodity falls, the real income of the consumer will increase. He will spend this increased income either to buy additional quantity of the same commodity or other commodity.

4) Substitution effect

When the price of tea falls, it becomes cheaper. Therefore the consumer will substitute this commodity for coffee. This leads to an increase in demand for tea.

5) Different uses of a commodity

Some commodities have several uses. If the price of the commodity is high, its use will be restricted only for important purpose. For e.g. when the price of tomato is high, it will be used only for cooking purpose. When it is cheaper, it will be used for preparing jam, pickle etc...

6) Psychology of people

Psychologically people buy more of a commodity when its price falls. In other word it can be termed as price effect.

7) Tendency of human beings to satisfy unsatisfied wants**.**

Exceptions to the Law of Demand **(Exceptional Demand Curve)**

The basic feature of demand curve is negative sloping. But there are some exceptions to this. That is in certain circumstances demand curve may slope upward from left to right (positive slopes). These phenomena may due to;

1) **Giffen Paradox**

The Giffen goods are inferior goods is an exception to the law of demand. When the price of inferior good falls, the poor will buy less and vice versa. When the price of maize falls, the poor will not buy it more but they are willing to spend more on superior goods than on maize.

Thus fall in price will result into reduction in quantity. This paradox is first explained by Sir Robert Giffen.

2) **Veblen or Demonstration effect**

According to Veblen, rich people buy certain goods because of its social distinction or prestige. Diamonds and other luxurious article are purchased by rich people due to its high prestige value. Hence higher the price of these articles, higher will be the demand.

3) **Ignorance**

Sometimes consumers think that the product is superior or quality is high if the price of that product is high. As such they buy more at high price.

4) **Speculative Effect**

When the price of commodity is increasing, then the consumer buy more of it because of the fear that it will increase still further.

5) **Fear of Shortage**

During the time of emergency or war, people may expect shortage of commodity and buy more athigher price to keep stock for future.

6) **Necessaries**

In this case, necessaries like rice, vegetables etc., and People buy more even at a higher price.

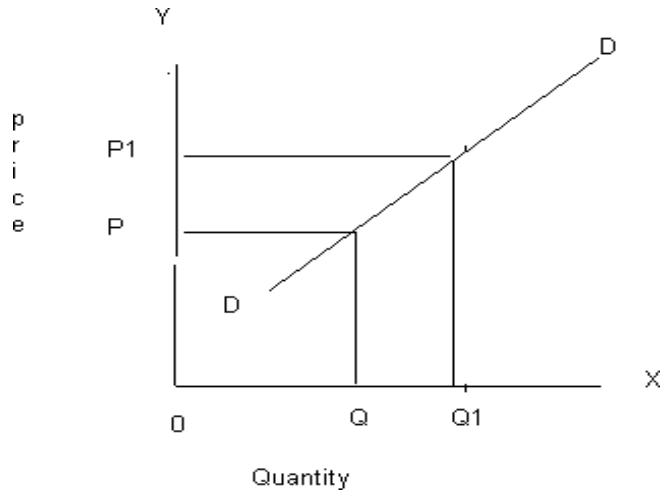
7) **Brand Loyalty**

When consumer is brand loyal to particular product or psychological attachment to particularproduct, they will continue to buy such products even at a higher price.

8) **Festival, Marriage etc.**

In certain occasions like festivals, marriage etc. people will buy more even at high price.

Exceptional Demand Curve (perverse demand curve).



When price raises from OP to OP1 quantity demanded also increases from OQ to OQ1. In other words, from the above, we can see that there is positive relation between price and demand. Hence, demand curve (DD) slopes upward.

Changes in demand

Demand of a commodity may change. It may increase or decrease due to changes in certain factors.

These factors are called **determinants of demand.** These factors include;

1) Price of a commodity
2) Nature of commodity
3) Income and wealth of consumer
4) Taste and preferences of consumer
5) Price of related goods (substitutes and compliment goods)
6) Consumers‟ expectations.
7) Advertisement etc...

Demand Function

There is a functional relationship between demand and its various determinants. I.e., a change in any determinant will affect the demand. When this relationship expressed mathematically, it is calledDemand Function. Demand function of a commodity can be written as follows:

D = f (P, Y, T, Ps, U)

Where, **D**= Quantity demanded **P**= Price of the commodity

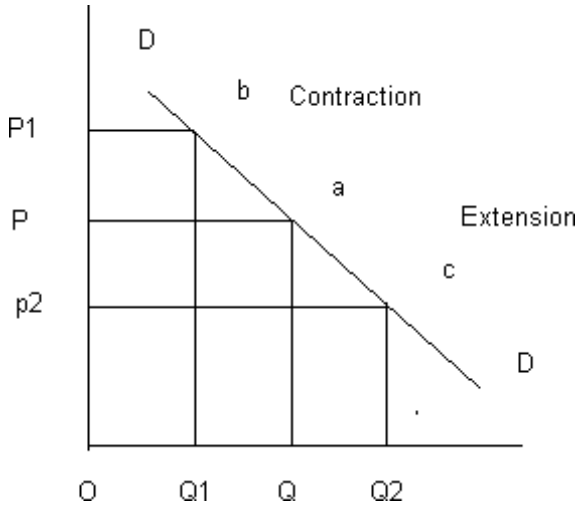
Y= Income of the consumer **T**= Taste and preference of consumers.

Ps = Price of substitutes **U=** Consumers expectations & others

f = Function of (indicates how variables are related)

Extension and Contraction of Demand

Demand may change due to various factors. The change in demand due to change in price only insist on other factors remaining constant, it is called extension and contraction of demand. A change in demand solely due to change in price is called extension and contraction. When the quantity demanded of a commodity rises due to a fall in price, it is called extension of demand. On the other hand, when thequantity demanded falls due to a rise in price, it is called contraction of demand. It can be understand from the following diagram.



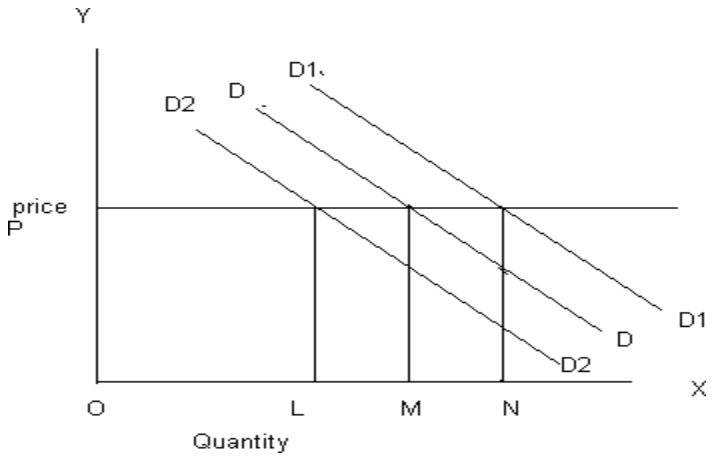
When the price of commodity is OP, quantity demanded is OQ. If the price falls to P2, quantity demanded increases to OQ2. When price rises to P1, demand decreases from OQ to OQ1. In demand curve, the area **a** to **c** is extension of demand and the area **a** to **b** is contraction of demand. As result of change in price of a commodity, the consumer moves along the same demand curve.

Shift in Demand (Increase or Decrease in demand)

When the demand changes due to changes in other factors, like taste and preferences, income, price ofrelated goods etc., it is called shift in demand. Due to changes in other factors, if

the consumers buy more goods, it is called increase in demand or upward shift. On the other hand, if the consumers buy fewer goods due to change in other factors, it is called downward shift or decrease in demand.

Shift in demand cannot be shown in same demand curve. The increase and decrease in demand (upward shift and downward shift) can be expressed by the following diagram.



DD is the original demand curve. Demand curve shift upward due to change in income, taste & preferences etc of consumer, where price remaining the same. In the above diagram demand curve D1- D1 is showing upward shift or increase in demand and D2-D2 shows downward shift or decrease in demand.

Comparison between extension/contraction and shift in demand

SL. No	Extension/Contraction of Demand	Shift in Demand
1	Demand is varying due to changes inprice	Demand is varying due to changes in other factors
2	Other factors like taste, preferences, income etc... Remaining the same.	Price of commodity remain the same
3	Consumer moves along the samedemand curve	Consumer may moves to higher or lower demand curve

Different types of demand

Joint demand

When two or more commodities are jointly demanded at the same time to satisfy a particular want, it is called joint or complimentary demand.(demand for milk, sugar, tea for making tea).

Composite demand

The demand for a commodity which can be put for several uses (demand for electricity).

Direct and Derived demand

Demand for a commodity which is for a direct consumption is called direct demand.(food, cloth). When the commodity is demanded as s result of the demand of another commodity, it is called derived demand.(demand for tyres depends on demand of vehicles).

Industry demand and company demand

Demand for the product of particular company is company demand and total demand for the products of particular industry which includes number of companies is called industry demand.

Elasticity of demand

Law of demand explains the directions of changes in demand. A fall in price leads to an increase in quantity demanded and vice versa. But it does not tell us the rate at which demand changes to change in price. The concept of elasticity of demand was introduced by Marshall. This concept explains the relationship between a change in price and consequent change in quantity demanded. Nutshell, it shows the rate at which changes in demand take place.

Elasticity of demand can be defined as "the degree of responsiveness in quantity demanded to a change in price". Thus it represents the rate of change in quantity demanded due to a change in price. There are mainly three types of elasticity of demand:

1. Price Elasticity of Demand.
2. Income Elasticity of Demand
3. Cross Elasticity of Demand.

Price Elasticity of Demand

Price Elasticity of demand measures the change in quantity demanded to a change in

price. It is theratio of percentage change in quantity demanded to a percentage change in price. This can be measured by the following formula.

$$\text{Price Elasticity} = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

OR

$$Ep = \frac{\text{Change in Quantity demanded / Quantity demanded}}{\text{Change in Price/price}}$$

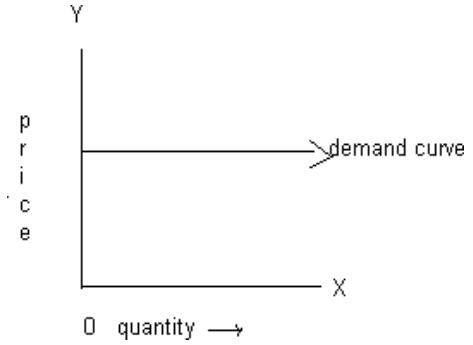
OR

$$Ep = \frac{(Q2-Q1)/Q1}{(P2-P1)/P1}$$

Where: Q1 = Quantity demanded before price change
Q2 = Quantity demanded after price change
P1 = Price charged before price change
P2 = Price charge after price change

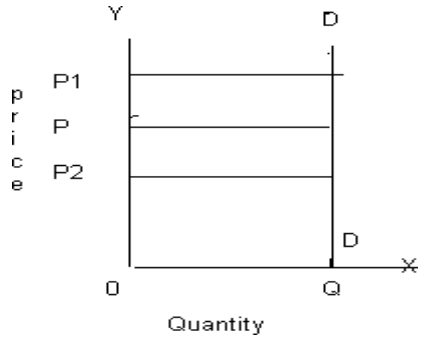
There are five types of price elasticity of demand, (Degree of elasticity of demand) such as perfectly elastic demand, perfectly inelastic demand, relatively elastic demand, relatively inelastic demand and unitary elastic demand.

1) **Perfectly elastic demand (infinitely elastic)**



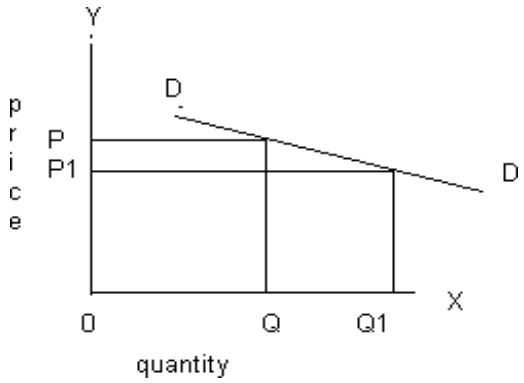
When a small change in price leads to infinite change in quantity demanded, it is called perfectly elastic demand. In this case the demand curve is a horizontal straight line as given below. (Here **ep=** ∞).

2) **Perfectly inelastic demand**



In this case, even a large change in price fails to bring about a change in quantity demanded. I.e. the change in price will not affect the quantity demanded and quantity remains the same whatever the change in price. Here demand curve will be vertical line as follows and **ep= 0.**

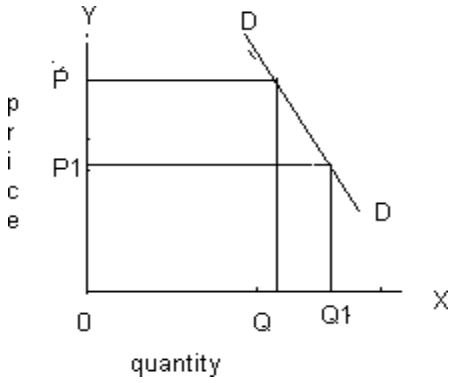
3) **Relatively elastic demand**



Here a small change in price leads to very big change in quantity demanded. In this case demand curve will be fatter one and **ep=>1**

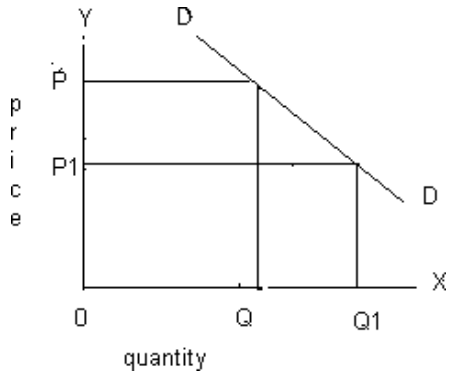
4) **Relatively inelastic demand**

Here quantity demanded changes less than proportionate to changes in price. A large change in priceleads to small change in demand. In this case demand curve will be steeper and **ep=<1**



5) **Unit elasticity of demand (unitary elastic)**

Here the change in demand is exactly equal to the change in price. When both are equal, **ep= 1,** the elasticity is said to be unitary**.**



The above five types of elasticity can be summarized as follows

SL No	Type	Numerical expression	Description	Shape of curve
1	Perfectly elastic	α	Infinity	Horizontal
2	Perfectly inelastic	0	Zero	Vertical
3	Unitary elastic	1	One	Rectangular hyperbola
4	Relatively elastic	>1	More than one	Flat
5	Relatively inelastic	<1	Less than one	Steep

Income Elasticity of Demand

Income elasticity of demand shows the change in quantity demanded as a result of a

change inconsumers‟ income. Income elasticity of demand may be stated in the form of formula:

$$Ey = \frac{\text{Proportionate Change in Quantity Demanded}}{\text{Proportionate Change in Income}}$$

Income elasticity of demand mainly of three types:

1) Zero income Elasticity
2) Negative income Elasticity
3) Positive income Elasticity

Zero income elasticity – In this case, quantity demanded remain the same, even though money income increases.ie, changes in the income doesn't influence the quantity demanded (Eg. salt, sugar etc). Here **Ey** (income elasticity) = **0**

Negative income elasticity -In this case, when income increases, quantity demanded falls. Eg, inferior goods. Here **Ey = < 0.**

Positive income Elasticity - In this case, an increase in income may lad to an increase in the quantity demanded. i.e., when income rises, demand also rises. (**Ey =>0**) This can be further classified in to threetypes:

a) Unit income elasticity

Demand changes in same proportion to change in income that is **Ey = 1**

b) Income elasticity greater than unity: An increase in income brings about a more than proportionate increase in quantity demanded that is **Ey =>1**

c) Income elasticity less than unity: when income increases quantity demanded is also increases but less than proportionately. I.e., **Ey = <1**

The business decision based on income elasticity; the concept of income elasticity can be utilized for the purpose of taking vital business decision. A businessman can rely on the following facts.

- If income elasticity is greater than Zero, but less than one, sales of the product will increase but slower than the general economic growth.
- If income elasticity is greater than one, sales of his product will increase more rapidly than the general economic growth.

Firms whose demand functions have high income elasticity will have good growth opportunities in an expanding economy. This concept helps manager to take correct decision during business cycle and alsohelps in forecasting the effect of changes in income on demand.

Cross Elasticity of Demand

Cross elasticity of demand is the proportionate change in the quantity demanded of a commodity in response to change in the price of another related commodity. Related commodity may either substitutesor complements. Examples of substitute commodities are **tea and coffee.** Examples of compliment commodities are **car and petrol.** Cross elasticity of demand can be calculated by the following formula;

$$\text{Cross Elasticity} = \frac{\text{Proportionate Change in Quantity Demanded of a Commodity}}{\text{Proportionate Change in the Price of Related Commodity}}$$

If the cross elasticity is positive, the commodities are said to be substitutes and if cross elasticity is negative, the commodities are compliments. The substitute goods (tea and Coffee) have positive cross elasticity because the increase in the price of tea may increase the demand of the coffee and the consumer may shift from the consumption of tea to coffee.

Complementary goods (car and petrol) have negative cross elasticity because increase in the priceof car will reduce the quantity demanded of petrol.

The concept of cross elasticity assists the manager in the process of decision making. For fixing theprice of product which having close substitutes or compliments, cross elasticity is very useful.

Advertisement Elasticity of Demand

Advertisement elasticity of demand (Promotional elasticity of demand) is measure the responsiveness of demand due to a change in advertisement and other promotional expenses. This can be measured by the following formula;

$$\text{Advertisement Elasticity} = \frac{\text{Proportionate Increase in Sales}}{\text{Proportionate increase in Advertisement expenditure}}$$

There are various determinants of advertisement elasticity, they are;

1. Type of commodity- elasticity will be higher for luxury, new product, growing product etc.,
2. Market share – larger the market share of the firm lower will be promotional elasticity.
3. Rival's reaction – if the rivals react to increase in firm's advertisement by increasing their ownadvertisement expenditure, it will reduce the advertisement elasticity of the firm.
4. State of economy – if economic conditions are good, the consumers are more likely to respond to theadvertisement of the firm.

Advertisement elasticity helps in the process of decision making. It helps to deciding the optimum level of advertisement and promotional cost. If the advertisement elasticity is high, it is profitable to spend more on advertisement. Hence, advertisement elasticity helps to decide optimum advertisement and promotional outlay.

Importance of Elasticity

The concept of elasticity of demand is much of practical importance;

1. Production- Producers generally decide their production level on the basis of demand for their product. Hence elasticity of demand helps to fix the level of output.

2. Price fixation- Each seller under monopoly and imperfect competition has to take into account the elasticity of demand while fixing their price. If the demand for the product is inelastic, he can fix a higher price.

3. Distribution- Elasticity helps in the determination of rewards for factors of production. Forexample, if the demand for labour is inelastic, trade union can raise wages.

4. International trade- This concept helps in finding out the terms of trade between two countries. Terms of trade means that the rate at which domestic commodities is exchanged for foreign commodities.

5. Public finance- This assists the government in formulating tax policies. In order to impose tax on a commodity, the government should take into consideration the demand elasticity.

6. Nationalization- Elasticity of demand helps the government to decide about nationalization of industries.

7. Price discrimination- A manufacture can fix a higher price for the product which have inelastic demand and lower price for product which have elastic demand.

8. Others- The concept elasticity of demand also helping in taking other vital decision Eg..Determining the price of joint product, take over decision etc..

Determinants of elasticity

Elasticity of demand varies from product to product, time to time and market to market. This is dueto influence of various factors. They are;

1. Nature of commodity- Demand for necessary goods (salt, rice,etc,) is inelastic. Demand for comfort and luxury goods are elastic.

2. Availability/range of substitutes – A commodity against which lot of substitutes are available, the demand for that is elastic. But the goods which have no substitutes, demand is inelastic.

3. Extent /variety of uses- a commodity having a variety of uses have a comparatively elastic demand. Eg. Demand for steel, electricity etc..

4. Postponement/urgency of demand- if the consumption of a commodity can be post pond, then it will have elastic demand. Urgent commodity has inelastic demand.

5. Income level- income level also influences the elasticity. E.g. Rich man will not curtail the consumption quantity of fruit, milk etc, even if their price rises, but a poor man will not follow it.

6. Amount of money spend on the commodity- where an individual spends only a small portion of his income on the commodity, the price change doesn't materially affect the demand for the commodity, and the demand is inelastic... (Match box, salt Etc)

7. Durability of commodity- if the commodity is durable or repairable at a substantially less amount (eg. Shoes), the demand for that is elastic.

8. Purchase frequency of a product/time –if the frequency of purchase of a product is very high, the demand is likely to be more price elastic.

9. Range of Prices- if the products at very high price or at very low price having inelastic demand since a slight change in price will not affect the quantity demand.

10. Others – the habit of consumers, demand for complimentary goods, distribution of income and wealth in the society etc., are other important factors affecting elasticity.

Measurement of Elasticity

There are various methods for the measurement of elasticity of demand. Following are the important methods:

1. Proportional or Percentage Method: Under this method the elasticity of demand is measured by the ratio between the proportionate or percentage change in quantity demanded and proportionate change in price. It is also known as formula method. It can be computed as follows:

$$ED = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

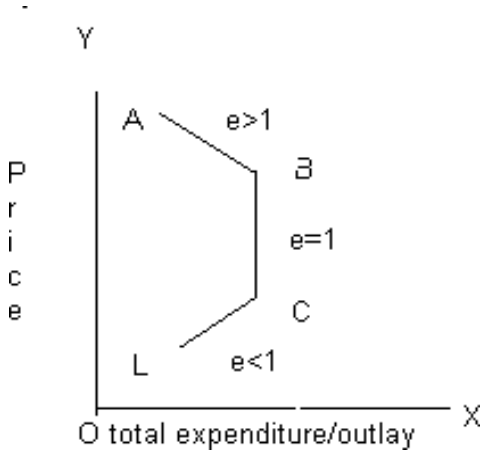
OR

$$\frac{\text{Change in Demand Original Quantity demanded}}{\text{Change in price Original price}}$$

Expenditure or Outlay Method: This method was developed by Marshall. Under this method, the elasticity is measured by estimating the changes in total expenditure as a result of changes in price and quantity demanded. This has three components, if the price changes, but total expenditure remains constant, unit elasticity exists.

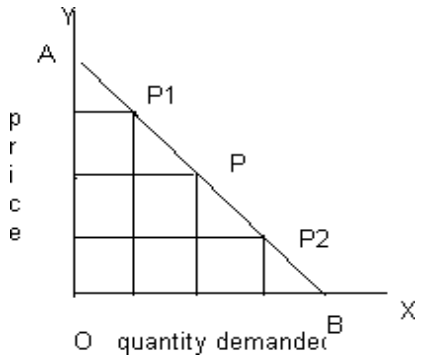
- If the price changes, but total expenditure moves in the opposite directions, demand is elastic (>1).
- If the price changes and total revenues moves in the same direction, demand is inelastic (<1).

This can be expressed by the following diagram.



3. Geometric or Point method: This also developed by Marshall. This is used as a measure of the change in quantity demanded in response to a very small change in the price. In this method we can measure the elasticity at any point on a straight line demand curve by using the following formula;

ED = Lower section of the Demand curve
Upper section demand curve



In the above diagram, AB is a straight line demand curve with P as its middle point. Furtherit is assumed that AB is 6 cm. then,

At point P, ED = PB/PA=3/3=1

At point P1, ED = P1B/P1A= 4.5/1.5= 3=>1,

At point A, ED = AB/A= 6/0= α (infinity),

At point P2, ED = P2B/P2A = 1.5/4.5 = 1/3 = <1,

At point B, ED = B/BA = 0/6 = 0

4. Arc Method: the point method is applicable only when there are minute (very small) changes in price and demand. Arc elasticity measures elasticity between two points. It is a measure of the average elasticity According to Watson," Arc elasticity is the elasticity at the midpoint of an arc of a demand curve". formula to measure elasticity is:

$$\mathbf{ED = \Delta Q / \Delta P \times (P1+P2) / (Q1+Q2)} \text{ or } \frac{\textbf{Change in D}}{\textbf{Average D}} \times \frac{\textbf{Average P}}{\textbf{Change in P}}$$

Where, ΔQ= change in quantity Q1= original quantity
P1 = original price Q2= new quantity
P2 = New price ΔP= change in price

UNIT II

Cost concepts

The term *cost* simply means cost of production. It is the expenses incurred in the production of goods. It is the sum of all money-expenses incurred by a firm in order to produce a commodity. Thus it includes all expenses from the time the raw material are bought till the finished products reach the wholesaler.

A managerial economist must have a proper understanding of the different cost concept which is essential for clear business thinking. The cost concepts which are relevant to business operation and decision can be grouped on the basis of their purpose under two overlapping categories:

- Concept used for accounting purpose
- Concept used in economics analysis of the business

Cost Determinants

The cost of production of goods and services depends on various input factors used by the organization and it differs from firm to firm. The major cost determinants are:

Level of output: The cost of production varies according to the quantum of output. If the size of production is large then the cost of production will also be more.

Price of input factors: A rise in the cost of input factors will increase the total cost of production.

Productivities of factors of production: When the productivity of the input factors is high then the cost of production will fall.

Size of plant: The cost of production will be low in large plants due to mass production with mechanization.

Output stability: The overall cost of production is low when the outputis stable over a period of time.

Lot size: Larger the size of production per batch then the cost of production will come down because the organizations enjoy economiesof scale.

Laws of returns: The cost of production will increase if the law of diminishing returns appliesin the firm.

Levels of capacity utilization: Higher the capacity utilization, lower the cost of production

Time period: In the long run cost of production will be stable.

Technology: When the organization follows advanced technology in their process then the cost of production will be low.

Experience: over a period of time the experience in production process will help the firm to reduce cost of production.

Process of range of products: Higher the range of products produced, lower the cost of production.

Supply chain and logistics: Better the logistics and supply chain, lower the cost of production.

Government incentives: If the government provides incentives on input factors then the cost of production will be low.

Types of costs

The concept of cost is central to business decision making. To make effective business decisions, the business manager needs to be aware of a number of cost concepts and their respective uses.

Actual cost- Actual cost means the actual expenditure incurred on producing goods and services. Value of raw material, wages, rent, salaries paid and interest of borrowed capital etc. are some of the example ofactual cost. Actual cost is also known as absolute cost or out lay cost or money cost.

Opportunity Cost- The opportunity cost is measured in terms of the forgone benefits from the next best alternative use of a given resource. For example the inputs which are used to

manufacture a car may also be usedin the productions of military equipment.

Explicit cost- An explicit cost is a cost that is directly incurred by the firm, company or organization during the production. The explicit cost is kept on record by the accountant of the firm. Salaries, wages, rent, raw material are few example of the explicit cost. The explicit cost is also known as out- pocket cost. This cost is handy in calculating both accounting and economic profit.

Implicit cost- The implicit cost is directly opposite to it, as it is the cost that is not directly incurred by the firm or company. In implicit cost outflow of cash doesn't take place. It is not in the record and is heard to be traced back. The interests on owner's capital or the salary of the owner are the prominent example of the implicit cost. The implicit cost is also known as imputed cost. Through implicit cost, only the economic profit is calculated.

Incremental cost- Incremental costs are the added costs of a change in the level of production or the nature of activity. It may be adding a new product or changing distribution channel, or adding new machinery, etc. It appears to be similar to marginal cost, but it is not managerial cost. Marginal cost refers to the cost on added unit of output.

Sunk Cost- Sunk costs are costs which cannot be altered in any way. Sunk costs are costs which have already been uncured. For example, cost incurred in constructing a factory. When the factory building is constructed cost have already been incurred. The building has to be used for which originally envisaged. It cannot be altered when operation are increased or decreased. Investment of machinery is an example of sunk cost.

Shutdown cost- Shutdown costs are those cost which would be incurred in the event of suspension of plant operations and which could be saved if operation were continued. For example cost of sheltering the plant equipment and construction of sheds for protecting the exposed property, or fixed cost and maintenance cost etc.

Abandonment cost- Abandonment costs are those cost which are incurred for the complete removal of the fixed asset from use. These may occur due to obsolesceor due to improvisation of the firm. Abandonment costs thus involve problem of disposal of the asset.

Book cost – Book cost are those business cost which don't involve any cash payment is made but a provision is made in the books of accounts in order to include them in the profit and loss account and take tax advantages.

Out of pocket cost- Out of pocket cost are those costs or expenses which are current payments to the outsiders of the firm. All the explicit costs fall into the category of out of pocket costs.

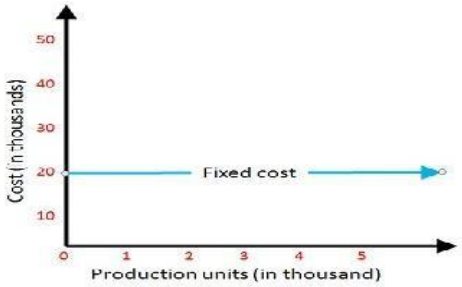
Past cost- Past costs are actual costs incurred in the past. These costs are mentioned in the financial accounts. , since the past costs have already been incurred, and there is no scope for managerial decision. If the management finds out that the past costs are excessive, it cannot do anything to rectify it now.

Future cost- Future costs are those costs which are to be incurred in the near future. This is only a forecast. Future costs matter for managerial decisions because, the management can evaluate the desirability of that expenditure. In the case of future costs, if the management considers them very high, it can either reduce them or postpone the use of them.

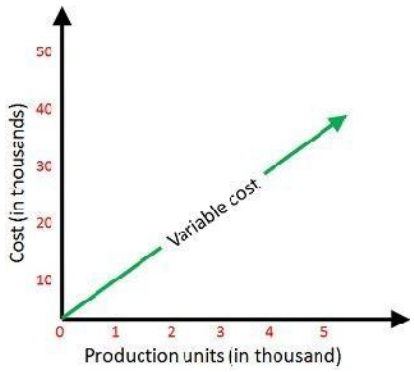
Direct cost- Direct costs are related to a specific process or product. They are also called traceable costs as we can directly trace them to a particular activity, product or process. They can vary with changes in the activity or product. Examples of direct costs include manufacturing costs relating to production, customer acquisition costs pertaining to sales, etc.

Indirect costs- Indirect costs, or untraceable costs, are those which do not directly relate to a specific activity or component of the business. For example, an increase charges of electricity or taxes payable on income. Although we cannot trace indirect costs, they are important because they affect overall profitability.

Fixed Cost- Fixed cost are the amount spent by the firm on fixed inputs in the short run. Fixed costs are thus, those costs which remain constant, irrespective of the level of output. These costs remain unchanged even if the output of the firm is nil. Fixed costs therefore, are known as Supplementary costs or Overhead costs.



Variable Costs- Variable costs are those cost that change directly as the volume of output changes. As the production increases variable cost also increases, and as the product decreases variable costs also decreases, and when the production stops variable cost is zero.



Semi Variable Cost- This type of cost lies in between fixed and variable cost. It is neither perfectly variable nor perfectly fixed in relation to changes in output. This type of costs includes a portion of fixed cost and a portion of variable cost; this is known as semi variable cost. For example- electricity bill generally include both a fixed charge (meter rent) and a variable charge (charge based on units consumed) and the total payment made is semi variable cost.

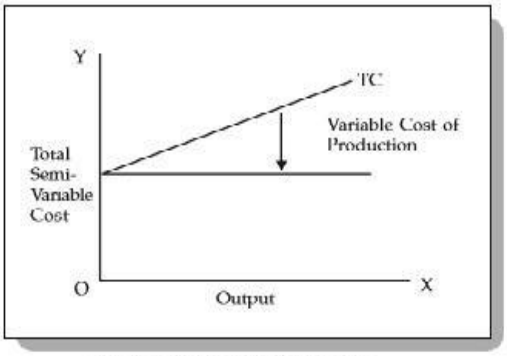
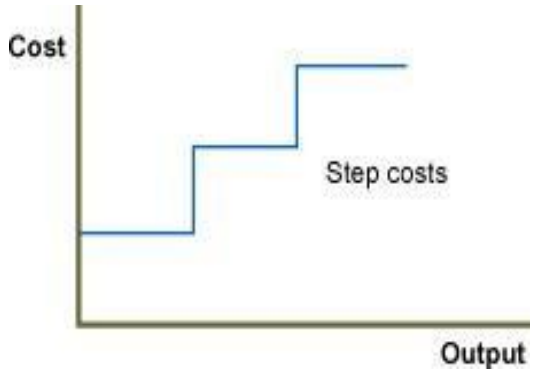


Fig. 3 : Semi Variable Cost

Stair Step Cost- Certain expenses increase in a stair step manner, i.e. remaining constant over a range of output but rising suddenly to a new higher level as output passes beyond. The given level, For example - up to a point the attendants' salary may remain fixed as output increases but beyond that point further increase in output may require an additional attendant leading to a sudden jump in supervision expenses.



Total cost-Total cost is the total expenditure incurred in the production of goods and services.

$$TC = TFC + TVC$$

Average cost- Average cost is not actual cost, It is obtained by dividing the total cost by the total output.

$$AC = \text{Total Cost} / \text{Units Produced}$$

Marginal cost- The cost incurred on producing one additional unit of commodity is known as marginal cost. Thus it shown a change in total cost when one more or less unit is produced.

$$MC = TCn - TC(n-1)$$

Cost function

The cost output relationship plays an important role in determining the optimum level of production.

$$TC = F(Q)$$

Where, TC= Total cost

Q= Quantity produced F= Function

The cost function can be classified as:

Short run cost- Short run is a period where the time is too short to expand the size of industry and the increased demand has to be met within the existing size of industry because there are

certain factors which cannot be changed in short run. So short run costs are those which vary with output when fixed plant a capital equipments remain unchanged.

Long run costs- In the long run the size of an industry can be expanded to meet the increased demand for products such as in long run all the factors of production can be increased according to need. Hence long run costs are those which vary with output when all input factors including plants equipment vary.

Cost output relationship in short run-

In the short-run a change in output is possible only by making changes in the variable inputs like raw materials, labour etc. Inputs like land and buildings, plant and machinery etc. are fixed in the short-run. It means that short-run is a period not sufficient enoughto expand the quantity of fixed inputs. Thus Total Cost (TC) in the short-run is composed of two elements – Total Fixed Cost (TFC) and Total Variable Cost (TVC).

TFC remains the same throughout the period and is not influenced by the level of activity. The firm will continue to incur these costs even if the firm is temporarily shut down. Even though TFC remains the same fixed cost per unit varies with changes in the level of output.

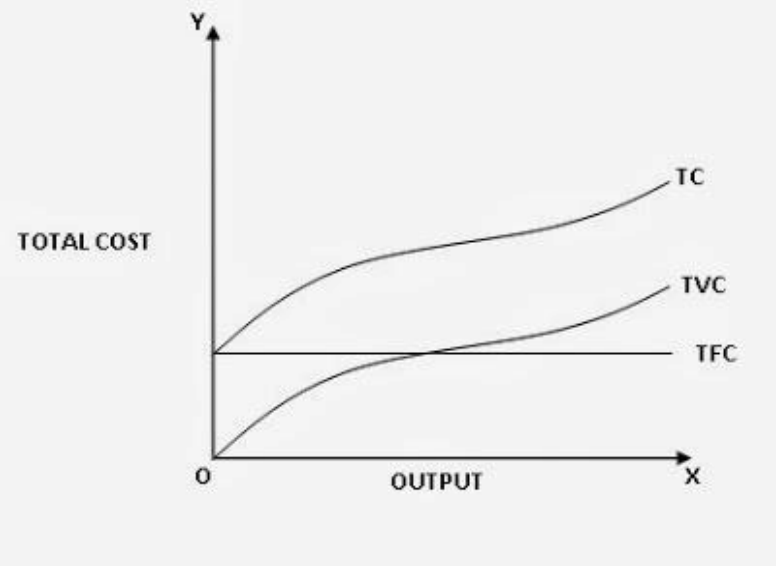
On the other hand TVC increases with increase in the level of activity, and decreases with decrease in the level of activity. If the firm is shut down, there are no variable costs. Even though TVC is variable, variable cost per unit is constant.

So in the short-run an increase in TC implies an increase in TVC only. Thus:

TC = TFC + TVC TFC = TC – TVC TVC = TC – TFC

TC = TFC when the output is zero.

The graph below shows Short-run cost output relationship.



In the graph X-axis measures output and Y- axis measures cost. TFC is a straight line parallel to X-axis, because TFC does not change with increase in output.

TVC curve is upward rising from the origin because TVC is zero when there is no production and increases as production increases. The shape of TVC curve depends upon the productivity of the variable factors. The TVC curve above assumes the Law of Variable Proportions, which operates in the short-run.

TC curve is also upward rising not from the origin but from the TFC line. This is because even if there is no production the TCis equal to TFC.

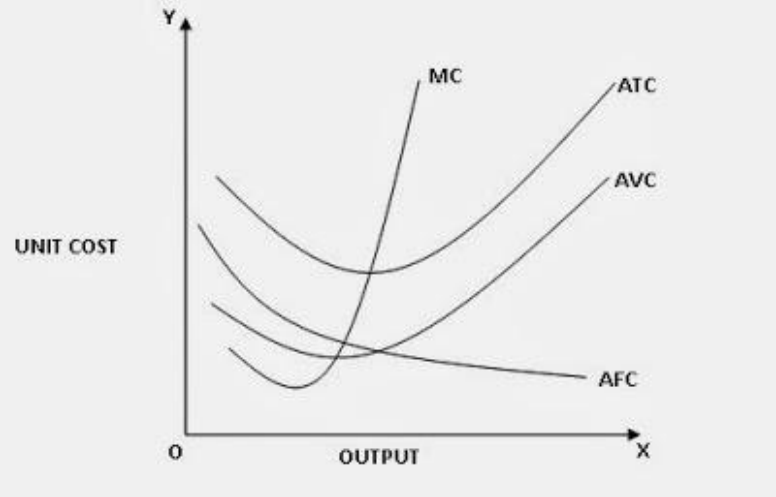
It should be noted that the vertical distance between the TVC curve and TC curve is constant throughout because the distance represents the amount of fixed cost which remains constant. Hence TC curve has the same pattern of behavior as TVC curve.

Short-run Average Cost and Marginal Cost

The concept of cost becomes more meaningful when they are expressed in terms of per unit cost. Cost per unit can be computed with reference to fixed cost, variable cost, total cost and marginal cost.

The following Table and diagram illustrates cost output relationship in the short-run, with reference to different concepts of cost.

Output	Total Fixed Cost (TFC)	Total Variable Cost (TVC)	Total Cost (TC)	Average Fixed Cost (AFC)	Average Variable Cost (AVC)	Average Total Cost (ATC)	Marginal Cost (MC)
1	2	3	4 = 2 + 3	5 = 2 / 1	6 = 3 /1	7 = 4 /1	8
0	240	0	240	—-	—-	—-	—-
1	240	120	360	240	120	360	120
2	240	200	440	120	100	220	80
3	240	270	510	80	90	170	70
4	240	320	560	60	80	140	50
5	240	420	660	48	84	132	100
6	240	552	792	40	92	132	132
7	240	720	960	34	103	137	168



Average Fixed Cost (AFC): Average fixed cost is obtained bydividing the TFC by the number of units produced. Thus:

AFC = TFC/Q where, 'Q' refersquantity of production.

Since TFC is constant for any level of activity, fixed cost per unit goes on diminishing as output goes on increasing. The AFC curve is downward sloping towards the right throughout its length, with a steep fall at the beginning.

Average Variable Cost (AVC): Average Variable Cost is obtained bydividing the TVC by the number of units produced. Therefore:

AVC = TVC / Q

Due to the operation of the Law of Variable Proportions AVC curve slopes downwards till it reaches a certain level of output and then begins to rise upwards.

Average Total Cost (ATC): Average Total Cost or simply Average Cost is obtained by dividing the TC by the number of units produced. Thus:

ATC = TC / Q

The ATC curve is very much influenced by the AFC and AVC curves. In the beginning both AFC curve and AVC curve decline and therefore ATC curve also declines. The AFC curve continues the trend throughout, though at a diminishing rate. AVC curve continues the trend till it reaches a certain level and thereafter it starts rising slowly. Since this rise initially is at a rate lower than the rate of decline in the AFC curve, the ATC curve continues to decline for some more time and reaches the lowest point, which obviously is further than the lowest point of the AVC curve. Thereafter the ATC curve starts rising because the rate of rise in the AVC curve is greater than the rate of decline in the AFC curve.

MC = △TC / △Q Where, △TC = Change in Total cost

△Q = Change in quantity

Marginal Cost (MC): Marginal Cost is the increase in TC as a result of an increase in output by one unit. In other words it is the cost of producing an additional unit of output.

MC is based on the Law of Variable Proportions. A downward trend in MC curve shows decreasing marginal cost (i.e. increasing marginal productivity) of the variable input. Similarly

an upward trend in MC curve shows increasing marginal cost (i.e. decreasing marginal productivity). MC curve intersects both AVC and ATC curves at their lowest points.

The relationship between AVC, AFC, ATC and MC can be summed up as follows.

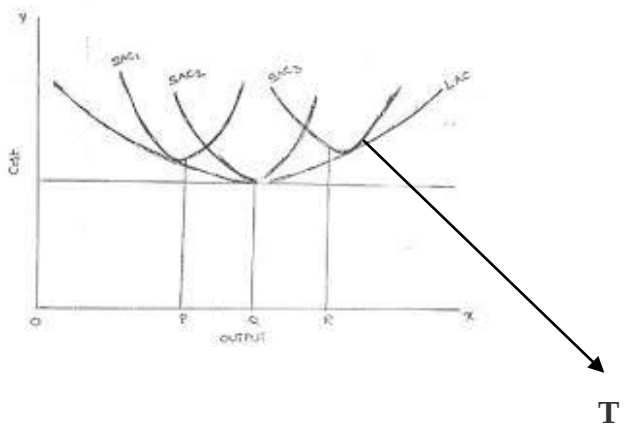
1. If both AFC and AVC fall ATC will also fall because ATC = AFC + AVC

2. When AFC falls and AVC rises (a) ATC will fall where the drop in AFC is more than the rise in AVC (b) ATC remains constant if the drop in AFC = the rise in AVC, and (c) ATC will rise where the drop in AFC is less than the rise in AVC.

3. ATC will fall when MC is less than ATC and ATC will rise whenMC is more than ATC. The lowest ATC is equal to MC.

Cost output relationship in the long run

In order to study the cost output relationship in the long run it is necessary to know the meaning of long run. As known in the long run the size of an industry can be expanded to meet the increased demand for products as such in the long run all the factors of production can be varied according to the need. Hence long runcosts are those which vary with output when all the input factors including plant and equipment vary.



As per the above figure suppose that at a given time the firms operate under plant SAC2 and produces output OQ. If the firm decides to produce output OR and continues with the current plant SAC2 its average cost will be uR. But if the firm decides to increase the size of the plant to

plant SAC3 its average cost of producing OR output would then be TR. Since cost TR is less than the cost on old plant uR, therefore new plant SAC3 is preferable and should be adopted. Thus the long run cost of producing OR output will be TR which can be obtained by increasing the plant size.

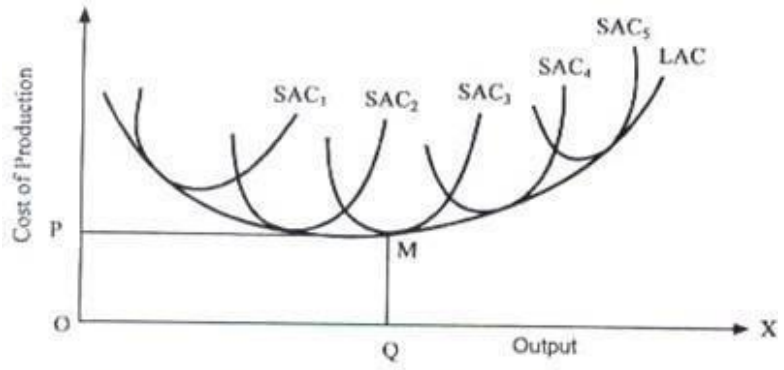


Fig 11.12: Derivation of LAC Curve from SAC Curves

Features of LAC curve

To draw long run average cost curve(LAC) we start with a number ofshort run average cost(SAC) curves, each such curve representing a particular size of plant including the optimum plant. One can now draw a LAC curve which is tangential to all SAC curves. In this connection following features are highlighted:

- The LAC curve envelopes the SAC curves and is therefore called as envelope curve. Each point of the LAC is a point of tangency with thecorresponding SAC curve.
- The points of tangency on the falling part of SAC curve forpoints lying to the left of minimum point of LAC.
- The points of tangency occur on the rising part of the SAC curves for the points lying to the right of minimum point of LAC.
- The optimum scale of plant is a term applied to the most efficient of all scales of plants available. This scale of plant is the one whose SAC curve forms the minimum point of LAC curve. It is SAC3 in our case which is tangent to LAC curve at its minimum point at R.
- Both LAC ad SAC curves are U shaped but the difference between the two U shapes is

that the U shape of the LAC curve is flatter or lesser pronounced from bottom. The main reason for this is that in the long run such economies are possible which cannot be had in the short run, likewise some of the diseconomies which are faced in short run may not be faced in the long run.

Production Function

Production is an important economic activity which satisfiesthe wants and needs of the people. Production function brings out the relationship between inputs used and the resulting output. A firm is an entity that combines and processes resources in order to produce outputthat will satisfy the consumer's needs. The firm has to decide as to how much to produce and how much input factors (labour and capital) to employ to produce efficiently. This chapter helps to understand the set of conditions for efficient production of an organization.

Factors of production include resource inputs used to produce goods and services. Economist categorise input factors into four major categories such as land, labour, capital and organization.

Land: Land is heterogeneous in nature. The supply of land is fixed and it is a permanent factor of production but it is productive only with the application of capital and labour.

Labour: The supply of labour is inelastic in nature but it differs in productivity and efficiency and it can be improved.

Capital: is a man made factor and is mobile but the supply is elastic.

Organization: the organization plans, , supervises, organizes and controls the business activity and also takes risks.

Production function indicates the maximum amount of commodity 'X' to be produced from various combinations of input factors. It decideson the maximum output to be produced from a given level of input, and how much minimum input can be used to get the desired level of output.The production function assumes that the state of technology is fixed. If there is a change in technology then there would be change in production function.

Q = f (Land, Labour, Capital, Organization) ➔ Q = f (L, L, C, O)

The production manager's responsibility is that of identifying the right combination of inputs for the decided quantity of output. As a manager, he has to know the price of the input factors and the budget allocation of the organization. The major objective of any business organization is maximizing the output with minimum cost. To achieve the maximum output the firm has to utilize the input factors efficiently. In the long run, without increasing the fixed factors it is not possible to achieve the goal. Therefore it is necessary to understand the relationship between the input and output in any production process in the short and long run.

Cobb Douglas Production Function

This is a function that defines the maximum amount of output that can be produced with a given level of inputs. Let us assume that all input factors of production can be grouped into two categories such as labour (L) and capital (K).The general equilibrium for the production function is Q = f (K, L)

There are various functional forms available to describe production. In general Cobb-Douglas production function (Quadratic equation) is widely used

$$Q = A K^{\alpha} L^{\beta}$$

Q = the maximum rate of output for a given rate of capital (K) and labour (L).

Short Run Production Function

In the short run, some inputs (land, capital) are fixed in quantity. The output depends on how much of other variable inputs are used. For example if we change the variable input namely (labour) the production function shows how much output changes when more labour is used. In the short run producers are faced with the problem that some input factors are fixed. The firms can make the workers work for longer hours and also can buy more raw materials. In that case, labour and raw material are considered as variable input factors. But the number of machines and the size of the building are fixed. Therefore it has its own constraints in producing more goods.

In the long run all input factors are variable. The producer can appoint more workers, purchase more machines and use more raw materials. Initially output per worker will increase up to an extent. This is known as the **Law of Diminishing Returns** or the **Law of Variable Proportion.** To understand the law of diminishing returns it is essential to know the basic concepts of production.

Measures of productivity

Total production (TP): the maximum level of output that can be produced with a given amount of input.

Average Production (AP): output produced per unit of input AP = Q/L

Marginal Production (MP): the change in total output produced by thelast unit of an input

Marginal production of labour = Δ Q / Δ L (i.e. change in the quantityproduced to a given change in the labour)

Marginal production of capital = Δ Q / Δ K (i.e. change in the quantityproduced to a given change in the capital)

A production function, like any other function can be expressed and analysed by any one or more of the three tools namely table, graph and equation. The maximum amounts of output attainable from various alternative combinations of input factors are given in the table.

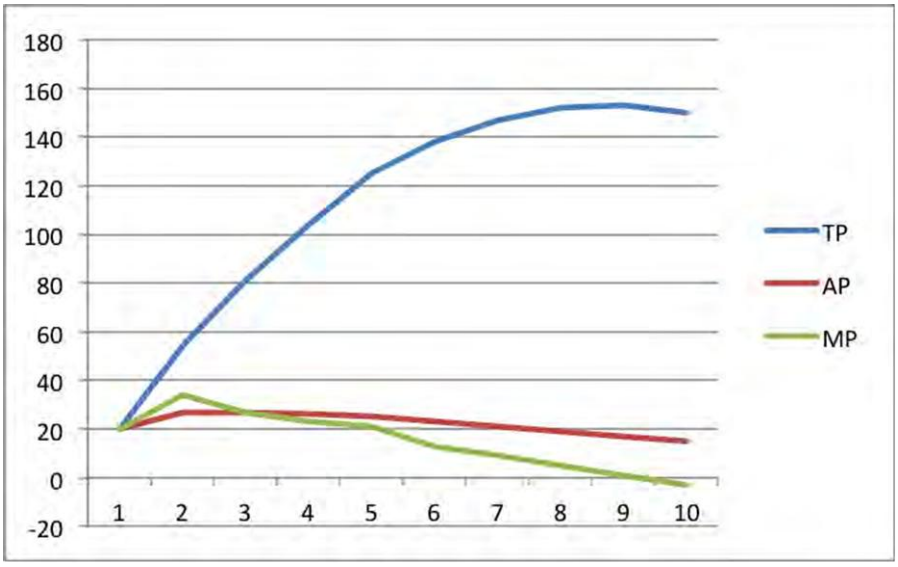
The production function expressed in tabular form is as follows.

Table - Production Schedule

Labour	TP	AP	MP
1	20	20	0
2	54	27	34
3	81	27	27
4	104	26	23
5	125	25	21
6	138	23	13
7	147	21	9
8	152	19	5
9	153	17	1
10	150	15	-3

The firm has a set of fixed variables. As long with that it increasesthe labour force from 1 unit to 10 units. The increase in input factor leadsto increase in the output up to an extent. After that it start declining. Marginal production increases in the initial period and then it starts declining and it become negative. The firm should stop increasing labour force if the marginal production is zero- that is the maximum output that can be derived with the available fixed factors. The 9^{th} labour does not contribute to any output. In case the firm wants to increase the output beyond 153 units it has to improve its fixed variable. That means purchase of new machinery or building is essential. Therefore the firm understands that the maximum output is 153 units with the given set of input factors. The graphical representations of the production function are as shown in the following graph.

Graph-Production Curves



The graphical presentations of the values are shown in the graph. The 'X" axis denotes the labour and the 'Y' axis indicates the total production (TP), average production (AP) and marginal production (MP). From the given table and graph we can understand all the three curves in the graph increased in the beginning and the marginal product (MP) first fell, then the average product (AP) finally total production (TP). The marginal production curve MP cuts the AP at its highest point. Totalproduction TP falls when marginal production curve cuts the 'X' axis. The law of diminishing returns states that if increasing quantity of a variable input are combined with fixed, eventually the marginal product and then average product will decline.

When the production function is expressed as an equation it shall be asfollows:

Q = f (Ld, L, K, M, T)

It can be expressed as Q = f1, f2, f3, f4, f5 > 0 Where,

Q = Output in physical units of good X

Ld = Land units employed in the production of Q

L = Labour units employed in the production of Q

K = Capital units employed in the production of Q

M = Managerial Units employed in the production of Q

T = Technology employed in the production of Q

f = Unspecified function

fi = Partial derivative of Q with respect to ith input.

This equation assumes that output is an increasing function of all inputs.

The Law Of Diminishing Returns

In the combination of input factors when one particular factor is increased continuously without changing other factors the output will increase in a diminishing manner. Let us assume that a person preparing for an examination continuously prepares without any break. The output or the understanding and the coverage of the syllabus will be more in the beginning rather than in the later stages. There is a limit to the extent to which one factor of production can be substituted for another. The total production increases up to an extent and it gets saturated or there won't be any change in the output due to the addition of the input factor and further it leads to negative impact on the output. That means the marginal production declines up to an extent and it reaches zero and becomes negative. The point at which the MP becomes zero is the maximum output of the firm with the given set of input factors. This law is applicable in all human activities and business activities.

For example with two sewing machines and two tailors, a firm can produce a maximum of 14 pairs of curtains per day. The machines are used only from 9 AM to 5 PM and the machines lie idle from 5 pm onwards. Therefore the firm appoints 2 more tailors for the second shift and the production goes up to 28 units. Then adding two more labour to assist these people will increase the output to 30 units. When the firm appoints two more people, then there won't be any change in their production because their Marginal productivity is zero. There is no addition in the total production. That means there is no use of appointing two more tailors. Therefore, there is a limit for output from a fixed input factors but in the long run purchase of one more sewing machine alone will help the firm to increase the production more than 30 units.

The law of returns to scale

In the long run the fixed inputs like machinery, building and other factors will change along with the variable factors like labour, raw material etc. With the equal percentage of increase in input factors various combinations of returns occur in an organization.

Returns to scale: the change in percentage output resulting from a percentage change in all the factors of production. They are increasing, constant and diminishing returns to scale.

Increasing returns to scale may arise: if the output of a firm increases more than in proportionate to an increase in all inputs. For example the input factors are increased by 50% but the output has doubled (100%).

Constant returns to scale: when all inputs are increased by a certain percentage the output increases by the same percentage. For example input factors are increased by 50% then the output has also increased by 50 percentages. Let us assume that a laptop consists of 50 components we call it as a set. In case the firm purchases 100 sets they can assemble 100 laptops but it is not possible to produce more than 100 units.

Diminishing returns to scale: when output increases in a smaller proportion than the increase in inputs it is known as diminishing return to scale. For example 50% increment in input factors lead to only 20% increment in the output.

From the graph given below we can see the total production (TP) curve and the marginal production curve (MP) and average production curve (AP). It is classified into three stages; let us understand the stages in termsof returns to scale.

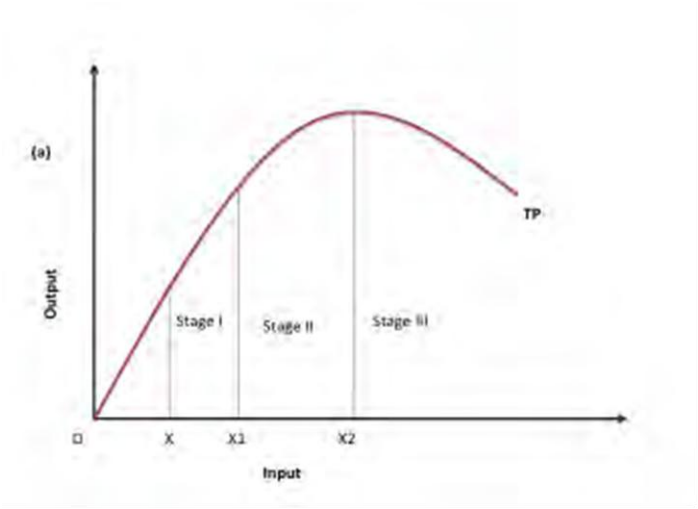
Stage I: The total production increased at an increasing rate. We refer to this as increasing stage where the total product, marginal productand average production are increasing.

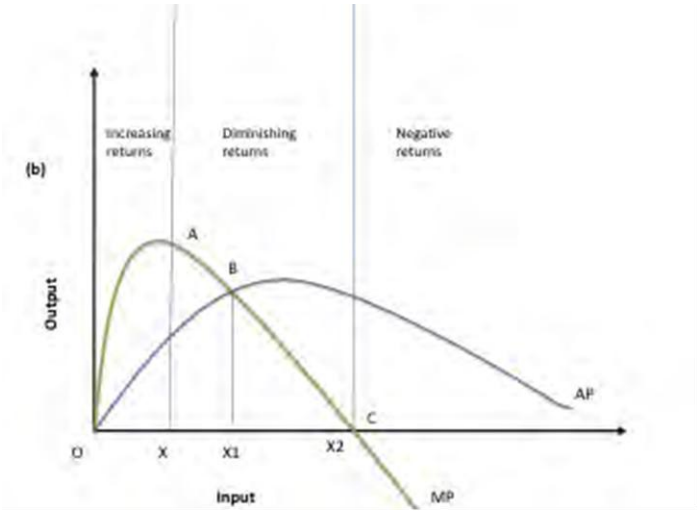
Stage II: The total production continues to increase but at a diminishing rate until it reaches the next stage. Marginal product, average product are declining but are positive. The total production is at the maximum level at the end of the second stage with a zero marginal product.

Stage III: In this third stage total production declines and marginal product becomes negative. And the average production also started decline. Which implies that the change in input factors

there is a decline in the over all production along with the average and marginal.

In economics, the production function with one variable input is illustrated with the well known law of variable proportions. (below graph) it shows the input-output relationship or production function with one factor variable while other factors of production are kept constant. To understand a production function with two variable inputs, it is necessary know the concept Iso-quant or Iso-product curve.

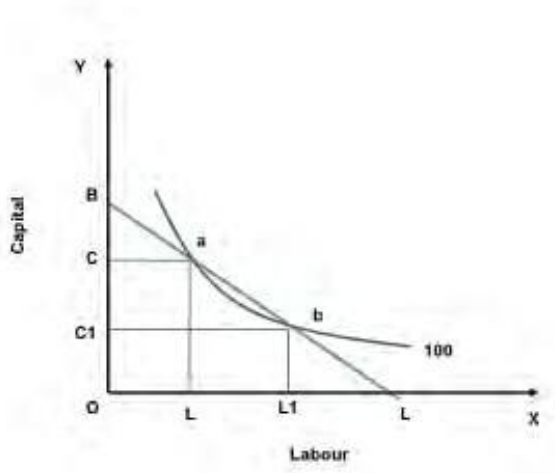




ISO-Quants

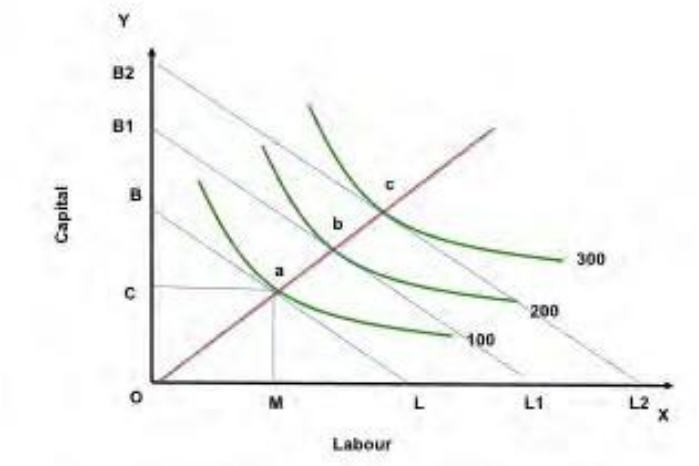
To understand the production function with two variable inputs,iso-quant curve is used. These curves show the various combinations oftwo variable inputs resulting in the same level of output. The shape of an Iso-quant reflects the ease with which a producer can substitute among inputs while maintaining the same level of output. From the graph we can understand that the iso-quant curve indicates various combinations of capital and labour usage to produce 100 units of motor pumps. The pointsa, b or any point in the curve indicates the same quantum of production.If the production increases to 200 or 300 units definitely the input usagewill also increase therefore the new iso-quant curve for 200 units (Q1) is shifted upwards. Various iso-quant curves presented in a graph is called as iso- quant map.

Iso-cost: different combination of inputs that can be purchased at a given expenditure level.



The above graph explains clearly that the iso quant curve for 100 units of motor consists of ‘n’ number of input combinations to produce the same quantity. For example at ‘a’ to produce 100 units of motors the firm uses OC amount of capital and OL amount of labour ie., more capital and less labour force. At ’b’ OC1 amount of capital and OL1 labour force isused to produce the same that means more labour and less capital.

Optimal input combination: The points of tangency between iso quant and iso cost curves depict optimal input combination at different activity levels.



Expansion path: Optimal input combinations as the scale of production expand. From the graph it is clear that the optimum combination is selected based on the tangency point of iso cost (budget line) and iso- quant ie., a, b respectively. The point 'a' indicates that to produce 100 units of motor the best combination of capital and labour are OC and OM which is within the budget. Over a period of time a firm will face various optimum levels if we connect all points we derive expansion path of a firm.

Economies of scale

Economies of scale refer to the cost advantage experienced by a firm when it increases its level of output. The advantage arises due to the inverse relationship between per-unit fixed cost and the quantity produced. The greater the quantity of output produced, the lower the per-unit fixed cost.

Economies of scale also result in a fall in average variable costs (average non-fixed costs) with an increase in output. This is brought about by operational efficiencies and synergies as a result of an increase in the scale of production.

Economies of scale can be realized by a firm at any stage of the production process. In this case, production refers to the economic concept of production and involves all activities related to the commodity, not involving the final buyer. Thus, a business can decide to implement economies of scale in its marketing division by hiring a large number of marketing professionals. A business can also adopt the same in its input sourcing division by moving from human labor to machine labor.

Effects of Economies of Scale on Production Costs

- It reduces the per-unit fixed cost. As a result of increased production, the fixed cost gets spread over more output than before.
- It reduces per-unit variable costs. This occurs as the expanded scale of production increases the efficiency of the production process.

Types of Economies of Scale

- Internal Economies of Scale

This refers to economies that are unique to a firm. For instance, a firm may hold a patent over a mass production machine, which allows it to lower its average cost of production more than other firms in the industry.

- External Economies of Scale

These refer to economies of scale enjoyed by an entire industry. For instance, suppose the government wants to increase steel production. In order to do so, the government announces that all steel producers who employ more than 10,000 workers will be given a 20% tax break. Thus, firms employing less than 10,000 workers can potentially lower their average cost of production by employing more workers. This is an example of an external economy of scale – one that affects an entire industry or sector of the economy.

Sources of Economies of Scale

- Purchasing

Firms might be able to lower average costs by buying the inputs required for the production process in bulk or from special wholesalers.

- Managerial

Firms might be able to lower average costs by improving the management structure within the firm. The firm might hire better skilled or more experienced managers.

- Technological

A technological advancement might drastically change the production process. For instance, fracking completely changed the oil industry a few years ago. However, only large oil firms that could afford to invest in expensive fracking equipment could take advantage of the new technology.

Unit III

Market structure and Pricing Practice

In economics, the market is the study about the demand for and supply of a particular commodity and itsconsequent fixing of prices for instance the market may be a bullion market, stock market, or even food grains market. The market is broadly divided into two categories like perfect market and imperfect market.The perfect market is further divided into pure market (which is a myth) and perfect market. The imperfect market is divided into monopoly market, monopolistic market, oligopoly market and duopoly market. Based on the nature of competition and on the number of buyers and sellers operating in the market, the price for the commodity may be settled at the point where the demand forces and supply forces agree upon.

Market

The knowledge of market and market structure with which a firm operates is more helpful in price output decisions. Market in economic term means a meeting place where buyers and sellers deal directly or indirectly. Clark and Clark defines market as that "any body of persons who are in intimate business relations and carry on extensive transactions in any commodity".

Classification of Market

The economists have classified the market on the basis of following elements.

General classification of market

Sl. No.	*On the basis of Area or Region*	*On the basis of time*	*On the basis of Function*	*On the basis of Nature of Commodity*	*On the basis of Legality*
1	*Local Market*	Very Short Period Market	Mixed or GeneralMarket	Product Market	Legal Market
2	Regional or ProvincialMarket	Short Period Market	Specialised Market	Stock Market	Illegal market
3	National Market	Long Period Market	Marketing bySample	Bullion Market	
4	International market	Very Long Period Market	Marketing byGrades		

Market Structure

The level of production of any commodity depends upon structure of its market. Possible outcomes of sales, revenues, profits are prices and structured under market structures. The firms demand curve to the industry demand curve is expected to depend on such things as the number of sellers in the market and thesimilarity of their products. These are aspects of market structures which may be called characteristics ofmarket or generalization that are likely to influence firm's behaviour and performance. These include theease of entering the industry, the nature and size of the purchasers of the firm's products, and the firm's ability to influence demand by advertising. To reduce the discussion to manageable size, economists havefocused on a few theoretical market structures that are expected to represent a high proportion of the casesactually encountered market societies. In this portion we shall look at four of these: Perfect competition, Monopoly, Monopolistic competition and Oligopoly.

The price and level of production of a commodity depends upon the market structure of its conditions.Market demand depends on the following factors:

(i) Nature of the commodity: It is to be taken into account whether the goods are homogeneous orheterogeneous.

(ii) Number of buyers and sellers of the product in the market.

(iii) Mutual inter-dependence of buyers and sellers.

In brief the market structure depends on the level or forms of competition which are as under:

1. Perfect Competition
2. Monopoly
3. Imperfect Competition

Perfect Competition

It is such a market structure where there are large number of buyers and sellers of a homogeneous product and the price of the product is determined by the industry. There is one price that prevails in the market. All firms sell the product at the prevailing price.

According to Leftwitch, "Perfect competition is a market in which there are many firms selling identical product with no firm being large enough relative to the entire market so as to be able to influence marketprice."

In other words a perfectly competitive firm is too small and insignificant to affect the market price like awheat farmer. He is a price taker who can sell all he wishes to sell at the ruling market price. In terms of elasticity of demand a perfect competitor faces a horizontal demand curve (parallel to the X-axis) for his product, coefficient of elasticity being infinite.

Characteristics of perfectly competitive market

1. Large number of buyers and sellers in the market: There is a large number of buyers and sellersof a commodity under perfect competition but each buyer and each seller is so small in comparisonwith entire market of product that he cannot influence the market price by changing the quantity of the product sold by him. If a seller supplies the entire stock of the product produced by him thetotal supply will not increase to such as extent as to lower the price and on the other hand if he withdraws from the market the total supply will not fall to such an extent as to raise the price. Thus,every seller has to accept the prevailing price.

2. Homogeneous product: The second important characteristic of the perfectly competitive market is that the products sold by the various firms are homogeneous. The products are homogenous in the sense that they are perfect substitutes from the buyer's point of view. The sellers do not spendon advertisement and publicity etc., because all the firms sell homogeneous product.

3. Free entry or exit: The third major characteristic of the perfect competition is free entry and freeexit for the firms under perfectly competitive market. The firms are free to enter or to exit from the industry whenever they want to do so. Any firm can enter or leave the industry at any time as thereare no legal restrictions.

4. Perfect knowledge about the market: There is perfect knowledge on the part of buyers and sellersabout market conditions. The buyers and sellers are fully aware of the price prevailing in the market. Due to this awareness all the firms charge on price from the buyers.

5. Perfect mobility of the factors of production: The existence of perfect mobility of the factors ofproduction is another important characteristic of the perfect competition for its smooth functioning. It means all the factors of production are perfectly mobile under perfectly competitive market. Factors will move to the industry which pays the higher remuneration.

6. Non-Existence of transportation cost: A perfectly competitive market also assumes the characteristic of non-existence of transport costs as uniform price prevails throughout the market. It is essential that there is no transportation cost across different areas of the market.

Equilibrium Price

The demand curve normally slopes downwards showing that more quantity of commodity will be demanded at a lower price than at a higher prices. Similarly supply curve showing an upward trend where the producers will offer to sell a larger quantity at a higher price than at a lower price. Thus the quantity demanded and quantity supplied vary with price. The price that tends to settle down or comes tostay in the market (where both buyers and sellers are satisfied) is at which quantity demanded equals quantity supplied. The point so formed is known as equilibrium point and price is known as equilibrium price.

Effect of time on supply

According to Marshall, time has great influence on the determination of price. The following are themarket periods based on time- market period, short period and long period.

1. Very short period (Market period)
2. Short period
3. Long period

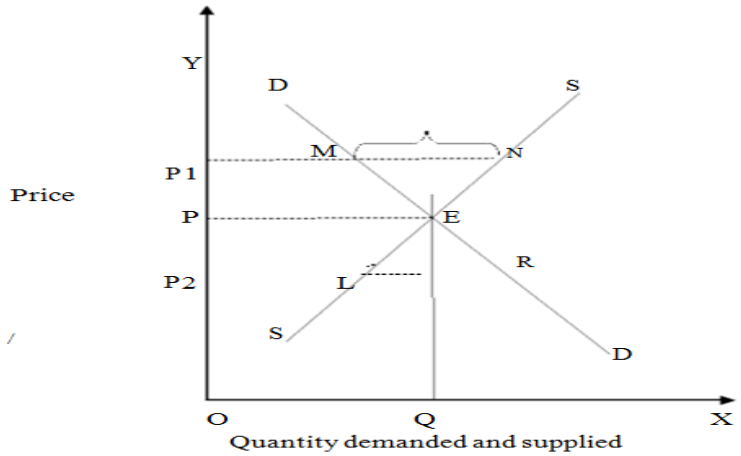
Market period or very short period may be only a day or very few days. Change in supply is not possiblewhere the period is very short and quantity demanded will be the determining factor in this period Further,supply curve in the market period is remain fixed showing vertical straight line.

The short period is a period not sufficient to make any changes in the existing fixed plant capacity. Increase in supply in the short period is possible by increasing the variable factors of production only.

The supply curve slopes upward to right showing that some increase in supply is possible when the priceincreases. Long period is a time long enough to adjust the supply to any changes in demand. The long runsupply curve is less steep then short run supply curve showing increase in quantity supplied when price changes.

Price Determination under Perfect Competition

In perfect competition the market price of a commodity is determined by its demand and supply. The price of a commodity determines at the point where quantity demanded equates quantity supplied. It can be explained through the following diagram.



In the above diagram, DD denotes the demand curve and SS denotes the supply curve. Demand and supply curves slopes in opposite direction. In this diagram OP is the equilibrium price where the demand curve equates with the Supply curve. In this figure, the point E determines the equilibrium price and OQ is the equilibrium quantity. From the diagram it can be noted that if the price increases to OP1, the demand will be P1M and supply will be P1N. So MN will be excess supply. Under this circumstance,the firm will be forced to lower the price in order to sell the excess stock. It the firm can minimizes the price, the profit will be low. Thus we can say that at the point of equilibrium firm can derive maximum profit. At the point of equilibrium, there are two conditions to be satisfied.

1) MC=MR

Where, MC = Marginal Cost (Cost of producing an additional unit)

MR = Marginal Revenue realized from the sale of an additional unit.

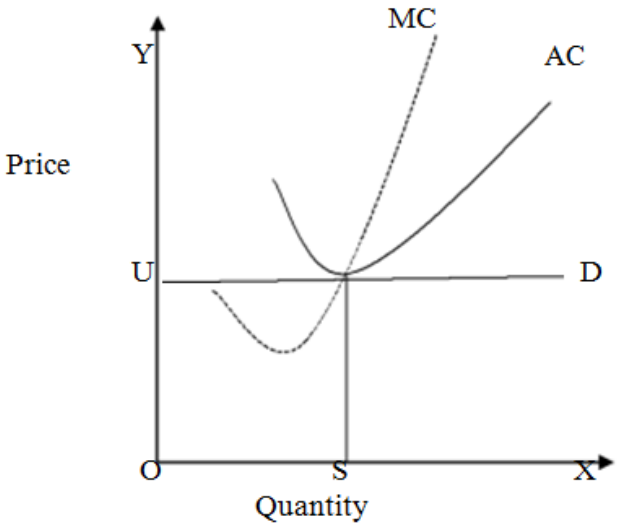
2) MC Curve Cuts MR curve from below that is MC Curve should have positive slope.

Under perfect competition, the following equations are satisfied.

MC = MR,MR = AR

Price = AR = AC Therefore, Price = MR = MC = AR = AC.

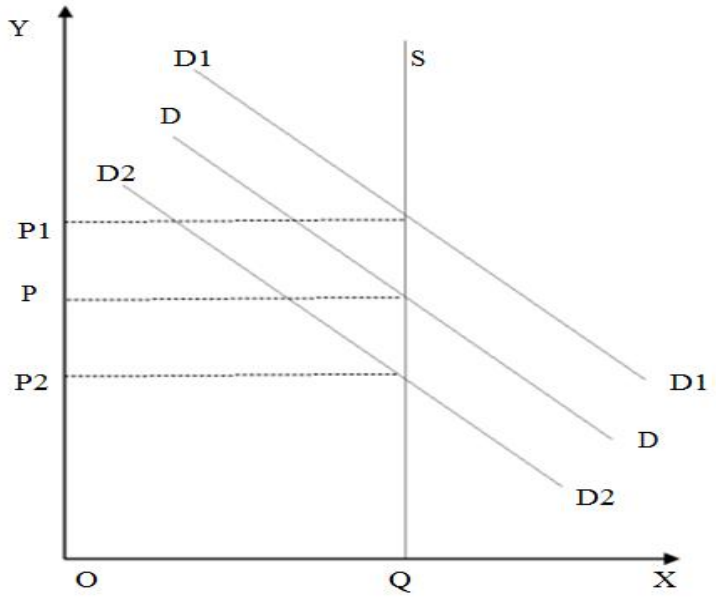
The equations can be satisfied with the following diagrams



When the firm is OS quantity of goods, the MC curve cuts the AC curve at its lowest. At the lowest point the AC curve is tangential to the demand (i.e., AC=MC=AR) curve. Thus the price OU is equal to the marginal cost (ST) which is again equal to average cost (ST). The firms under perfect competition will be the cost efficient size or optimum size which gives the lowest possible average cost of production per unit**.**

During the Market period

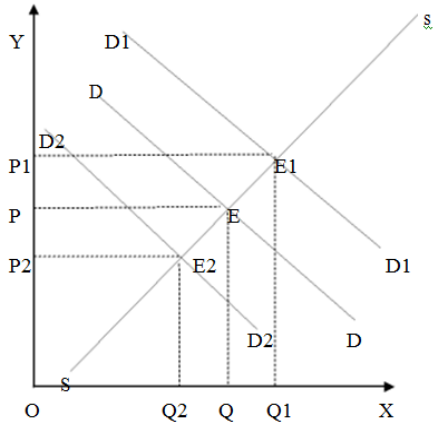
In very short period, supply is inelastic, thus the price depends on changes in demand. The supply curvewill be vertical straight line parallel to y-axis.



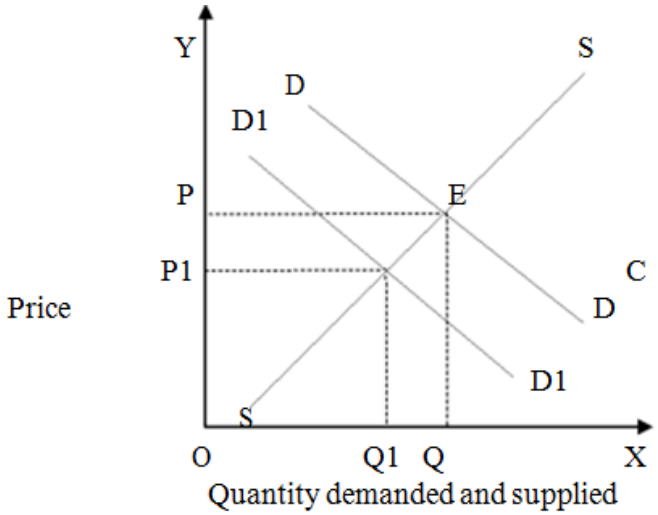
In the above diagram, SP is the supply curve. It means where ever the price is, the fixed supply is to be sold in the market. Here, DD is the demand curve. The supply is SQ. The point of equilibrium is at "S" so the equilibrium is OP. If the commodity is non-perishable, it can be stored. The seller does not sell the goods if the price is low. But the price is high he will sell whole stock. The curve will be curved at beginning; then it will become a straight line. Under very short period, the demand alone determines the price.

During short period

In this period, the firm can make slight changes in their supply of goods without changing the capacity ofplant.



In this diagram, DD is the demand curve and SS is the supply curve. At point "E" the demand curve equalsthe supply curve, the equilibrium price is OP. If the demand is increased to D1D1 the equilibrium price will be OP1 and if the demand decreased to D2D2, the equilibrium will be OP2. But the quantity will be decreased from OQ to OQ2. The firm in the short run can produce output by increasing the variable inputs. A firm gets maximum profit where MC=MR. The price determination by the industry is given in the following diagram.



In the above diagram, it can be revealed that the price is determined by the industry OP. when the demandis shifted to D1D1 then the quantity demanded is decreased from OQ to OQ1 and also price decreases from OP to OP1. In the case of a firm, MR=AR, thus demand =AR=MR=price.

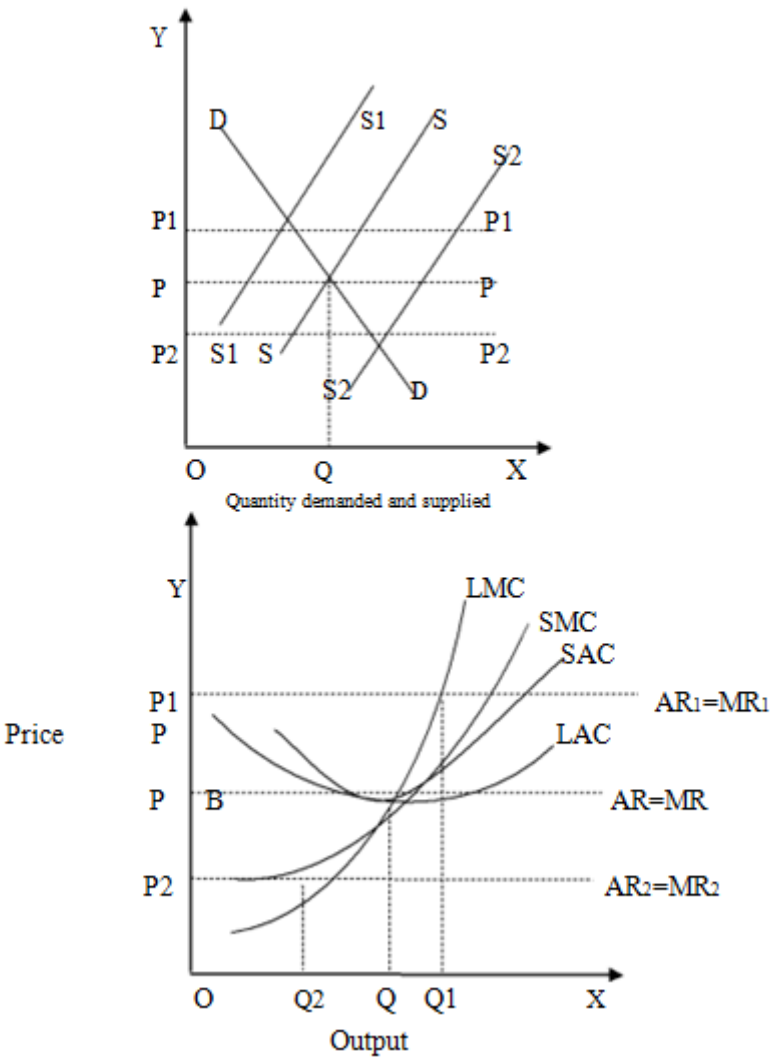
In the long run

In the long run, the firms in the industry are eager to get super normal profits. The price determination isexplained through the diagram given below;

In output decision making in the long run => Long run Average Cost (LAC) and Long run Marginal Cost(LMC) are to be taken in to consideration. Under this condition, the firm is in equilibrium

When AR=MR=LAC=LMC

Figure 1



In the above diagram, (1) DD is the long run. Demand curve and S1 S1 short run supply curve. The priceis determined at OP. In the figure 2, the equilibrium output is at point E. At this point. AR1=MR=LMC

Monopoly

Monopoly means `*single `selling*. In brief, monopoly is a market situation in which there is only one selleror producer of a product for which no close substitution is available. As there is only one firm under monopoly, that single firm constitutes the whole industry.

The monopolist can fix price of his product and can pursue an independent price policy. A monopolist can take the decision about the price of his product. For ex:- electricity, water supply companies etc.,

Features

The following are the important features of monopoly:-

1. Sole supplier of the product and large number of buyers: The monopoly is characterized by the sole seller of product in an industry. Firm represents the industry as a whole which has complete control over the supply of product. Thus, there is only one firm under monopoly but the buyers of the product are in large number, consequently, no buyer can influence the price of the product.

2. No close substitutes: Under Monopoly there are no close substitutes of the product. Monopoly cannot continue if there is availability of substitute goods.

3. One firm industry: There being only one firm, the distinction between the firm and the industry is no longer in existence.

4. Monopoly may vary from industry to industry: The form and structure of a monopoly may alsovary from industry to industry.

5. Absence of Entry: Under monopoly market structure no other firm can enter the market. It implies the absence of actual entry. The barriers to the entry may be artificial, legal, natural, economic and institutional etc.

6. Monopolist is a Price maker: Under Monopoly, market structure is a price maker not the price taker because of the fact that a monopolist has full control over the supply of the commodity. The fortunate monopolist can fix whatever price he chooses. But if his sale is not enough, then he maylose instead of gaining.

After discussing monopoly we may note certain other forms which are offshoot of monopoly. They are (i) MONOPSONY, (2) BILATERAL MONOPOLY. In monopsony there is only one buyer but there are large number of sellers. Price is determined by negotiation and output is

determined on the basis of orders placed by the buyer. In bilateral monopoly there is one buyer and only one seller of the commodity.

Causes of Monopoly

1. Legal restrictions
2. Exclusive ownership or control over the raw materials.
3. Economies of large scale production
4. Exclusive knowledge of a production technique.

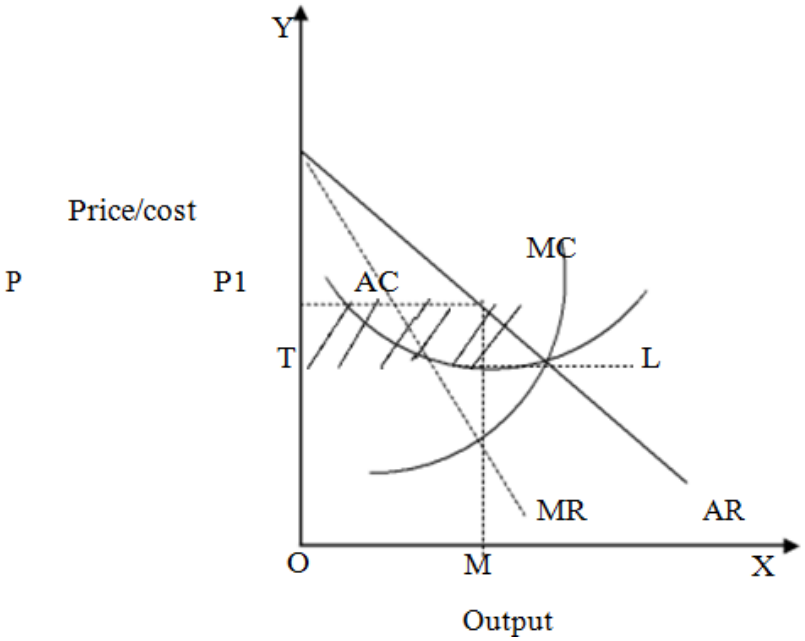
Price Determination under Monopoly

A monopoly firm has complete control over the entire supply. It can sell different quantities at different prices. It can sell more if it cuts down its price. Thus the monopoly firm faces a downward sloping demand curve or average revenue (AR) curve. As the single firm constitutes the industry the demand curve of the monopoly firm and the industry will be the same. But under perfect competition the firm`s demand curve is a horizontal straight line, but the industry's demand curve slopes down wards. Since average revenue falls when more units of output are sold marginal revenue will be less than average revenue. MR curve thus declines at a greater rate than. AR curve and it falls below AR curve.

Though the monopolist has the freedom to fix any price he will prefer a price output combination that gives him maximum profit. He goes on producing so long as additional units add more to revenue than to cost. He will stop at that point beyond which additional units of production add more to cost than to revenue. In other words he will be in equilibrium position at the output level at which MR equal MC and MC cuts MR from below.

Short Run Monopoly Equilibrium

The monopolist will be in short run equilibrium where the output having MR equal MC



In the following figure the monopolist will be in short run equilibrium at output OM where MR is equalto the short run marginal cost curve MC.

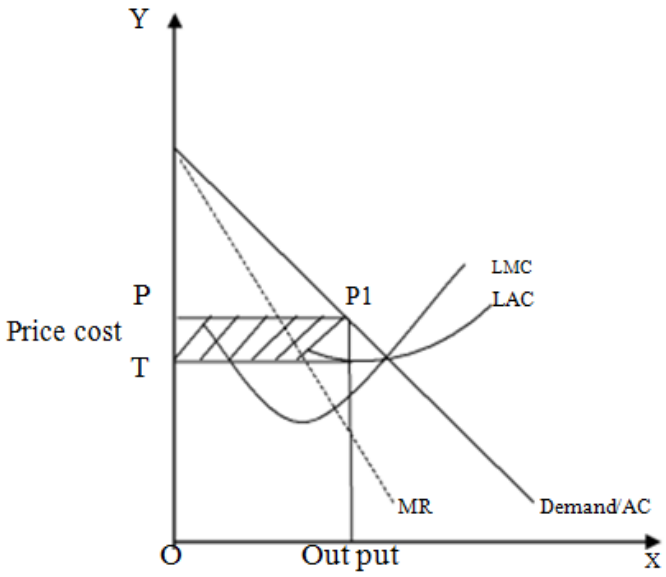
At an output OM, MP` is the average revenue (price) and ML is the average cost of production. Therefore, P1L is the monopoly profit per unit. The total profit is equal to product of profit per unit withtotal output. The following are the result of monopoly operation in the market

If AR greater than AC-results super normal profitIf AR equals AC results normal profit

If AR less than AC that results loss to the firm.

Long run Monopoly Equilibrium

The monopolist is the single producer and the new firms cannot cuts the industry which enables the monopolist to continue to earn super profit in the long run. In the figure the long run equilibrium of the monopolist will be at the output where the long run marginal cost curve MC Intersects the marginal revenue curve MR



The shaded rectangle `PP`LI ` shows the long run monopolist profit. In the long run, if the cost is at an increasing trend. He will fix a high price and sell a large quantity. This will help him to make maximum profit.

Difference between perfect competition and Monopoly

1. Under perfect competition there are many sellers but in the case of monopoly, there is only oneseller

2. Individual seller has no control over the market supply in the case of perfect competition. But inthe case of Monopoly individual seller controls the supply.

3. Products are identical in the case of perfect competition, but there is only one product in the caseof Monopoly.

4. Under perfect competition, there are free entry and exit of firms. But the Monopolist blocks theentry.

5. The Monopolist discriminates the price but there is uniform price in perfect competition.

6. Firm and Industry is different in the case of perfect competition, they are same in the case ofMonopoly.

Monopolistic Competition

In the present World market, it can be seen that there is no monopoly and there is no real competition. There is a mix up of the two. This situation is generally known as Monopolistic competition. According to Prof. E. H Chemberlin of America, Monopolistic Competition means a market situation. In which competition is imperfect. The products of the firms under monopolist competition, are mainly close substitutes to each other.

Features /Assumptions of Monopolistic Competition

1. Large number of firms: There is a large number of firms or sellers operating under monopolisticcompetition but a relatively small fraction of the total market is shared by each firm or seller.

2. Product differentiation: The second distinct feature of monopolistic competitive market structure is product differentiation. The number of firms is large but their products differ from one another in colours, shape and size, brand, chemical composition, quality, trade mark, packaging, durability etc. For example, firms produce different kinds of bathing soap e.g. Hamam, Lux, Lifebuoy, Rexona, Liril, Dove, Ganga, Pears, Le Sancy etc. but these products are close substitutes**.**

3. Freedom of entry and exit: Under monopolistic competition the firms are relatively free to enterthe industry and to exit from the industry, but they have no absolute freedom of entry the industry. New firms are free to enter into the market with new brands as close substitute of the existing brands.

4. Non-price competition: Under monopolistic competition firms compete with one another without changing the price of their products. The firms attract the potential buyers by offering them gifts, incentives, credit schemes, selling schemes and other services. Thus, the firms compete at other than price front.

5. Price policy: Every firm has its own price policy. As under monopoly and monopolistic competition the average revenue curve and marginal revenue curve are sloping downward means that the firm will have to fix low price for fulfilling sales maximisation and high price for less

sales.

6. Less Mobility: There is no perfect mobility of factors of production and of goods and services in practical life. The factors are less mobile because of psychological reasons and disparity among the regions.

7. No perfect knowledge: Under monopolistic competition the buyers and sellers do not have perfect knowledge about the market conditions. The buyers and sellers of the products and owners of the factors of production are ignorant about the prices of the products and factor services.

8. Selling costs: The each firm wants to promote the sales of its products by incurring selling costs. The expenditure incurred on advertisement and publicity to increase sales is called selling costs. The selling costs shifts the demand for a firm's product and the rival firms also retaliate by incurring more and more selling costs.

9. Close Substitutes: Under monopolistic competitions the product are not homogeneous products but they are close substitutes to each other which tends to create competition among the firms regarding their products.

10. Group Equilibrium: Under monopolistic competition the industry is not said to be in equilibrium but there is a position of group equilibrium for the group as whole e.g. soap manufacturing group combine a group of soap manufacturers and that group itself needs to be in equilibrium position. Group denotes the collection of firms producing un-identical but close substitutes.

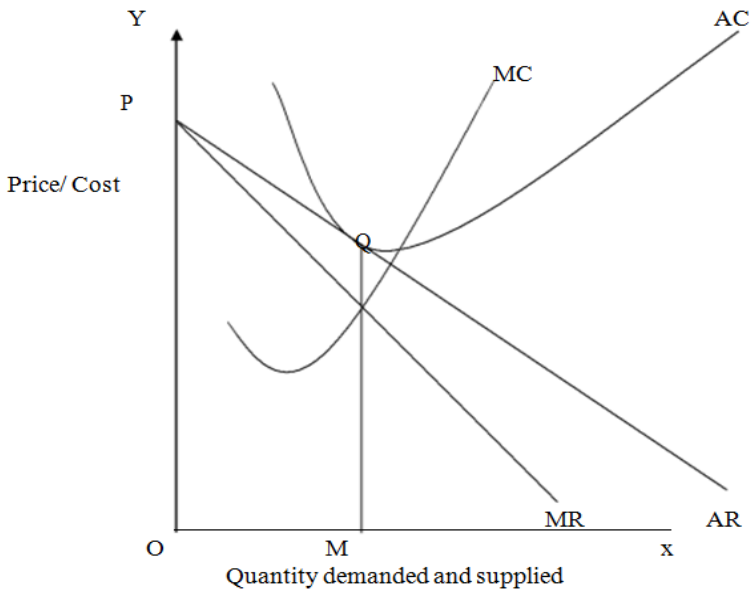
Price and Output Decisions under Monopolistic Competition Short Run Period

In short run, each existing firm is a monopolist having a downward sloping demand curve for its product. In order to maximize its profit the firm will produce that level of output at which MC=MR if price is more than MR, there will be abnormal profit.

Long –Run Period

In the long period, normal profits will disappear. New firms will enter the industry and consequent expansion of output will decrease the price and only normal profit are made by the

firms. Profit is normal only when Average Cost (AC) equals the Average Revenue (AR). Then the equilibrium output will be at AC and MC=MR.



In the above diagram, the equilibrium output is OM where MC =MR and AC=AR Abnormal profit disappears because TC=TR (Total cost = Total Revenue).

Difference between Perfect Competition and Monopolistic Competition

Sl. No.	**Perfect Competition**	**Monopolistic Competition**
1	Products are identical	Products are differentiated
2	It is not a real concept	It is real concept
3	Large Number of buyers and sellers	Buyers and Sellers are not so large
4	Perfect knowledge of market Condition	Lack of perfect knowledge of market Condition
5	Selling Cost do not play any role	Selling cost has an important role
6	They are price takers	They are price markers
7	Demand curve is horizontal	Demand curve is downward sloping
8	AR, MR curves are parallel to x axis and price = demand = AR=MR	Price = demand = AR=But MR<AR.

Oligopoly

Oligopoly is a situation in which there are so few sellers that each of them is conscious of the results upon the price of the supply, which he individually places upon the market. According to J. Stigler "Oligopoly is that situation in which a firm bases its market policy in part on the expected behaviour of a few close revels". Further, they may produce homogeneous or differentiated products.

Characteristics

Oligopoly is a distinct market condition. It has the following features:

1. Relatively small number of sellers: There are relatively small numbers of sellers under oligopolymarket structure selling identical or differentiated products. Each seller controls a large part of thedemand and the policies of every seller influence the price and output of the industry as a whole.

2. Interdependence of the firms: Under the oligopoly market structure all the firms are sailing in the same boat and every tilting position influences each of the firm as well with equal proportion. No firm can be neutral. They depend on each other while determining the price and output of thefirm.

3. Price rigidity and price war: Price rigidity and price was are the common features of an oligopolymarket structure. Each firm retaliates and acts according to the actions of the other firms and a tug of war starts between them which is better known as 'Price War' which further paves way to pricerigidity.

4. Difficulty in entry and exit: Under oligopoly the entry and exit of the firms is banned. The new firms cannot enter the market as the old firms have complete hold over the market conditions andthe firms are also reluctant to leave because of the huge investment made by them.

5. Selling costs: Under oligopoly market structure, each firm pursues an aggressive and defensive marketing strategy to control the market. Advertisement is an important method used by the oligopolists to control the bigger part of the market.

6. Indeterminateness of the demand curve: Under oligopoly market structure the shape of

the demand curve is broken and is indeterminate because the firms cannot assume that the rival firms will not make a change in their price policy in response to change in price affected by it. Thus, thefact that the reaction pattern of the rival firms is indeterminate leaves the demand curve in an indeterminate position.

7. Complex Market Structure: The market structure of oligopoly is quite complex. As there is a possibility of rival firms to end rivalry by working out some policy of collusion and the collusiveoligopoly manifests itself in the form of combination of rival firms to fix the same price and alsoshare in output as in case of cartels. Besides it, non-collusive oligopoly is also found in practice which presents a complex market structure.

Price Determination under Oligopoly

Pricing may be in condition of independent pricing, pricing under price leadership and pricing under collusion.

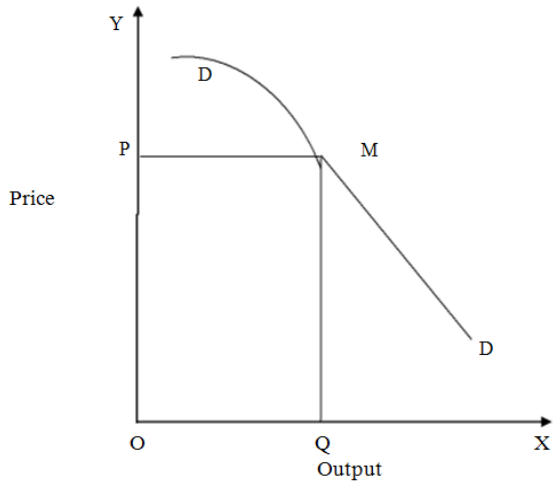
Independent Pricing (Kinked Demand Model or Price Rigidity Model)

Kinked demand curve was first introduced by Prof. Paul M Sweezy to explain price rigidity under oligopoly. An oligopolist always guesses about his competitor's reaction. They assume that if one decides to decrease the price, the others will also reduce the price. The assumption behind the kinked curve is thateach oligopolist will act and react in a way that keep condition tolerable for all the members of the industry. If one firm reduces the price of the product, the others will be compelled to reduce the price. But sometimes, if one increases the price, the other will not increase the price. The firms in Oligopoly do notincrease the prices due to the possibility of losing the customers to rivals who do not raise their prices. Firms usually do not change their price in response to small changes in costs.

The kinked demand curve has two segments i.e.,

(i) The relatively elastic portion of the demand curve and

(ii) The relatively inelastic portion of the demand curve. The following diagram will give you the clear idea:



Kinked demand curve DD with a kink at point M. The price prevailing in the market is OP and the firm produces OQ output. Here, D, M is the relatively elastic of the demand curve and MD is the relatively inelastic portion. This difference in the elasticities of demand due to the particular competitive reaction pattern assumed by the Kinked demand Curve hypothesis.

Pricing under Price Leadership

The price leadership means the leading firm determines the price and others follow it. All the firms in theindustry adjusts, the price fixed by the price leader.

The large firm, who fixes the price, is known as the price maker and the firms, who follow it are known as price takers. The price leadership may be four types. They are:

1. Dominant price leadership: In this situation, there exists many small firms and one large firm andthe large firm fixes the price and the small firms in the market accept that price.

2. Barometric Price Leadership: Under this situation one reputed and experienced firm fixes the priceand others may follow it.

3. Aggressive Price Leadership: Under this market condition, one dominating firm fixes the priceand they compel all others in the industry to follow the price.

4. Effective Price Leadership: Under this condition, there are small number of firms in the industry.

Price Discrimination

A monopolist is in a position to fix the price of his product .He enjoys the control of supply of the product. A monopolist is able to charge different price for his products to the different customers. This is known as price discrimination. According to Mrs. John Robinson, the act of selling the same article, produced under single control at different prices to different buyers is known as price discrimination. This is also known as differential pricing.

Types of Price Discrimination

1. Price relatively elastic portion of the demand curve of the first degree – Charging different price fordifferent persons for the same product.

2. Price discrimination of the second degree – Under this, the buyers are classified into differentdivisions.

3. Price discrimination of the third degree – Here, the markets are divided according to elasticity ofdemand.

Conditions of Price Discrimination

There are three conditions to be satisfied to apply the price discrimination. They are:

1. There must be more than one separate market

2. The markets must have different elasticity of demand

3. The market should be such that no buyer of the market may enter the other market and viceversa.

Dumping

When monopolist works in home market as well as foreign market, he is able to discriminate the price between these two markets. If he has monopoly in home market, and he faces competition in to foreign market, he will be able to charge higher prices for his products in home market. This practice is known as ‘Dumping’ or ‘price dumping’.

UNIT IV

Money - Meaning

Money is derived from a Latin word, Moneta, which was another name of Goddess Juno in Roman history. The term money refers to an object that is accepted as a mode for the transaction of goods and services in general and repayment of debts in a particular country or socio-economic framework. it can be in various forms, such as notes, coins, credit and debit cards, and bank checks.

Definitions

Robertson has defined money as "Anything which is widely accepted in payment for goods, or in discharge of other kinds of obligations."

According to Hawtrey, "Money is one of those concepts which like a teaspoon or an umbrella, but unlike an earthquake or buttercup are definable primarily by the use or purpose which they serve."

In simple words, money can be defined as a medium for transaction of goods and services.

Functions of Money

Economists considered four main functions of money, which are a medium of exchange, a measure of value, a standard of deferred payment, and a store of value.

Medium of Exchange:

Medium of Exchange refers to a function of money in which money is considered as a mode of exchanging goods. The medium of exchange function is considered as the main and unique function of money as it has solved the main problem of barter system of double coincidence of wants. It refers to the condition when one person receives the commodity provided by the other person in exchange. For example, a butcher would not get the cloth unless the weaver does not require meat.

In such a case, it is essential that both the parties require goods that they are receiving from each other. Therefore, it was difficult to obtain required goods. However, with the introduction of money, goods are easily made available without dependence on any other good.

This is due to the fact that money is generally acceptable throughout an economy. Apart from this, money is also considered as medium of exchange as it is easily portable and divisible as well as authenticated by the government.

Measure of Value:

It refers to a function of money that helps in determining the value of goods and services. The value of all goods and services are expressed in terms of money. Money is taken as the common denominator while measuring the value of goods and services in monetary terms.

The measure of value function of money has the following advantages:

1. Helps in comparing and calculating the exchange rates between two goods
2. Provides more meaningful accounting systems
3. Helps in determining and comparing national income of different countries
4. Helps in comparing the cost incurred on production and distribution and the revenue generated from the consumption of goods and services.

Store of Value:

It refers to a secondary function that has been derived from the medium of exchange function of money. Generally, individuals store their wealth in the form of money. Therefore, money acts as an asset that sustains value over a period of time.

In barter system, there used to be only one transaction, which was a simultaneous sale and purchase of goods and services. However, in money economy, the sale and purchase are considered as two separate functions. It can be possible when money not only serves as a medium of exchange, but also store of value. For example, salary drawn by an individual is not spent simultaneously rather it is consumed gradually for purchasing different goods and services.

Standard of Deferred Payments:

It refers to one of the most important functions of money. Deferred payments refer to payments made on loans, salaries, pensions, insurance premium, interests, and rents. The necessary condition for deferred payment is that the amount of repaid money should be the same as it was at the time of purchase.

In barter system, it was not possible to find out whether the amount returned in the form of commodity is same as it was at the time of purchase. For example, the price of one quintal rice purchased today would not be same after one year. However, the standard of deferred payment function of money is not free from limitations as the value of money has always remained a subject of fluctuations due to inflation.

Transfer of wealth:

Money also facilitates the transfer of wealth. With the use of money wealth can be transferred to anybody. Also in the present times, the facility of e-banking can be availed to transfer the funds from one place to another. Example: A person can dispose off his property at one place and can purchase the new one at another place by giving the currency i.e. money in return.

Features of money

1. General Acceptability

Money is accepted by all as a medium of exchange. Thus, it has general acceptability. No one denies to accept money as a medium of exchange. People do not hesitate to accept it as standard of payment.

2. Measure of Value:

Value of any good or service can easily be measured in terms of money. It is accepted as a measure of value.

3. Active Agent:

Money is an active agent of an economic system. In modern economy, money is required in every commercial process. Process of production cannot start without the participation of money.

4. Liquid Assets:

Money is highly liquid asset. It can easily be converted in goods and services. Debt, stock and bills, etc., are the other liquid assets but the liquidity of money is highest than the other liquid assets. One has to first get to convert other liquid assets into money, then it can be converted in desired goods or services, while money can directly be converted.

5. Money is a Means and not an End:

The word money is means to acquire things desired. Money itself cannot be used to satisfy. It is indirectly used to get any goods or services to satisfy human wants.

6. Voluntary Acceptability:

Money is voluntarily accepted by people. There is no requirement to get legal approval. People always wish to hold money.

7. Government Control:

Reserve Bank of India and Govt. of India have an authority to issue currency which is accepted as a form of money in India. No other authority can issue currency notes. Thus, the government keeps control over the money supply in the country.

Types of money

There are various types of money in economics discipline which are as follows:

Commodity money

Commodity money is also known as full bodied money. Commodity money is the money that has intrinsic value. Intrinsic value means that the commodity has value even if it not used as money. It is a means of payment made out of precious metals such as gold or silver or other

valuable commodities. It is known as full bodied money because its value is materially equivalent to that of its component stuff. It acts not only a medium of exchange but is also a store of purchasing power.

Representative money

Representative money is generally made either of cheap metals or paper notes. The intrinsic value of the representative money is less than its face value. Currency notes are good examples of representative money in India. Representative money may or may not be converted into full-bodied money.

Credit money or near money

Near money refers to those objects which can be held with little loss of liquidity. Near money includes cheques, drafts, bolls of exchange etc. It is also known as bank money as this consists of the deposits of the people held with banks, which are payable on demand by the depositors.

Legal tender money

Legal tender money is the currency which has got legal sanction or approval by the government. It means that the individual is bound to accept it in exchange for goods and services; it cannot be refused in settlement of payments of any kind. It is of two types:

- Limited legal tender money: It is that money which no person can be forced to accept beyond a certain limit. For example: In India small coins of denomination of 1,2,5 paise are legal tender only up to Rs. 25. Beyond this limit, anybody can refuse the payment.
- Unlimited legal tender money: It is that money which a person has to accept up to any limit. For example: All Indian currency notes are unlimited legal tender money.

Electronic money

Electronic money involves computer networks to perform financial transactions electronically. Electronic Funds Transfer (EFT) and direct deposits are examples of electronic money. The financial institutions transfer the money from one bank account to another by means

of computer and communication links. A country wide computer network would monitor the credits and debits of all individuals, firms and government as transactions take place in the economy.

It exchanges funds every day without the physical movement of any paper money. This would eliminate the use of cheques and reduce the need for the currency.

Fiat money

Fiat money is any money whose value is determined by legal means. It is the money that has no intrinsic value but that has value as money because government decreed that it has value for that purpose. Fiat money is possible because the three functions of money- a medium of exchange, a measure of value and a store of value are fulfilled as long as all people in society acknowledge that the fiat money is a valid form of currency.

Advantages of money

Money plays a significant role in the whole functioning of the economy. Its advantages are as follows:

Money and production

Money helps in various ways in the process of production. Money can help producers to decide, plan, execute and manage the production activities, moreover, the existence of money helps the producers to assess the quality and quantity of demand of a consumer regarding the product produced.

Money and consumption

Money has a great importance in consumption. All the consumers consume the products by buying it from the market. The goods are bought in consideration of the money. So money helps in fulfillment of wants of the consumers.

Money and distribution

Money helps in the distribution of national income among the factors of production across the economy. There are four factors of production i.e. land, labor, capital and entrepreneur. Money is divided among all these factors of production in the form of rent, wages, interest and profits. The share of each factor of production is determined in terms of money and each factor is paid the regard for its contribution in terms of money.

Money and capital formation

Money is essential to facilitate capital formation, savings of people can be mobilized in the form of money and these mobilized savings can be invested in more profitable ventures. Financial institutions are the part of this process. They mobilize the savings and channelize them to productive uses.

Money and public finance

Public finance deals with the income and expenditure of the government. Governments receive its income in the form of the money through taxes and other means and make expenditures in development and administrative processes.

Money and external trade

Money has facilitated trade not only inside the country but also with the outside countries. With the use of the money, goods and services can easily and rapidly be exchanged. Though in external trade foreign currencies are used in receipts and payments but they are exchanged with the help of domestic currencies.

Money and economic development

Supply of money is a country affects its economic development. If the money supply is more, then it may lead to inflationary situation in the economy which may hamper growth. Similarly, if the supply of money is lesser than what is required then there will be shortage of liquidity which will lead to lesser investments and hence lesser employment.

Foreign Exchange

Foreign Exchange (forex or FX) is the trading of one currency for another. For example, one can swap the U.S. dollar for the euro. Foreign exchange transactions can take place on the foreign exchange market, also known as the forex market.

The forex market is the largest, most liquid market in the world, with trillions of dollars changing hands every day. There is no centralized location. Rather, the forex market is an electronic network of banks, brokers, institutions, and individual traders (mostly trading through brokers or banks).

- Foreign Exchange (forex or FX) is a global market for exchanging national currencies with one another.
- Foreign exchange venues comprise the largest securities market in the world by nominal value, with trillions of dollars changing hands each day.
- Foreign exchange trading utilizes currency pairs, priced in terms of one versus the other.
- Forwards and futures are another way to participate in the forex market.

Understanding Exchange Rate

An exchange rate is the value of one nation's currency versus the currency of another nation or economic zone.

Typically, an exchange rate is quoted using an acronym for the national currency it represents. For example, the acronym USD represents the U.S. dollar, while EUR represents the euro. To quote the currency pair for the dollar and the euro, it would be EUR/USD. In the case of the Japanese yen, it's USD/JPY, or dollar to yen. An exchange rate of 100 would mean that 1 dollar equals 100 yen.

Exchange rates can be free-floating or fixed. A free-floating exchange rate rises and falls due to changes in the foreign exchange market. A fixed exchange rate is pegged to the value of another currency. For instance, the Hong Kong dollar is pegged to the U.S. dollar in a range of

7.75 to 7.85.2 this means the value of the Hong Kong dollar to the U.S. dollar will remain within this range.

Exchange rates can also be different for the same country. Some countries have restricted currencies, limiting their exchange to within the countries' borders. In some cases, there is an onshore rate and an offshore rate. Generally, a more favorable exchange rate can often be found within a country's border versus outside its borders. Also, a restricted currency can have its value set by the government.

China is one major example of a country that has this rate structure. Additionally, China's yuan is a currency that is controlled by the government. Every day, the Chinese government sets a midpoint value for the currency, allowing the yuan to trade in a band of 2% from the midpoint.

Spot rate and forward rate

Exchange rates can have what is called a spot rate, or cash value, which is the current market value. Alternatively, an exchange rate may have a forward value, which is based on expectations for the currency to rise or fall versus its spot price.

Forward rate values may fluctuate due to changes in expectations for future interest rates in one country versus another. For example, let's say that traders have the view that the eurozone will ease monetary policy versus the U.S. In this case, traders could buy the dollar versus the euro, resulting in the value of the euro falling.

In commodities futures markets, a spot rate is the price for a commodity being traded immediately, or "on the spot". A forward rate is the settlement price of a transaction that will not take place until a predetermined date; it is forward-looking.

The spot rate, also referred to as the "spot price," is the current market value of an asset available for immediate delivery at the moment of the quote. In contrast to the spot price, a futures or forward price is an agreed-upon price for future delivery of the asset.

A forward rate is an interest rate applicable to a financial transaction that will take place in the future. The term may also refer to the rate fixed for a future financial obligation, such as the interest rate on a loan payment.

Types of Foreign Exchange Market

The foreign exchange market, also known as the forex market, is a global marketplace for trading in currencies. It is a decentralised market that allows you to buy and sell foreign exchange. The market is an over-the-counter market and the foreign exchange rates will be dictated by it. It involves the buying, selling and exchanging of currencies at the market rate. With regard to trade rate, forex is the largest in the world. Let us take a look at different types of foreign exchange markets.

1. The Spot Market

In the spot market, transactions involving currency pairs take place. It happens seamlessly and quickly. The transactions require instant payment at the prevailing exchange rate which is also known as the spot rate. The traders in the spot market are not exposed to the uncertainty of the market, which can lead to an increase or decline in the price between the agreement and trade.

2. Futures Market

The transactions in the futures market require future payment and distribution at a previously agreed upon exchange rate which is known as the future rate. The transaction or agreement is more formal in nature which ensures that the terms of the transaction are set in stone and cannot be altered. Traders who conduct the majority of the transactions enjoy a consistent return on the assets. Regular traders prefer a future market transaction.

3. Forward Market

The third type of foreign exchange market is the forward market where deals are similar to future market transactions. In this case, the parties will negotiate the terms of the transactions

and the terms agreed-upon can be negotiated and altered as per the needs of the concerned parties. The forward market has higher flexibility as compared to the futures market.

4. Swap Market

When there is a simultaneous borrowing and lending of two types of currencies between two investors, it is known as a swap transaction. Here, one investor borrows a currency and in turn, pays in the form of a second currency to the second investor. The transaction is done to pay off their obligations without having to deal with a foreign exchange risk.

5. Option Market

In the options market, the currency of exchange from one denomination to the other is agreed upon by the investor at a specific rate and on a specific date. The investor has a right to convert the currency on a future date but there is no obligation to do so. These are the five types of foreign exchange markets that exist in the country.

Inflation

Inflation is the rate at which the prices for goods and services increase. Inflation often affects the buying capacity of consumers. Most Central banks try to limit inflation in order to keep their respective economies functioning efficiently. There are certain advantages as well as disadvantages to inflation.

In economics, inflation refers to a general progressive increase in prices of goods and services in an economy. When the general price level rises, each unit of currency buys fewer goods and services; consequently, inflation corresponds to a reduction in the purchasing power of money.

It also refers to the increase in the prices of the goods and services of daily use, such as food, housing, clothing, transport, recreation, consumer staples, etc. Inflation is measured by taking into consideration the average price change in a basket of commodities and services over a period of time.

Inflation is calculated in India by the Ministry of Statistics and Programme Implementation.

A simple example would be, suppose a kg of apple cost Rs.100 in 2019 and it cost Rs.110 in 2020, then there would be a 10% increase in the cost of a kg of apple. In the same way, many commodities and services whose prices have raised over time are put in a group and the percentage is calculated by keeping a year as the base year. The percentage of increase in prices of the group of commodities is the rate of inflation.

Types of inflation

The three types of Inflation are Demand-Pull, Cost-Push and Built-in inflation.

Demand-pull Inflation: It occurs when the demand for goods or services is higher when compared to the production capacity. The difference between demand and supply (shortage) result in price appreciation.

Cost-push Inflation: It occurs when the cost of production increases. Increase in prices of the inputs (labour, raw materials, etc.) increases the price of the product.

Built-in Inflation: Expectation of future inflations results in Built-in Inflation. A rise in prices results in higher wages to afford the increased cost of living. Therefore, high wages result in increased cost of production, which in turn has an impact on product pricing. The circle hence continues.

Causes of Inflation

Inflation is caused by multiple factors.

Money Supply

Excess currency (money) supply in an economy is one of the primary cause of inflation. This happens when the money supply/circulation in a nation grows above the economic growth, therefore reducing the value of the currency.

In the modern era, countries have shifted from the traditional methods of valuing money with the amount of gold they possessed. Modern methods of money valuation are determined by the amount of currency that is in circulation which is then followed by the public's perception of the value of that currency.

National Debt

There are a number of factors that influence national debt, which include the nations borrowing and spending. In a situation where a country's debt increases, the respective country is left with two options:

- Taxes can be raised internally.
- Additional money can be printed to pay off the debt.

Demand-Pull Effect

The demand-pull effect states that in a growing economy as wages increase within an economy, people will have more money to spend on goods and services. The increase in demand for goods and services will result in companies raising prices that the consumers will bear in order to balance supply and demand.

Cost-Push Effect

This theory states that when companies face increased input cost on raw materials and wages for manufacturing consumer goods, they will preserve their profitability by passing the increased production cost to the end consumer in the form of increased prices.

Exchange Rates

An economy with exposure to foreign markets mostly functions on the basis of the dollar value. In a trading global economy, exchange rates play an important factor in determining the rate of inflation.

Effects of Inflation

When there is inflation in the country, the purchasing power of the people decreases as the prices of commodities and services are high. The value of currency unit decreases which impacts the cost of living in the country. When the rate of inflation is high, the cost of living also increases, which leads to a deceleration in economic growth.

However, a healthy inflation rate (2-3%) is considered positive because it directly results in increasing wages and corporate profitability and maintains capital flowing in a growing economy.

How do we prevent inflation?

To prevent inflation, the primary strategy is to change the monetary policy by adjusting the interest rates. Higher interest rates decrease the demand in the economy. These results in lower economic growth and therefore, lower inflation. Other ways to prevent inflation are:

- Controlling the money supply can also help in preventing inflation.
- Higher Income Tax rate can reduce the spending, and hence resulting in lesser demand and inflationary pressures.
- Introducing policies to increase the efficiency and competitiveness of the economy helps in reducing the long term costs.

Deflation

Deflation is generally the decline in the prices for goods and services that occur when the rate of inflation falls below 0%. Deflation will take place naturally, if and when the money supply of an economy is limited. Deflation in an economy indicates deteriorating conditions.

Deflation is normally linked with significant unemployment and low productivity levels of goods and services. The term “Deflation” is often mistaken with “disinflation.” While deflation refers to a decrease in the prices of goods and services in an economy, disinflation is when inflation increases at a slower rate.

Causes of Deflation

Deflation can be caused by multiple factors:

Structural changes in capital markets

When different companies selling similar goods or services compete, there is a tendency to lower prices to have an edge over the competition.

Increased productivity

Innovation and technology enable increased production efficiency which leads to lower prices of goods and services. Some innovations affect the productivity of certain industries and impact the entire economy.

Decrease in the supply of currency

The decrease in the supply of currency will decrease the prices of goods and services to make them affordable to people.

Effects of deflation

Deflation may have the following impacts on an economy:

Reduction in Business Revenues

In an economy faced with deflation, businesses must drastically reduce the prices of their products or services to stay profitable. As reductions in prices take place, revenues begin to drop.

Lowered Wages and Layoffs

When revenues begin to drop, businesses need to find means to reduce their expenses to meet objectives. One way is by reducing wages and cutting jobs. This adversely affects the economy as consumers would now have less to spend.

Inflation vs. Deflation

Inflation occurs when the prices of goods and services rise, while deflation occurs when those prices decrease. The balance between these two economic conditions, opposite sides of the same coin, is delicate and an economy can quickly swing from one condition to the other.

- Inflation is an increase in the general prices of goods and services in an economy.
- Deflation, conversely, is the general decline in prices for goods and services, indicated by an inflation rate that falls below zero percent.
- Both can be potentially bad for the economy, depending on the underlying reasons and the rate of price changes.

Corrective mechanism (Monetary and fiscal measures)

Under monetary measures, it takes various steps to control the supply of money in the economy which invariably leads to a decrease in demand and thus, control over inflation. Under fiscal measures, the government tries to decrease its expenditure and increase its revenue.

Monetary policy refers to central bank activities that are directed toward influencing the quantity of money and credit in an economy. By contrast, fiscal policy refers to the government's decisions about taxation and spending. Both monetary and fiscal policies are used to regulate economic activity over time.

Measures to Control Inflation

The government takes different measures to control inflation of different types as explained below:

- Demand Pull Inflation Control

In order to control the demand-pull inflation, the Government undertakes some monetary measures and incorporates certain changes to the fiscal policy.

- Monetary Measures

One of the commonly used measures to control inflation is controlling the money supply in the economy. If the Government decreases the supply of money, then the demand will fall, leading to a fall in prices. Therefore, the Government may decide to withdraw certain paper notes and/or coins from circulation. This decreases the money supply. It is important to note that a major portion of the money supply lies with banks in the form of deposits or bank credit.

`Therefore, by reducing the bank's rate of lending (amount of money offered as credit), the Government can considerably reduce the supply of money in the economy. In order to do so, the Central Bank of a country (RBI in India) increases the bank rate and reserve requirements leading to a reduction in the lending activities of banks. Further, the Central Bank also starts issuing Government securities to commercial banks. Therefore, these banks spent a significant portion of their money on purchasing these securities and reduce the credit supply to the general public.

To control deflation, the central bank can increase the reserves of commercial banks through a cheap money policy. They can do so by buying securities and reducing the interest rate. As a result, their ability to extend credit facilities to borrowers increases.

UNIT V

National income

The National Income is the total amount of income accruing to a country from economic activities in a year's time. It includes payments made to all resources either in the form of wages, interest, rent, and profits. The progress of a country can be determined by the growth of the national income of the country.

National income means the value of goods and services produced by a country during a financial year. Thus, it is the net result of all economic activities of any country during a period of one year and is valued in terms of money. National income is an uncertain term and is often used interchangeably with the national dividend, national output, and national expenditure.

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- Traditional Definition,
- Modern definition

Traditional Definition

According to Marshall: "The labour and capital of a country acting on 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 the country or national dividend."

The definition as laid down by Marshall is being criticized on the following grounds. Due to the varied category of goods and services, a correct estimation is very difficult. Because, there is a chance of double counting, hence National Income cannot be estimated correctly.

For example, a product runs in the supply from the producer to distributor to wholesaler to retailer and then to the ultimate consumer. If on every movement commodity is taken into consideration then the value of National Income increases.

A,C.Pigou defined national income as " That part of objective income of the community, including of course income derived from abroad which can be measured in money".

Though Pigou's definition avoided the fallacy of double counting and included income from abroad it suffers from the defect that only goods and services that can be measured in terms of money are included in national income. According to Pigou, a woman's services as nurse would be included in the national income but excluded when she worked in the home to look after the children because she did not receive any salary for it.

Modern Definition

Simon Kuznets defines national income as "the net output of commodities and services flowing during the year from the country's productive system in the hands of the ultimate consumers."

Whereas in one of the reports of United Nations, national income has been defined on the basis of the systems of estimating national income as net national product (NNP). There are various concepts pertaining to national income are as follows:

Gross Domestic Product (GDP)

Gross domestic product relates to the product of the factors of production employed within the political boundaries i.e., within domestic territory. It is defined as a measure of the total flow of goods and services produced by an economy over a specified time period, usually a year. All value of intermediate products is excluded. So only the market value of final products is includedto define GDP.

Gross National Product (GNP)

Gross national product is the total measure of the flow of goods and services at market value resulting from current production during a year in a country, including net income from abroad.

GNP= GDP + Net income from abroad(X-M) , where X= Export, M= Import

If the value of (X-M) is negative then, GDP > GNP

Net National Product (NNP)

Net national product is considered a true measure of national product or income. It is defined as GNP minus depreciation **or** capital consumption allowance **or** wear and tear.

NNP = GNP – Depreciation

Unlike GDP, GNP, net national product (NNP) may also be categorized as:

NNP_{mp} (Net national product at market price) : Net national product at market prices is net value of final goods and services evaluated at market prices in the course of one year in a country

NNP_{fc} (Net national product at factor cost): Net national product at factor cost is the net output evaluated at factor prices. It includes income earn by factors of production through participation in the production process such as wages and salaries, rents profits etc. NNP at factor cost is also called National Income.

$NNP_{mp} = NNP_{fc} – S + (IT+ GS)$

OR

$NNP_{mp} = NNP_{fc}$ – subsidies + (indirect tax+ surpluses from government enterprises)

$NNP_{fc} = NNP_{mp} + S - (IT+ GS)$ or,

$NNP_{fc} = NNP_{mp}$ + subsidies - (indirect tax+ surpluses from government enterprises)

Normally, NNP at market prices is higher than NNP at factor cost because indirect taxes exceed government subsidies. However, NNP at market prices can be less than NNP at factor cost when government subsidies exceed indirect taxes.

Some other concepts of national income

Private income: Private income is income obtained by private individuals from any source, produce or otherwise and retained income of corporations. It can be obtained from NNP at factor cost by making certain additions and deductions.

Private Income = National income (NNP at factor cost) +Transfer Payments + Interest on Public Debt – Social Security – Profits and Surpluses of Public Undertakings.

Personal Income: Personal income is the total income received by the individuals of a country from all sources before direct taxes in one year. Personal income is never equal to the national income because the former includes the transfer payments whereas they are not included in national income. Personal income is derived from national income by deducting undistributed corporate profits, profit taxes, and employee's contributions to social security schemes. Personal income is differs than private income actually it is less than private income because it excludes undistributed corporate profits.

Personal Income = National Income – Undistributed Corporate Profits – Profit Taxes – SocialSecurity Contributions + Transfer Payments + Interest on Public Debt.

Disposable Income: Disposable income or personal disposable income means the actual income which can be spent on consumption by individuals and families.

Disposable Income = National Income – Business Savings – Indirect taxes plus Subsidies – Direct Taxes on persons – Direct Taxes on Business – Social SecurityPayments + Transfer Payments + Net Income from Abroad (X-M).

Real Income: Real Income is the income expressed in terms of a general level of prices of a particular year taken as base year. National income in terms of money at current prices does not indicate the real state of the economy. So the concept of real income has been propounded to rectify such illusions. This is also known as National Income at constant prices.

Real NNP = NNP for the Current Year Multiply with Base Year Index (100) Divided by Current Year Index.

Per capita income (PCI) or total income measures the average income earned per person in a given area (city, region, country, etc.) in a specified year. It is calculated by dividing the

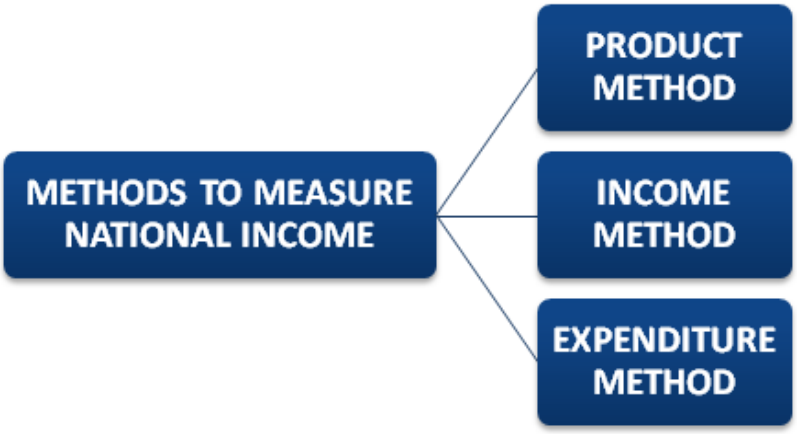
area's total income by its total population. Per capita income is national income divided by population size.

Per Capita Income: The average income of the people of a country in a particular year is called Per Capita Income for that year.

Per Capita Income for 2011 = National Income for 2011 divided by Population in 2011

Measurement of National Income

There are three ways of measuring the National Income of a country. They are from the income side, the output side and the expenditure side. Thus, we can classify these perspectives into the following methods of measurement of National Income.



Product Approach

According to this method, the sum of net value of goods and services produced at market prices is found. Three steps are involved in calculation of national income through this method:

1. ***Gross product*** is calculated by sensing up the money value of output in the different sectors of the economy.

2. ***Money value*** of raw material and services used and the amount of depreciation of physical assets involved in the production process are summed up.

3. The ***net output or value added*** is found by subtracting the aggregate of the cost of raw material, services and depreciation from the gross product found in first step.

Let us denote the amounts of each of the three different types of final outputs in a given year as Q_1, Q_2, Q_3…… Q_n and their respective market prices as P_1, P_2, P_3 P_n where n stands for the total number of final goods and service produced in the economy. Then according to the product approach, the size of the national income (NI) will be equal to the sum of the annual flow of final goods and services valued at their respective market prices

i.e., $NI = P_1Q_1 + P_2Q_2 + P_3Q_3 + \quad + P_nQ_n$.

Production approach involves estimation of gross value of products, by-products and ancillary activities of a production unit and deducting from it the value of inputs of raw materials and other intermediates including services to obtain gross value added.

Broadly speaking the steps involved are:

1. Obtain estimates of quantities of all outputs and all inputs.

2. Obtain estimates of average price for each output and input from market sources.

3. Compute gross value of outputs and inputs using price-quantity data and subtract the latter from the former to get gross value added.

4. Obtain estimates of value of stocks of fixed assets and apply predetermined depreciation rates to get capital consumption.

This approach is used to estimate gross and net value added in the following sectors of the Indian economy:

1. Agriculture and allied activities (e.g., animal husbandry)

2. Forestry and Logging

3. Fishing

4. Mining and Quarrying

5. Registered Manufacturing

Income Approach

This approach is also known as the income-distributed method. According to this method, the incomes received by all the basic factors of production used in the production process are summed up. The basic factors for the purposes of national income are categorised as labour and capital. We have three incomes.

1. ***Labour income*** which includes wages, salaries, bonus, social security and welfare contributions.

2. ***Capital income*** which includes dividends, pre-tax retained earnings, interest on saving and bonus, rent, royalties and profits of government enterprises.

3. ***Mixed income,*** i.e., earnings from professions, farming enterprises, etc. These three components of income are added together to get national income.

Following the income approach, national income can be measured by aggregating the annual flows of factor earnings generated by the production of the final output. Thus the value of output, say good I (P_i Q_i) is also reflected in the sum of the corresponding factor incomes generated, i.e., $P_iQ_i = R_i + W_i + I_i + P_i$.

Where R_i, W_i, I_i, P_i denote flow of rent, wages, interest, and profits generated by the production of good i. It follows, therefore, that national income can be measured as the sum of annual flowof different types of factor incomes in the economy.

In this approach, payments for factor, viz. wages, salaries, rents, interest and profits are directly aggregated together to obtain estimates of value added. Output or input valuation is not necessary. This approach is particularly suitable for those activities whose output are difficult to value.

The prime example is services. However, reliable data on factor incomes are available only for those units which keep proper annual accounts. For others, some indirect method has to be followed. One such method involves estimation of number of workers employed and of value added per worker. The product of the two gives an estimate of total value added in the relevant

activity. Number of workers is estimated by extrapolation-interpolation of decennial case figures; per worker value added is taken from surveys conducted at various times with appropriate adjustments to bring up the estimates to date.

The approach is used for following activities:

1. Railways
2. Electricity, gas and water supply
3. Transport, storage and communication
4. Banking, finance and insurance
5. Real estate
6. Public administration and defence

Expenditure Approach

This method is known as the final product method. According to this method, the total national expenditure is the sum of the expenditure incurred by the society in a particular year. The expenditures are classified as personal consumption expenditure, net domestic investment, government expenditure on goods and services and net foreign investment (imports-exports).

The flow of total expenditure can be measured by aggregating the flows of expenditure on final goods and services incurred by the three main sectors involved, *viz.*, the household sector, the business sector, the government sector. Thus from the viewpoint of the expenditure approach, national income can be measured by

$$NI = E_h + E_b + E_g$$

Where E_h, E_b, E_g denote the annual flow of expenditure on final goods and services incurred by the household sector, the business sector, and the government sector.

Problems in Measuring National Income

The major problems that hinder the calculation of national income using a particular method have already been discussed before along with the methods. Now let's discuss the problems thatoccur, in general.

The difficulties in measurement of national income are:

1. National income measures domestic economic performance and not social welfare. For real economic growth, there should be strong positive correlation between the two.

2. National Income understates social welfare-non-market transactions like home-makers service and do-it-yourself projects are not counted.

3. National Income does not measure an increase in leisure or work satisfaction or changes in product quality.

4. National Income does not accurately reflect changes in environment like oil spills cleanup is measured as positive output but increased in pollution is not measured as negative.

5. Per capital income is a more meaningful measure of living standards than total national income.

6. There is a problem of double counting. However, problem of double counting could be avoided by utilizing the value added approach. For example, the wheat that is used to make bread is an "intermediate good". The value of the bread only is counted as part of GNP and we do not count the value of wheat sold to the miller and the value of flour sold to the baker.

7. Problems of depreciation estimation as there are different methods of calculating or estimating depreciation.

8. Inclusion or exclusion of certain items in national income accounting can cause confusion.

9. Imputed rent of owner occupied houses is also included in calculation of national income.

10. Imputed value of goods and services produced for self consumption are included.

11. Sale and purchase of second hand goods are excluded.

12. Imputed rent of owner occupied houses and production for self-consumption are included.

13. Incomes from illegal activities are not included.

14. Direct taxes such as Income tax are paid by employees from their salaries are included.

15. Expenditure on purchase of old share is excluded.

16. Government expenditure on all transfer payment is excluded.

17. Challenges like difficulties in getting information especially those related to underground economy (illegal activities).

Difficulties in Measurement of National Income

Following are the difficulties in estimating the National Income

- Conceptual difficulties
- Statistical difficulties

Conceptual difficulties

- It is difficult to calculate the value of some of the items such as services rendered for free and goods that are to be sold but are used for self-consumption.
- Sometimes, it becomes difficult to make a clear distinction between primary, intermediate and final goods.
- What price to choose to determine the monetary value of a National Product is always a difficult question?
- Whether to include the income of the foreign companies in the National Income or not because they emit a major part of their income outside India?

Statistical difficulties

- In case of changes in the price level, we need to use the Index numbers which have their own inherent limitations.
- Statistical figures are not always accurate as they are based on the sample surveys. Also, all the data are not often available.
- All the countries have different methods of estimating National Income. Thus, it is not easily comparable.

Business cycle

A business cycle is the natural expansion and contraction of economic growth that happens in a nation over a period of time. The rise and fall of a nation's gross domestic product (GDP) defines the start and end of a business cycle, which is also known as an economic cycle or a trade cycle. A business cycle accounts for the growth and decline of economic activity over time.

A nation's government can manage a business cycle using a variety of tools. The central bank can use monetary policy to reduce interest rates, which can encourage spending and investments. The legislature can use fiscal policy to encourage or slow down economic growth.

Characteristic Features of Business Cycle:

1. It occurs periodically: the fluctuations in economic activities occur periodically but not at a fixed period of interval.

2. It is international in character: the changes in any economic activity of a country have impact on economies of the world (for example financial crisis in US had impact on various other countries economic activities).

3. It is wave like: the fluctuations indicate ups and downs in various economic indicators of a country.

4. The process is cumulative: the process is cumulative in nature, that means change in

income level, savings or any other activitywill be in aggregates.

5. The cycles will be similar but not identical: the cycle has ups and downs but not identical spacing that means the time periodof occurrence will differ.

Stages or phases of the business cycle

Business cycles can last for virtually any length of time. The duration of a business cycle is the amount of time it takes to complete all five stages:

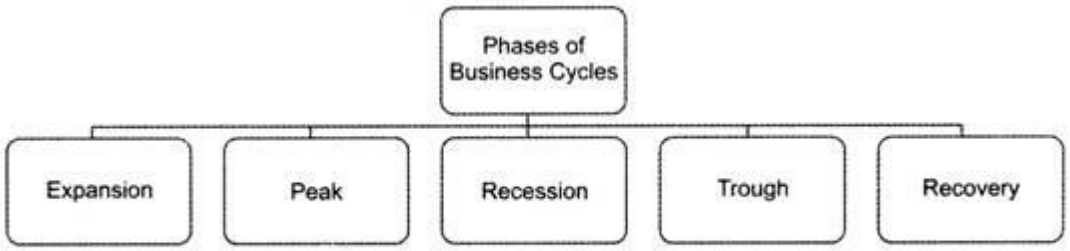


Figure-1:Different Phases of a Business Cycle

1. Expansion

A business cycle always starts with the expansion stage. During this stage, there are clear positive economic indicators, including growth in income, employment, demand, supply and profit. Throughout an expansion, the frequency of investments tends to increase, and both businesses and individuals generally repay their debts on time.

2. Peak

When the economy becomes saturated and upward growth can no longer continue, the business cycle enters the peak stage. Wages, employment rates and prices for goods and services are as high as they can go. At this point, these economic indicators cease to rise further. Many businesses and individuals reexamine their budgets in anticipation of a decline in economic activity.

3. Recession

At the end of the peak stage, economic growth trends begin to reverse as the economy contracts. The recession stage starts as soon as expansion ends and economic activity begins to decline. It lasts until the GDP returns to the point that marked the beginning of the expansion stage. During a recession, demand begins to decline almost immediately, but producers fail to adjust their output until the market has excess supply. Positive economic indicators like prices and wages start to fall at this point.

The depression stage begins once the GDP falls below the pre-expansion level or the steady growth line. During a depression, unemployment rates rise dramatically, while economic growth declines steadily. A depression lasts until economic activity can't fall any further.

4. Trough

When the depression reaches its lowest point, a business cycle enters the trough stage. At this point, the nation experiences negative economic growth, as supply and demand fall as low as they can go.

5. Recovery

After the GDP reaches its lowest point in the cycle, the recovery stage commences. During this stage, the economy begins to recover and reverse the negative trends. Demand increases and supply soon follows. Eventually, investments resume, and employment and production begin to rise.

The recovery stage lasts until the GDP returns to a steady growth line. Once it reaches this point, the current business cycle ends and a new one begins as it enters the expansion stage again.

Causes and effects of business cycle

A business cycle is the periodic growth and decline of a nation's economy, measured mainly by its GDP. Governments try to manage business cycles by spending, raising or lowering

taxes, and adjusting interest rates. Business cycles can affect individuals in a number of ways, from job-hunting to investing.

Business cycles are the "ups and downs" in economic activity, defined in terms of periods of expansion or recession. During expansions, the economy, measured by indicators like jobs, production, and sales, is growing--in real terms, after excluding the effects of inflation.

During revival and expansion, demand increases, selling prices rise more rapidly than costs, profits increase and individual manufacturer and merchants generally feel happy.

As the elasticity of labor supply with respect to wage becomes more elastic, the resulting increase of labor demand from economic growth may be transformed into more employment rather than higher wage.

The business cycle can go into recession for a variety of reasons, such as:

- Falling house prices causing negative wealth effect and lower consumer spending
- Credit crunch causing an increase in the cost of borrowing and shortage of funds
- Volatile stock markets and money markets undermining business and investment confidence.
- Higher interest rates – causing lower spending and investment.
- Tight fiscal policy – higher taxes and lower spending.
- Appreciation in the exchange rate.

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Prepared by

DR. A. JAFAR SATHIC

ASSISTANT PROFESSOR

DEPARTMENT OF BUSINESS ADMINISTRATION

M.S UNIVERSITY COLLEGE

NADUVAKURICHI, SANKARANKOVIL