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MBA DEPARTMENT OF BUSINESS MANAGEMENT

Digital Notes
Managerial Economics
(R20MBA02)
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Compiled By: A.LAKSHMI, MBA, Assistant Professor
Dr.G.ARCHANA,Associate Professor
G.VENKATA REDDY,MBA(PhD),Assistant Professor

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution-UGC, Govt. of India)
Maisammaguda, Dhulapally, Kompally, Medchal, Hyderabad - 500100

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(Autonomous Institution-UGC, Govt. of India)

Course Code : **R20MBA02**

Course Title : **MANAGERIAL ECONOMICS**

Course (Year/Semester) : **MBA I Year I**
Semester Course Type : **Core**

Course Credits **3**

Course Aim:

- To enable students acquire knowledge to understand the economic environment of an organization.

Learning Outcome:

- Students should be able to understand the basic economic principles, forecast demand and supply and should be able to estimate cost and understand market structure and pricing practices.

Unit-I: Introduction to Managerial Economics

Introduction: Definition - Nature and Scope - ME as an Inter-disciplinary - Basic Economic Principles - The Concept of Opportunity Cost - Incremental Concept - Scarcity - Marginalism - Equi-marginalism - Time perspective - Discounting Principle.

Unit-II: Theory of Demand

Demand Analysis: Law of Demand - Movement in Demand Curve - Shift in the Demand Curve
Elasticity of Demand: Types & Significance of Elasticity of Demand - Measurement Techniques of Price Elasticity
Forecasting: Demand Forecasting and its Techniques - Consumers Equilibrium - Cardinal Utility Approach - Indifference Curve Approach - Consumer Surplus.

Unit-III: Production and Cost Analysis

Production Analysis: Production Function - Production Functions with One/Two Variables - Cobb-Douglas Production Function - Marginal Rate of Technical Substitution - Isoquants and Isocosts - Returns to Scale and Returns to Factors - Economies of Scale.

Cost Analysis: Cost concepts - Determinants of Cost - Cost-Output Relationship in the Short Run and Long Run - Short Run vs. Long Run Costs - Average Cost Curves - Overall Cost Leadership.

Unit-IV: Market Structure and Pricing Practices

Market Structures: Features and Types of different Competitive Situations - Price-Output Determination in Perfect Competition - Monopoly - Monopolistic Competition and Oligopoly - both the long run and short run;

Pricing: Pricing philosophy.

Unit-V: Macro Economics & Business

Macro Economics: Nature, Concept and measurement of National Income. Classical and Keynesian approaches to Income, Employment and Investment.

Inflation: Types, causes and measurement of inflation. Philips curve, stagflation.

Trade Cycles: Causes - Policies to counter trade cycles.

REFERENCES:

- D. M. Mithani, Managerial Economics, HPH.
- Yogesh Maheshwari, Managerial Economics, PHI.
- Sumitrapal, Managerial Economics Cases & Concepts, Macmillan.
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UNIT-I

INTRODUCTION TO MANAGERIAL ECONOMICS

Imagine for a while that you have finished your studies and have joined as an engineer in a manufacturing organization. What do you do there? You plan to produce maximum quantity of goods of a given quality at a reasonable cost. On the other hand, if you are a sale manager, you have to sell a maximum amount of goods with minimum advertisement costs. In other words, you want to minimize your costs and maximize your returns and by doing so, you are practicing the principles of managerial economics.

Managers, in their day-to-day activities, are always confronted with several issues such as how much quantity is to be supplied; at what price; should the product be made internally; or whether

it should be bought from outside; how much quantity is to be produced to make a given amount of profit and so on. Managerial economics provides us a basic insight into seeking solutions for managerial problems. Economics, as the name itself implies, is an offshoot of two distinct disciplines: Economics and Management. In other words, it is necessary to understand what these disciplines are, at least in brief, to understand the nature and scope of managerial economics.

INTRODUCTION TO ECONOMICS

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

Dr. Alfred Marshall, one of the greatest economists of the nineteenth century, writes "Economics is a study of man's actions in the ordinary business of life: it enquires how he gets his income and how he uses it". Thus, it is one side, a study of wealth; and on the other, and more important side; it is the study of man. As Marshall observed, the chief aim of economics is to promote 'human welfare', but not wealth. The definition given by

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

CONCEPTS OF MICRO AND MACRO ECONOMICS:

'Economics' is defined as the study of how the humans work together to convert limited resources into goods and services to satisfy their wants (unlimited) and how they distribute the same among themselves. Economics has been divided into two broad parts i.e. Micro Economics and Macro Economics. Here, in the given article we've broken down the concept and all the important differences between micro economics and macro economics, in tabular form, have a look.

MICROECONOMICS

The term 'micro' means small. The study of an individual consumer or a firm is called microeconomics (also called the *Theory of Firm*). Micro means 'one millionth'.

Microeconomics deals with behavior and problems of single individual and of micro organization. Managerial economics has its roots in microeconomics and it deals with the micro or individual enterprises. It is concerned with the application of the concepts such as price theory, Law of Demand and theories of market structure and so on.

MACROECONOMICS

The term 'macro' means large. The study of 'aggregate or total level of economic activity in a country is called *macroeconomics*. It studies the flow of economics resources or factors of production (such as land, labour, capital, organisation and technology) from the resource owner to the business firms and then from the business firms to the households. It deals with total aggregates, for instance, total national income total employment, output and total investment. It studies the interrelations among various aggregates and examines their nature and behaviour, their determination and causes of fluctuations in the. It deals with the price level in general, instead of studying the prices of individual commodities. It is concerned with the level of employment in the economy. It discusses aggregate consumption, aggregate investment, price level, and payment, theories of employment, and so on.

Though macroeconomics provides the necessary framework in term of government policies etc., for the firm to act upon dealing with analysis of business conditions, it has less direct relevance in the study of theory of firm.

Micro and Macro Economics are not contradictory in nature, in fact, they are complementary. As every coin has two aspects- micro and macroeconomics are also the two aspects of the same coin, where one's demerit is others merit and in this way they cover the whole economy. The only important thing which makes them different is the **area of application.**

MANAGEMENT

Management is the science and art of getting things done through people in formally organized groups. It is necessary that every organisation be well managed to enable it to achieve its desired goals. Management includes a number of functions: *Planning, organizing, staffing, directing, and controlling*. The manager while directing the efforts of his staff *communicates* to them the goals, objectives, policies, and procedures; *coordinates* their efforts; *motivates* them to sustain their enthusiasm; and *leads* them to achieve the corporate goals.

MANAGERIAL ECONOMICS

INTRODUCTION

Managerial Economics is subject gained popularity in USA after the publication of the book Managerial Economics" by Joel Dean in 1951.

Managerial Economics refers to the firm's decision making process. It could be also interpreted as "Economics of Management" or "Economics of Management". Managerial Economics is also called as "Industrial Economics" or "Business Economics".

As Joel Dean observes managerial economics shows how economic analysis can be used in formulating polices.

MEANING & DEFINITION:

In the words of *E. F. Brigham and J. L. Pappas* Managerial Economics is "the applications of economics theory and methodology to business administration practice".

M. H. Spencer and Louis Siegel man explain the "Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management".

Managerial Economics, therefore, focuses on those tools and techniques, which are useful in decision-making.

NATURE OF MANAGERIAL ECONOMICS

Managerial economics is, perhaps, the youngest of all the social sciences. Since it originates from Economics, it has the basis features of economics, such as assuming that other things remaining the same.

The other features of managerial economics are explained as below:

(a) Close to microeconomics: Managerial economics is concerned with finding the solutions for different managerial problems of a particular firm. Thus, it is more close to microeconomics.

(b) Operates against the backdrop of macroeconomics: The macroeconomics conditions of the economy are also seen as limiting factors for the firm to operate. In other words, the managerial economist has to be aware of the limits set by the macroeconomics conditions such as government industrial policy, inflation and so on.

(c) Normative statements: A normative statement usually includes or implies the words 'ought' or 'should'. They reflect people's moral attitudes and are expressions of what a team of people ought to do. For instance, it deals with statements such as 'Government of India should open up the economy. Such statement are based on value judgments and express views of what is 'good' or 'bad', 'right' or ' wrong'. One problem with normative statements is that they cannot to verify by looking at the facts, because they mostly deal with the future. Disagreements about such statements are usually settled by voting on them.

(d) Prescriptive actions: Prescriptive action is goal oriented. Given a problem and the objectives of the firm, it suggests the course of action from the available alternatives for optimal solution. If does not merely mention the concept, it also explains whether the concept can be applied in a given context on not. For instance, the fact that variable costs are marginal costs can be used to judge the feasibility of an export order.

(e) Applied in nature: 'Models' are built to reflect the real life complex business situations and these models are of immense help to managers for decision-making. The different areas where models are extensively used include inventory control, optimization, project management etc. In managerial economics, we also employ case study methods to conceptualize the problem, identify that alternative and determine the best course of action.

(f) Offers scope to evaluate each alternative: Managerial economics provides an opportunity to evaluate each alternative in terms of its costs and revenue. The managerial economist can decide which is the better alternative to maximize the profits for the firm.

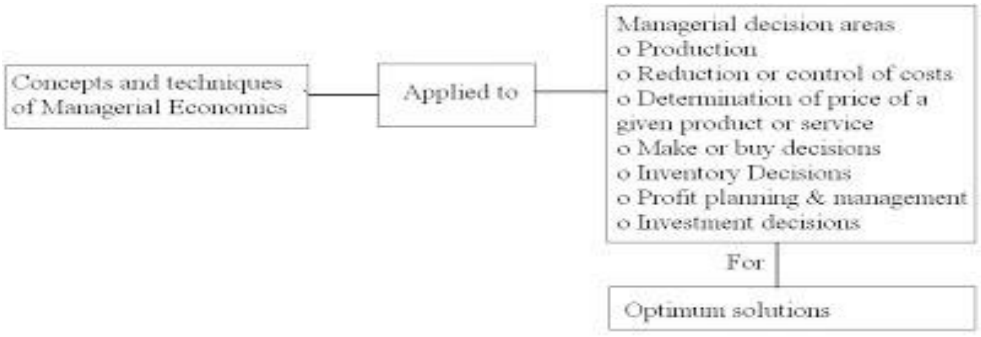
(g) Interdisciplinary: The contents, tools and techniques of managerial economics are drawn from different subjects such as economics, management, mathematics, statistics, accountancy, psychology, organizational behavior, sociology and etc.

(h) Assumptions and limitations: Every concept and theory of managerial economics is based on certain assumption and as such their validity is not universal. Where there is change in assumptions, the theory may not hold good at all.

SCOPE OF MANAGERIAL ECONOMICS:

The main focus in managerial economics is to find an optimal solution to a given managerial problems. The problem may relate to production, reduction or control of costs, determination of price of a given product or service, make or buy decisions, inventory decisions, capital

management or profit planning and investment decisions or human resource management. While all these are the problems, the managerial economist make use of the concepts, tools and techniques of economics and other related disciplines to find an optimal solution to a given managerial problem. This concept is explained in the below figure.



The following aspects may be said to generally fall under Managerial Economics.

Demand Analysis:

A business firm is an economic organism which transforms productive resources into goods that are to be sold in a market. The analysis of a demand for a given product and service is the first task of managerial economist. Before production schedules can be prepared and resources employed, a forecast of future sales is essential. This forecast can also serve as a guide to management for maintaining or strengthening the market position and enlarging profits. Demand Analysis helps in identify the various factors influencing the demand for a firm's product and thus provides guidelines to manipulating demand. Demand analysis and forecasting, therefore, is essential for business planning and occupies a strategic place in Managerial Economics.

Cost Analysis:

A study of economic costs, combined with the data drawn from the firm's accounting records, can yield significant cost estimates that are useful for managerial decisions. The factors causing variations in costs must be recognized and allowed for if management is to arrive at cost estimates which are significant for planning purpose. The chief topics covered under cost analysis are cost concept and classifications, cost output relationship, economies and diseconomies of scale and cost control and cost reduction.

Pricing Decisions:

Pricing is very important area of managerial economics. In fact, price is the source of the revenue of a firm and as such the success of a business firm largely depends on the correctness of the price determination in various market forms, pricing, methods, differential pricing, product line pricing and price forecasting.

Production And Supply Analysis:

Production Analysis is narrower in scope that cost analysis production Analysis frequently proceed in physical term while cost analysis proceeds in monetary terms. Production analysis mainly deals with different production functions and their managerial use.

Supply analysis deals with various aspects of supply of a commodity. Certain important aspects of supply analysis are : supply schedule, curves and function, law of supply and its limitations. Elasticity of supply and factors influencing supply.

Profit analysis:

Profit making is the major goal of firms. There are several constraints here an account of competition from other products, changing input prices and changing business environment hence in spite of careful planning, there is always certain risk involved. Managerial economics deals with techniques of averting of minimizing risks. Profit theory guides in the measurement and management of profit, in calculating the pure return on capital, besides future profit planning.

Capital Management:

Among the various problems of a business, the most complex and difficult for the business manager are likely to be those relating to the firms capital investments. Relatively large sums are involved and the problems are so complex that their disposal not only requires considerate time and labor but is a matter for top level decisions. Briefly capital management implies planning and control of capital expenditure. The main topics dealt with are cost of capital, rate of return and selection or projects.

Strategic planning:

Strategic planning provides management with a framework on which long-term decisions can be made which has an impact on the behavior of the firm. The firm sets certain long-term goals and objectives and selects the strategies to achieve the same. Strategic planning is now a new addition to the scope of managerial economics with the emergence of multinational corporations.

The perspective of strategic planning is global. It is in contrast to project planning which focuses on a specific project or activity. In fact the integration of managerial economics and strategic planning has given rise to be new area of study called corporate economics.

Conclusion:

The various aspects outlined above represent the major uncertainties which a business firm has to reckon with, viz, demand uncertainty, cost uncertainty, price uncertainty, profit uncertainty and capital uncertainty.

We can therefore, conclude that the subject matter or managerial economics consists of applying economic principles and concepts towards adjusting with various uncertainties faced by a business firm.

Managerial Economics Linkages with Other Disciplines:

Managerial Economics is closely linked with money other disciplines such as economics, accountancy, mathematics, statistics, operation research, psychology and organizational behavior.

Economics:

Managerial Economics is the offshoot of economics and hence the concepts of managerial economics are basically economic concepts. If economics deals with theoretical concepts, managerial economics is the application of these in real life. In the process of addressing various managerial problems, several empirically estimated functions such as demand function, cost function, revenue function and so on are extensively used.

Operation Research:

Decision-making is the main focus in Operation Research and Managerial Economics. If Managerial Economics focuses on "problems of decision making" Operation Research Focus on solving the Managerial problems.

The Operation Research Models such as linear programming, transportation, optimization techniques and so on, are extensively used in solving the managerial problems.

Mathematics:

Managerial Economist is concerned with estimating and predicting. The relevant economic factors for decision-making and foreword planning. In this process, he extensively makes use of the tools and techniques of mathematics such as algebra, calculus, vectors; input-output tables such other.

Statistics:

Statistics deals with different techniques useful to analyze the cause and effect relationships in a given variable or phenomenon. It also empowers the managers to deal with the situations of risk and uncertainty through its techniques such as probability. The business environment for the managerial economist is full of risk and uncertainty and extensively makes use of the statistical techniques such as averages, measures of dispersion, correlation, regression time series, and probability and so on. These techniques enhance the relevance of the conceptual base in managerial economics.

Accountancy:

The accountant provides accounting information relating to costs, revenues, receivables, payables, profit and loss etc. and this forms the basis for the managerial economist to act upon. This forms authentic source of data about the performance of the firm. The main objective of accounting function is to record, classify and interpret the given accounting data. The managerial economist profusely depends upon accounting data for decision-making and foreword planning.

Psychology:

Consumer psychology is the basis on which managerial economist acts upon. How the customers react to a given change in price or supply and its consequential effect on demand / profits is the main focus of study in managerial economics. We assume that the behavior of the consumer is always rational which in reality is not so. Psychology contributes towards understanding the behavioral implications, attitude and motivations of each of the micro economics variables such as consumer, supplier investor worker or an employee.

Organizational Behavior:

Organization Behavior enables the managerial economist to study and develop behavioral models of the firm integrating the manager is behavior with that of the owner. This further analysis the economic rationality of the firm in a focused way.

BASIC ECONOMIC TOOLS IN ME:

Introduction:

Managerial Economics is both conceptual and metrical. Before the substantive decision problems which fall within the purview of managerial economics are discussed, it is useful to identify and understand some of the basic concepts underlying the subject.

Economic theory provides a number of concepts and analytical tools which can be of considerable and immense help to a manager in taking many decisions and business planning. This is not to say that economics has all the solutions. In fact, actual problem solving in business has found that there exists a wide disparity between economic theory of the firm and actual observed practice.

Therefore, it would be useful to examine the basic tools of managerial economics and the nature and extent of gap between the economic theory of the firm and the managerial theory of the firm. The contribution of economics to managerial economics lies in certain principles which are basic to managerial economics. There are six basic principles of managerial economics.

They are:

1. **Incremental principle.**
2. **Time perspective principle.**
3. **Opportunity cost principle.**
4. **Equi-marginalism principle.**
5. **Discounting principle**
6. **Marginalism principle.**
7. **Concept of scarcity**
8. **Production possibility curve**

1. Incremental principle

The incremental concept is probably the most important concept in economics and is certainly the most frequently used in Managerial Economics. Incremental concept is closely related to the marginal cost and marginal revenues of economic theory.

The two major concepts in this analysis are incremental cost and incremental revenue. Incremental cost denotes change in total cost, whereas incremental revenue means change in total revenue resulting from a decision of the firm.

The incremental principle may be stated as follows:

A decision is clearly a profitable one if

(i) It increases revenue more than costs.

(ii) It decreases some cost to a greater extent than it increases others.

(iii) It increases some revenues more than it decreases others.

(iv) It reduces costs more than revenues.

2. Concept of Time Perspective:

The time perspective concept states that the decision maker must give due consideration both to the short run and long run effects of his decisions. He must give due emphasis to the various time periods. It was Marshall who introduced time element in economic theory.

The economic concepts of the long run and the short run have become part of everyday language. Managerial economists are also concerned with the short run and long run effects of decisions on revenues as well as costs. The main problem in decision making is to establish the right balance between long run and short run.

In the short period, the firm can change its output without changing its size. In the long period, the firm can change its output by changing its size. In the short period, the output of the industry is fixed because the firms cannot change their size of operation and they can vary only variable factors. In the long period, the output of the industry is likely to be more because the firms have enough time to increase their sizes and also use both variable and fixed factors.

3. The Opportunity Cost Concept:

Opportunity cost principle is related and applied to scarce resource. When there are alternative uses of scarce resource, one should know which best alternative is and which is not. We should know what gain by best alternative is and what loss by left alternative is.

The concept of opportunity cost plays an important role in managerial decisions. This concept helps in selecting the best possible alternative from among various alternatives available to solve a particular problem. This concept helps in the best allocation of available resources.

The opportunity cost of any action is simply the next best alternative to that action - or put more simply, "What you would have done if you didn't make the choice that you did". The income or benefit foregone as the result of carrying out a particular decision, when resources are limited or when mutually exclusive projects are involved.

Opportunity cost is not what you choose when you make a choice —it is what you did *not* choose in making a choice. **Opportunity cost** is the value of the forgone alternative — what you gave up when you got something.

Example 1: If a person is having cash in hand Rs. 100000/-, he may think of two alternatives to increase cash.

Option 1: Investing in bank. We will get returns amount 10000/-

Option2: Investing in business. We get returns amount 17000/-

Generally we chose the option 2 because we will get more returns than the option 1. Here the option 1 is the opportunity cost, that what we have not chosen.

The opportunity cost of a decision is based on what must be given up (the next best alternative) as a result of the decision. Any decision that involves a choice between two or more options has an opportunity cost.

In managerial decision making, the concept of opportunity cost occupies an important place. The economic significance of opportunity cost is as follows:

1. It helps in determining relative prices of different goods.
2. It helps in determining normal remuneration to a factor of production.
3. It helps in proper allocation of factor resources.

4. Equi-Marginal Concept:

One of the widest known principles of economics is the equi-marginal principle. The principle states that an input should be allocated so that value added by the last unit is the same in all cases. This generalisation is popularly called the equi-marginal.

Let us assume a case in which the firm has 100 unit of labour at its disposal. And the firm is involved in five activities viz., A, B, C, D and E. The firm can increase any one of these activities by employing more labour but only at the cost i.e., sacrifice of other activities.

An optimum allocation cannot be achieved if the value of the marginal product is greater in one activity than in another. It would be, therefore, profitable to shift labour from low marginal value activity to high marginal value activity, thus increasing the total value of all products taken together.

If, for example, the value of the marginal product of labour in activity A is Rs. 50 while that in activity B is Rs. 70 then it is possible and profitable to shift labour from activity A to activity B.

The optimum is reached when the values of the marginal product is equal to all activities. This can be expressed symbolically as follows:

$VMP_{LA} = VMP_{LB} = VMP_{LC} = VMP_{LD} = VMP_{LE}$

Where VMP = Value of Marginal Product.

L = Labour

ABCDE = Activities i.e., the value of the marginal product of labour employed in A is equal to the value of the marginal product of the labour employed in B and so on. The equimarginal principle is an extremely practical notion.

It is behind any rational budgetary procedure. The principle is also applied in investment decisions and allocation of research expenditures. For a consumer, this concept implies that money may be allocated over various commodities such that marginal utility derived from the use of each commodity is the same. Similarly, for a producer this concept implies that resources be allocated in such a manner that the marginal product of the inputs is the same in all uses.

5. Discounting Concept:

This concept is an extension of the concept of time perspective. Since future is unknown and incalculable, there is lot of risk and uncertainty in future. Everyone knows that a rupee today is worth more than a rupee will be two years from now. This appears similar to the saying that "a bird in hand is more worth than two in the bush." This judgment is made not on account of the uncertainty surrounding the future or the risk of inflation.

It is simply that in the intervening period a sum of money can earn a return which is ruled out if the same sum is available only at the end of the period. In technical parlance, it is said that the present value of one rupee available at the end of two years is the present value of one rupee available today. The mathematical technique for adjusting for the time value of money and computing present value is called 'discounting'.

This principle talks about comparision of the money value between present and future time.

Eg: suppose 1) 100/- is gifted to a particular person today.

2) 100/- will be given as gift to same particular person after one year.

Normally a person chooses first offer only. Why because "today rupee is having more worth than tomorrows rupee"

Example

In the business, everybody prefers to do cash sale only rather than the credit sale and even they are ready to give cash discount for cash sale. The reason is we will get a rupee today and today's rupee is more valuable than the tomorrow's rupee. But In credit sale we will get rupee tomorrow or in the future time and nobody give the discount for credit sale.

6.MARGINALISAM PRINCIPLE

Marginalism generally includes the study of marginal theories and relationships within economics. The key focus of marginalism is how much extra use is gained from incremental increases in the quantity of goods created, sold, etc. and how these measures relate to consumer choice and demand.

Marginalism covers such topics as marginal utility, marginal gain, marginal rates of substitution, and opportunity costs, within the context of consumers making rational choices in a market with known prices. These areas can all be thought of as popular schools of thought surrounding financial and economic incentives.

Marginal cost is the cost which incurred to produce the next or one more unit. Marginal Revenue is the benefit which gets by producing one more or next unit. Cost will be less and benefit will be more.

7. CONCEPT OF SCARCITY

Human wants are unlimited, but human capacity to satisfy such wants is limited. Scarcity refers to the basic economic problem, the gap between limited – that is, scarce – resources and theoretically limitless wants. This situation requires people to make decisions about how to allocate resources efficiently, in order to satisfy basic needs and as many additional wants at possible. Any resource that has a non-zero cost to consume is scarce to some degree, but what matters in practice is relative scarcity. Scarcity is also referred to as "paucity."

8. PRODUCTION POSSIBILITY CURVE

The production possibility frontier (PPF) is a curve depicting all maximum output possibilities for two goods, given a set of inputs consisting of resources and other factors. The PPF assumes that all inputs are used efficiently.

Factors such as labor, capital and technology, among others, will affect the resources available, which will dictate where the production possibility frontier lies. The PPF is also known as the production possibility curve or the transformation curve.

MANEGERIAL ECONOMICS

Unit-II: Theory of Demand

Demand analysis, law of demand, movement in demand curve, shift in the demand curve, Elasticity of demand, Types & Significance of Elasticity of demand, measurement techniques of Price Elasticity, demand forecasting and its techniques, consumers Equilibrium, cardinal utility approach, indifference curve approach, consumer surplus.

DEMAND ANALYSIS.

Introduction & Meaning:

Demand in common parlance means the desire for an object. But in economics demand is something more than this. According to Stonier and Hague, "Demand in economics means demand backed up by enough money to pay for the goods demanded". This means that the demand becomes effective only it if is backed by the purchasing power in addition to this there must be willingness to buy a commodity.

Thus demand in economics means the desire backed by the willingness to buy a commodity and the purchasing power to pay. In the words of ***"Benham"*** "The demand for anything at a given price is the amount of it which will be bought per unit of time at that Price". (Thus demand is always at a price for a definite quantity at a specified time.) Thus demand has three essentials – price, quantity demanded and time. Without these, demand has to significance in economics.

It deals with four aspects:

1. Consumption
2. Production

3. Exchange
4. Distribution

Definition of demand:
According to Benham: "The demand for anything, at a given price, is the amount of it, which will be bought per unit of time, at that price."
According to Bobber**,** "By demand we mean the various quantities of a given commodity or service which consumers would buy in one market in a given period of time at various prices."
Demand = Desire + Ability to Pay + Willingness to Pay
Above conditions must be there to create demand.

Nature and types of demand

The different types of demand are;

1. **Consumer Vs producer goods**

   Consumer goods refers to such products and services which are capable of satisfying human need. Goods can be grouped under consumer goods and producer goods. Consumer goods are those which are available for ultimate consumption. These give direct and immediate satisfaction. For example bread, apple rice etc. whereas producer goods are those which are used for further production. For example seeds and machinery.

2. **Autonomous Vs derived demand**

   Refers to the classification of demand on the basis of dependency on other products. The demand for a product that is not associated with the demand of other products is known as autonomous or direct demand. The autonomous demand arises due to the natural desire of an individual to consume the product. On the other hand, derived demand refers to the demand for a product that arises due to the demand for other products.

   For example demand for college comes under autonomous demand and the demand for canteen and stationary shop around the college comes under derived demand.

3. **Durable Vs perishable goods**

   Refers to the classification of demand on the basis of usage of goods. The goods are divided into two categories, perishable goods and durable goods. Perishable or non-durable goods refer to the goods that have a single use. For example, cement, coal, fuel, and eatables. On the other hand, durable goods refer to goods that can be used repeatedly.

4. **Firm Vs industry demand**

Refers to the classification of demand on the basis of market. The demand for the products of a firm at given price over a point of time is known as firm demand. For example, the demand for Toyota cars is organization demand. The sum total of demand for products of all organizations in a particular industry is known as industry demand.

5. **Short run Vs long run demand**

   Refers to the classification of demand on the basis of time period. Short-term demand refers to the demand for products that are used for a shorter duration of time or for current period. This demand depends on the current tastes and preferences of consumers.

6. **New product Vs replacement demand**

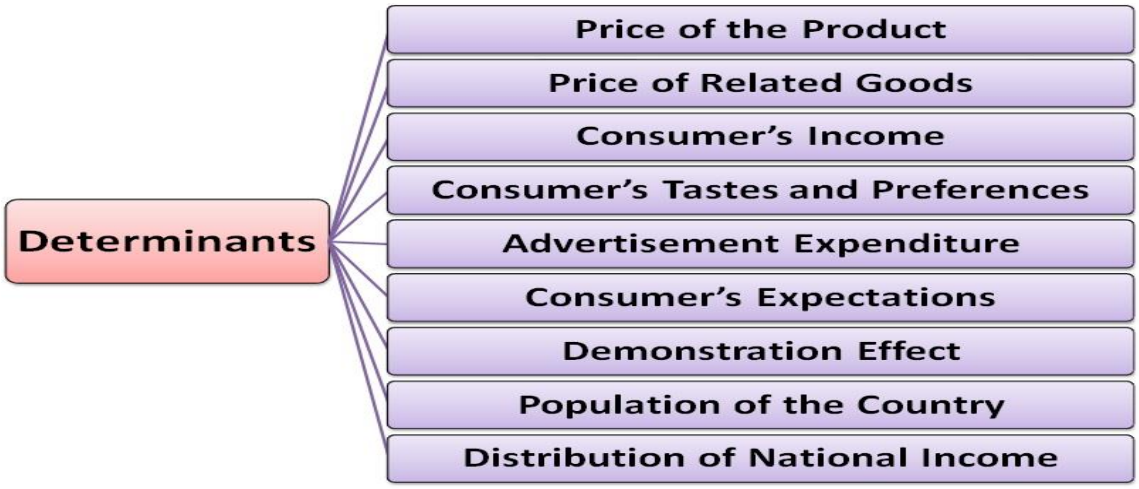
   New demand refers to the demand for the new products and it is addition to the new stock. In replacement demand the item is purchased to maintain the asset in gtood condition. For example the demand for car is new demand the demand for spare parts comes under replacement demand.

7. **Total market Vs segment market demand**

Let us take the consumption of sugar in a given region. The total demand for sugar in the region is the total market demand. The demand for the sweet making industry from this region is the segment market demand.

DETERMINANTS OF MARKET DEMAND

Definition: The **Market Demand** is defined as the sum of individual demands for a product per unit of time, at a given price. Simply, the total quantity of a commodity demanded by all the buyers/individuals at a given price, other things remaining same is called the market demand.



1. Price of a product

The price of a product is one of the most important determinants of its demand in the long run and the only determinant in the short run. The quantity of the product demanded by the consumer inversely depends upon the price of the product. If the price rise demand falls and vice versa. The relation between price and demand is called Law of demand. It is not only the existing price but also the expected changes in price which affect demand.

2. **Price of related goods**.

The demand for a commodity is also affected by the changes in the price of its related goods. Related goods may be substitutes or complementary goods.

(a) Substitutes

Two commodities are substitutes for one another if change in the price of one affects the demand for the other in the same direction. For example X and Y are substitutes for one another. If price for X increases, demand for Y increases and vice versa. Tea and coffee, hamburgers and hot dogs, Coke and Pepsi are some examples of substitutes in the case of consumer goods.

(b) Complements

Complementary goods are those goods which complete the demand for each other, such as car and petrol or pen and ink. There is an inverse or negative relationship between the demand for first good and price of the second which happens to be complementary to the first. For example an increase in the price of petrol causes a decrease in the demand of car and other petrol run vehicles, other things remaining same

3. Income of the consumer:

Income is the basic determinant of quantity of product demanded since it determines the purchasing power of the consumer. Income as determinant of demand is equally important in both short run and long run. The relationship between the demand for a commodity say, X and the household income Y, assuming all other factors to remain constant, is expressed by a demand function such as : $D_x = f(Y), \Delta D_x/\Delta Y > 0$

Experience shows that numerically there is a positive relationship between income of the consumer and his demand for a good. In other words, an increase in income would cause an increase in demand and economists therefore call such goods as normal goods. Normal goods are goods for which an increase in consumer's income results in an increase in demand. There are some goods, however which are called inferior goods. Inferior good is a good for which an increase in consumer's income results in a decrease in its demand.

4. Consumer taste and preference

The demand for any goods and service depends on individual's taste and preferences. They include fashion, habit, custom etc. Tastes and preferences of the consumers are influenced by advertisement, changes in fashion, climate, and new invention. Other things being equal, demand for those goods increases for which consumers develop taste and preferences. Contrary to it, an unfavorable change in consumer preferences and tastes for a product will cause demand to decrease.

5. Advertisement effect

Advertisement costs are incurred with the objective of promoting sale of the product. Advertisements help in increasing the demand in the following ways:

By informing potential consumers about the product and its availability

By showing its superiority over rival product
By influencing consumer's choice against the rival products
By setting new fashions and changing tastes.
There are instances when advertisements have changed lifestyle of people. Cadbury India has revolutionized the market for its leading product Dairy Milk through high profile advertising featuring Amitabh Bachchan with a slogan "Kuch mitha ho jai".

6. Consumer's expectations of future income and price:

Consumers do not make purchases only on the basis of current price structure. Especially in case of durables, when demand can be postponed, consumers decide their purchase on the basis of future price and income. If they expect their income to increase or price to fall in future, they will postpone their demand on the other hand if they expect price to increase in future they will hasten the purchase. For example, purchase of cars and other durables increases before budget is announced if consumers fear that prices may rise after budget. Or, when people expect pay revisions, they wait for major purchases till pay is revised.

7. Size of population

Size of population, age distribution, rural urban distribution and gender distribution affect aggregate demand. If population of a country is constantly increasing, more food items and other goods and services will be needed to satisfy the needs of the people. Age distribution of the population determines what kind of commodities will be demanded. If population mostly consists of aged people, there will be demand of more medicines and health care services. On the other hand if major section of population is youth, there will be more demand for education , employment opportunities and designer apparels.

8. **Other factors**:

Distribution of national income, demonstration effect, credit facility, technical policy, climatic conditions all these are the factors which affect to the demand of the product.

DEMAND FUNCTION

A demand function expresses the relationship between the quantity demanded of a commodity and it's determinants. Taking the determinants of a commodity and it's determinants. Taking the determinants of demand discussed above, we can represent a demand function as follows :

Qx = f (Px,Y,Ps,Pz,T,N,E,A,I,S)

Where, Qdx = quantity demand of commodity x

F = functional relationship

Px = price of commodity x

Y = consumers income

Ps = price of a substitute commodity

Pz = price of a complementary commodity

T = taste and preferences

N = size and distribution of population

E = future expectations

A = expenditure on advertising and promotion

I = interest rate

S = social-cultural factors

Some point to be noted about a demand function :

(a) It represents a relationship between the **quantity demanded** and**determination of demand.**

(b) The factors or variable listed in the above demand function represent only**some of the possible** explanatory variables affecting demand for the community

(c) Demand in **inversely related** to some of the variables and **directly** related to some others. For example, if X a normal commodity, then Qx is inversely related to Px, Pz and I. But in case of most of the other variables the relationship is direct.

(d) some of the variables are easily **quantifiable**, like price, prices of related commodities, income, interest rate, expenditure advertisements, size and distribution of population.

(e) The **degree of control** that a firm has over the variables **differs in degree.**For example, a firm's management does not have control over variables like consumers income, size and distribution of population, interest rate and prices of related commodities. But a firm has greater control over price, expenditure on advertisements and promotion.

LAW OF DEMNAND

Law of demand shows the relation between price and quantity demanded of a commodity in the market. In the words of Marshall, “the amount demand increases with a fall in price and diminishes with a rise in price”.

A rise in the price of a commodity is followed by a reduction in demand and a fall in price is followed by an increase in demand, if a condition of demand remains constant.

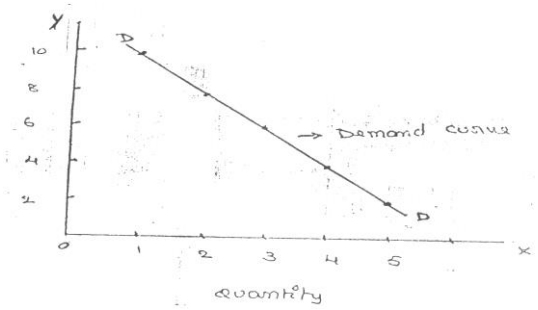
The law of demand may be explained with the help of the following demand schedule.

Demand Schedule.

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 quantity demand increases from 1 to 2. In the same way as price falls, quantity demand increases on the basis of the demand schedule we can draw the demand curve.



Price

The demand curve DD shows the inverse relation between price and quantity demand of apple. It is downward sloping.

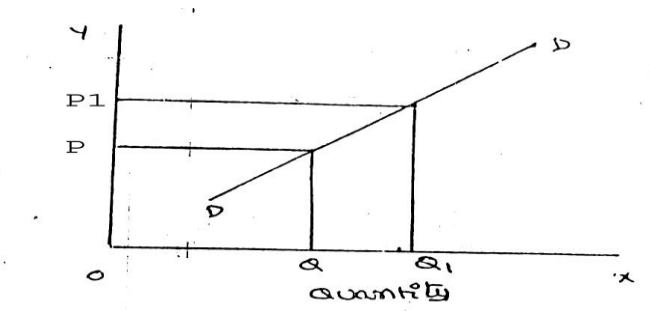
Assumptions:

Law is demand is based on certain assumptions:

1. This is no change in consumers taste and preferences.
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 at any distinction
6. The demand for the commodity should be continuous
7. People should not expect any change in the price of the commodity

Exceptional demand curve:

Sometimes the demand curve slopes upwards from left to right. In this case the demand curve has a positive slope.



Price

When price increases from OP to Op1 quantity demanded also increases from to OQ1 and vice versa. The reasons for exceptional demand curve are as follows.

1. Giffen paradox:

The Giffen good or inferior good is an exception to the law of demand. When the price of an inferior good falls, the poor will buy less and vice versa. For example, when the price of maize falls, the poor are willing to spend more on superior goods than on maize if the price of maize increases, he has to increase the quantity of money spent on it. Otherwise he will have to face starvation. Thus a fall in price is followed by reduction in quantity demanded and vice versa. "Giffen" first explained this and therefore it is called as Giffen's paradox.

2. Veblen or Demonstration effect:'Veblen' has explained the exceptional demand curve through his doctrine of conspicuous consumption. Rich people buy certain good because it gives social distinction or prestige for example diamonds are bought by the richer class for the prestige it possess. It the price of diamonds falls poor also will buy is hence they will not give prestige. Therefore, rich people may stop buying this commodity.

3. Ignorance:

Sometimes, the quality of the commodity is Judge by its price. Consumers think that the product is superior if the price is high. As such they buy more at a higher price.

4. Speculative effect:

If the price of the commodity is increasing the consumers will buy more of it because of the fear that it increase still further, Thus, an increase in price may not be accomplished by a decrease in demand.

5. Fear of shortage:

During the times of emergency of war People may expect shortage of a commodity. At that time, they may buy more at a higher price to keep stocks for the future.

6.Necessaries:

In the case of necessaries like rice, vegetables etc. people buy more even at a higher price.

CHANGE IN DEMAND:

The increase or decrease in demand due to change in the factors other than price is called change in demand. Change in demand leads to a shift in the demand curve to the right or to the left.

Increase and Decrease in Demand:

Increase and decrease in demand are referred to change in demand due to changes in various other factors such as change in income, distribution of income, change in consumer's tastes and

preferences, change in the price of related goods, while Price factor is kept constant Increase in demand refers to the rise in demand of a product at a given price.

On the other hand, decrease in demand refers to the fall in demand of a product at a given price. For example, essential goods, such as salt would be consumed in equal quantity, irrespective of increase or decrease in its price. Therefore, increase in demand implies that there is an increase in demand for a product at any price. Similarly, decrease in demand can also be referred as same quantity demanded at lower price, as the quantity demanded at higher price.

Increase and decrease in demand is represented as the shift in demand curve. In the graphical representation of demand curve, the shifting of demand is demonstrated as the movement from one demand curve to another demand curve. In case of increase in demand, the demand curve shifts to right, while in case of decrease in demand, it shifts to left of the original demand curve.

Following Figure shows the increase in demand:

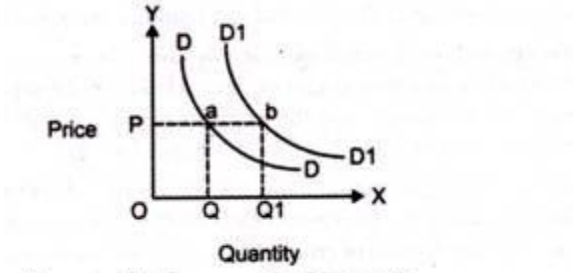


Figure-12: Increase in Demand

The above figure shows that, the movement from DD to D1D1 shows the increase in demand with price at constant (OP). However, the quantity has also increased from OQ to OQ1.

Following Figure shows the decrease in demand:

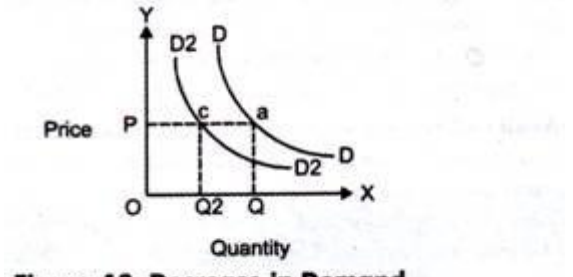


Figure-13: Decrease in Demand

The above figure shows that, the movement from DD to D2D2 shows the decrease in demand with price at constant (OP). However, the quantity has also decreased from OQ to OQ2.

Expansion and Contraction of Demand:

The variations in the quantities demanded of a product with change in its price, while other factors are at constant, are termed as expansion or contraction of demand. Expansion of demand refers to the period when quantity demanded is more because of the fall in prices of a product. However, contraction of demand takes place when the quantity demanded is less due to rise in the price o a product.

For example, consumers would reduce the consumption of milk in case the prices of milk increases and vice versa. Expansion and contraction are represented by the movement along the same demand curve. Movement from one point to another in a downward direction shows the expansion of demand, while an upward movement demonstrates the contraction of demand.

Figure-11 demonstrates the expansion and contraction of demand:

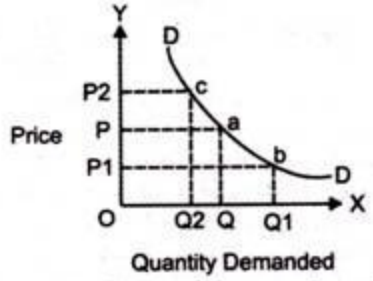


Figure-11: Expansion and Contraction of Demand

When the price changes from OP to OP1 and demand moves from OQ to OQ1, it shows the expansion of demand. However, the movement of price from OP to OP2 and movement of demand from OQ to OQ2 show the contraction of demand.

ELASTICITY OF DEMAND

Elasticity of demand explains the relationship between a change in price and consequent change in amount demanded. “Marshall” introduced the concept of elasticity of demand. Elasticity of demand shows the extent of change in quantity demanded to a change in price.

In the words of "Marshall", "The elasticity of demand in a market is great or small according as the amount demanded increases much or little for a given fall in the price and diminishes much or little for a given rise in Price"

Elastic demand: A small change in price may lead to a great change in quantity demanded. In this case, demand is elastic.

In-elastic demand: If a big change in price is followed by a small change in demanded then the demand in "inelastic".

Types and measurements of Elasticity of Demand:

There are three types of elasticity of demand:

1. Price elasticity of demand
2. Income elasticity of demand
3. Cross elasticity of demand
4. Advertising elasticity of demand

1. Price elasticity of demand:

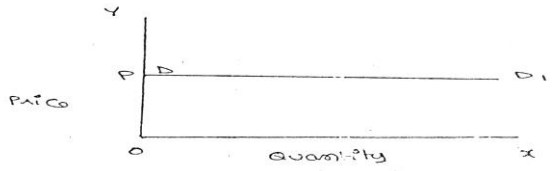
Marshall was the first economist to define price elasticity of demand. Price elasticity of demand measures changes in quantity demand to a change in Price. It is the ratio of percentage change in quantity demanded to a percentage change in price.

$$\text{Price elasticity} = \frac{\text{Proportionate change in the quantity demand of commodity}}{\text{Proportionate change in the price of commodity}}$$

There are five cases of price elasticity of demand

A. Perfectly elastic demand:

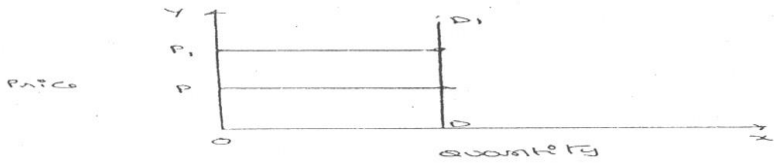
When small change in price leads to an infinitely large change is quantity demand, it is called perfectly or infinitely elastic demand. In this case $E=\infty$



The demand curve DD1 is horizontal straight line. It shows the at "OP" price any amount is demand and if price increases, the consumer will not purchase the commodity.

B. Perfectly Inelastic Demand

In this case, even a large change in price fails to bring about a change in quantity demanded.

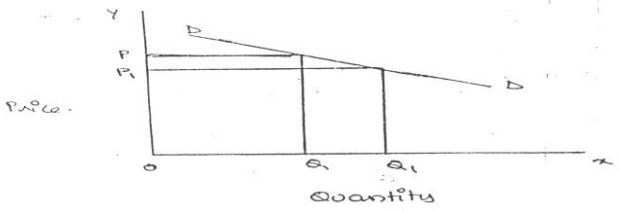


When price increases from 'OP' to 'OP', the quantity demanded remains the same. In other words the response of demand to a change in Price is nil. In this case 'E'=0.

C. Relatively elastic demand:

Demand changes more than proportionately to a change in price. I.e. a small change in price loads to a very big change in the quantity demanded. In this case

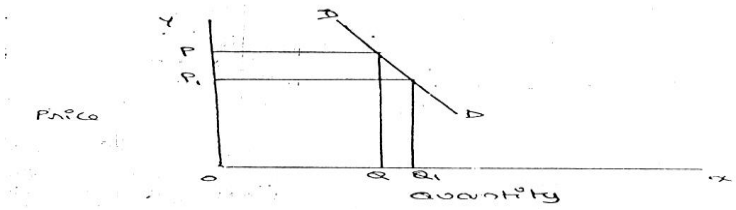
E > 1. This demand curve will be flatter.



When price falls from 'OP' to 'OP', amount demanded increase from "OQ' to "OQ1' which is larger than the change in price.

D. Relatively in-elastic demand.

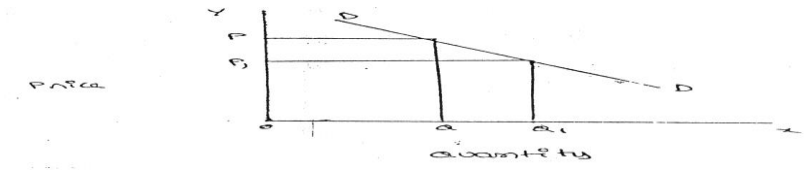
Quantity demanded changes less than proportional to a change in price. A large change in price leads to small change in amount demanded. Here E < 1. Demanded carve will be steeper.



When price falls from "OP' to 'OP1 amount demanded increases from OQ to OQ1, which is smaller than the change in price.

E. Unit elasticity of demand:

The change in demand is exactly equal to the change in price. When both are equal E=1 and elasticity if said to be unitary.



When price falls from 'OP' to 'OP1' quantity demanded increases from 'OP' to 'OP1', quantity demanded increases from 'OQ' to 'OQ1'. Thus a change in price has resulted in an equal change in quantity demanded so price elasticity of demand is equal to unity.

2. Income elasticity of demand:

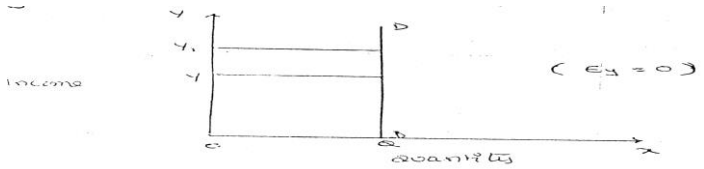
Income elasticity of demand shows the change in quantity demanded as a result of a change in income. Income elasticity of demand may be slated in the form of a formula.

$$\text{Income Elasticity} = \frac{\text{Proportionate change in the quantity demand of commodity}}{\text{Proportionate change in the income of the people}}$$

Income elasticity of demand can be classified in to five types.

A. Zero income elasticity:

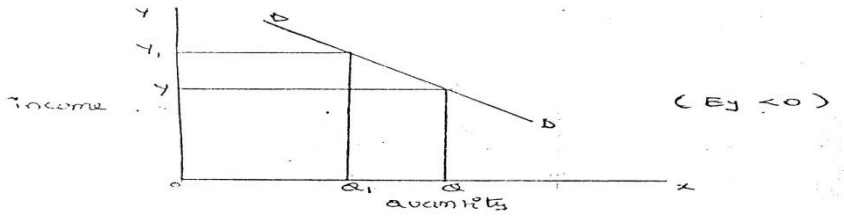
Quantity demanded remains the same, even though money income increases. Symbolically, it can be expressed as Ey=0. It can be depicted in the following way:



As income increases from OY to OY1, quantity demanded never changes.

B. Negative Income elasticity:

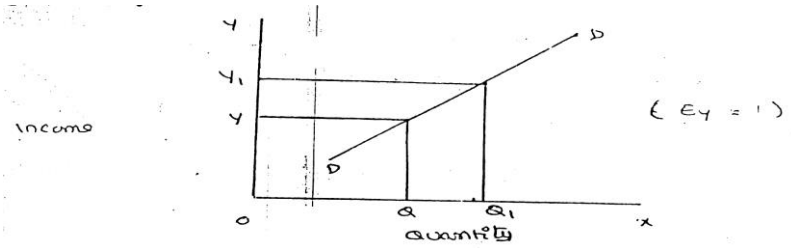
When income increases, quantity demanded falls. In this case, income elasticity of demand is negative. i.e., Ey < 0.



When income increases from OY to OY1, demand falls from OQ to OQ1.

c. Unit income elasticity:

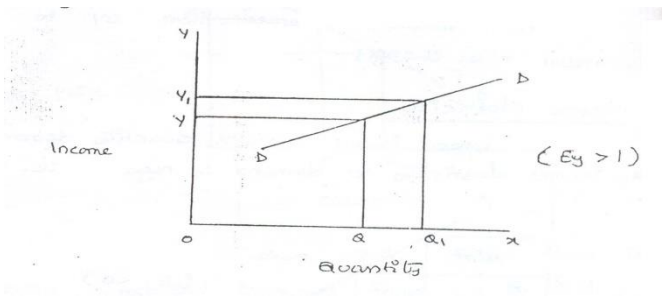
When an increase in income brings about a proportionate increase in quantity demanded, and then income elasticity of demand is equal to one. Ey = 1



When income increases from OY to OY1, Quantity demanded also increases from OQ to OQ1.

d. Income elasticity greater than unity:

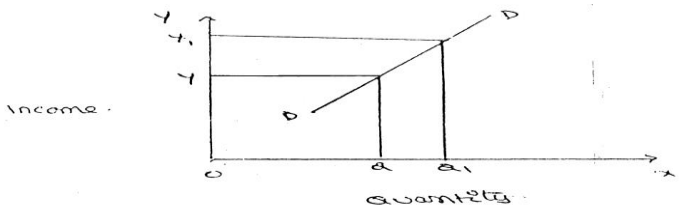
In this case, an increase in come brings about a more than proportionate increase in quantity demanded. Symbolically it can be written as Ey > 1.



It shows high-income elasticity of demand. When income increases from OY to OY1, Quantity demanded increases from OQ to OQ1.

e. Income elasticity leas than unity:

When income increases quantity demanded also increases but less than proportionately. In this case E < 1.



An increase in income from OY to OY, brings what an increase in quantity demanded from OQ to OQ1, But the increase in quantity demanded is smaller than the increase in income. Hence, income elasticity of demand is less than one.

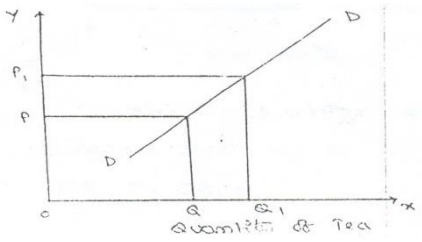
3. Cross elasticity of Demand:

A change in the price of one commodity leads to a change in the quantity demanded of another commodity. This is called a cross elasticity of demand. The formula for cross elasticity of demand is:

$$\text{Cross elasticity} = \frac{\text{Proportionate change in the quantity demand of commodity "X"}}{\text{Proportionate change in the price of commodity "Y"}}$$

a. In case of substitutes, cross elasticity of demand is positive. E.g.: Coffee and Tea

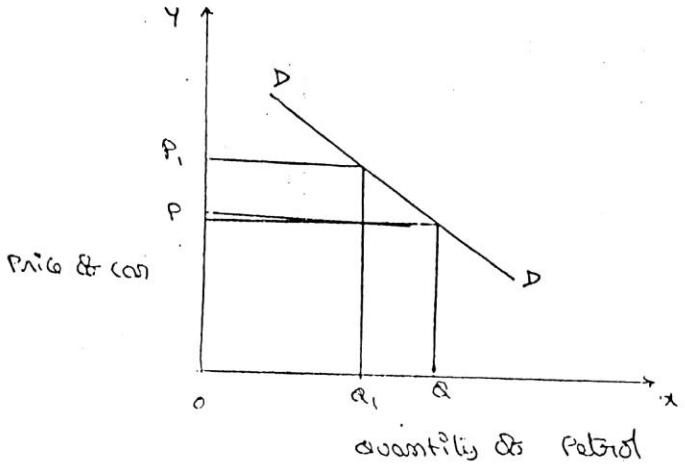
When the price of coffee increases, Quantity demanded of tea increases. Both are substitutes.



Price of Coffee

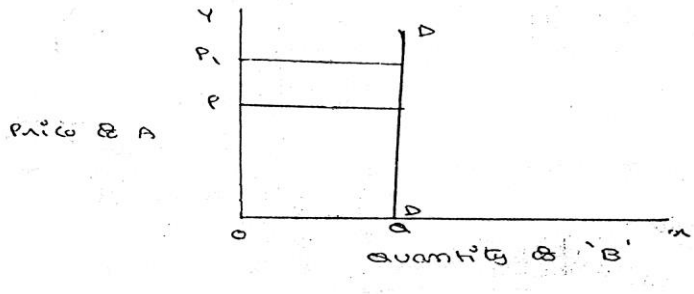
b. In case of compliments, cross elasticity is negative. If increase in the price of one commodity leads to a decrease in the quantity demanded of another and vice versa.

When price of car goes up from OP to OP, the quantity demanded of petrol decreases from OQ to OQ!. The cross-demanded curve has negative slope.



$$E_c = \frac{\%\ \Delta Q_1}{\%\ PP_1} \quad \text{(Negative)}$$

c. In case of unrelated commodities, cross elasticity of demanded is zero. A change in the price of one commodity will not affect the quantity demanded of another.



Quantity demanded of commodity “b” remains unchanged due to a change in the price of ‘A’, as both are unrelated goods.

4. Advertising elasticity of demand:

Advertising elasticity of demand shows the change in quantity demanded as a result of a change in cost of Advertisement.

Advertising elasticity of demand may be slated in the form of a formula.

$$\text{Advertising Elasticity} = \frac{\text{Proportionate change in the quantity demand of commodity}}{\text{Proportionate change in the advertisement cost}}$$

Factors influencing the elasticity of demand

Elasticity of demand depends on many factors.

1. Nature of commodity

Elasticity of demand of a commodity is influenced by its nature. A commodity for a person may be a necessity, a comfort or a luxury.

i. When a commodity is a necessity like food grains, vegetables, medicines, etc., its demand is generally inelastic as it is required for human survival and its demand does not fluctuate much with change in price.

ii. When a commodity is a comfort like fan, refrigerator, etc., its demand is generally elastic as consumer can postpone its consumption.

iii. When a commodity is a luxury like AC, DVD player, etc., its demand is generally more elastic as compared to demand for comforts.

iv. The term ‘luxury’ is a relative term as any item (like AC), may be a luxury for a poor person but a necessity for a rich person.

2. Availability of substitutes

Demand for a commodity with large number of substitutes will be more elastic. The reason is that even a small rise in its prices will induce the buyers to go for its substitutes. For example, a rise in the price of Pepsi encourages buyers to buy Coke and vice-versa.

Thus, availability of close substitutes makes the demand sensitive to change in the prices. On the other hand, commodities with few or no substitutes like wheat and salt have less price elasticity of demand.

3. Income Level:

Elasticity of demand for any commodity is generally less for higher income level groups in comparison to people with low incomes. It happens because rich people are not influenced much by changes in the price of goods. But, poor people are highly affected by increase or decrease in the price of goods. As a result, demand for lower income group is highly elastic.

4. Level of price:

Level of price also affects the price elasticity of demand. Costly goods like laptop, Plasma TV, etc. have highly elastic demand as their demand is very sensitive to changes in their prices. However, demand for inexpensive goods like needle, match box, etc. is inelastic as change in prices of such goods do not change their demand by a considerable amount.

5. Postponement of Consumption:

Commodities like biscuits, soft drinks, etc. whose demand is not urgent, have highly elastic demand as their consumption can be postponed in case of an increase in their prices. However, commodities with urgent demand like life saving drugs, have inelastic demand because of their immediate requirement.

6. Number of Uses:

If the commodity under consideration has several uses, then its demand will be elastic. When price of such a commodity increases, then it is generally put to only more urgent uses and, as a result, its demand falls. When the prices fall, then it is used for satisfying even less urgent needs and demand rises.

For example, electricity is a multiple-use commodity. Fall in its price will result in substantial increase in its demand, particularly in those uses (like AC, Heat convector, etc.), where it was not employed formerly due to its high price. On the other hand, a commodity with no or few alternative uses has less elastic demand.

7. Share in Total Expenditure:

Proportion of consumer's income that is spent on a particular commodity also influences the elasticity of demand for it. Greater the proportion of income spent on the commodity, more is the elasticity of demand for it and vice-versa.

Demand for goods like salt, needle, soap, match box, etc. tends to be inelastic as consumers spend a small proportion of their income on such goods. When prices of such goods change, consumers continue to purchase almost the same quantity of these goods. However, if the proportion of income spent on a commodity is large, then demand for such a commodity will be elastic.

8. Time Period:

Price elasticity of demand is always related to a period of time. It can be a day, a week, a month, a year or a period of several years. Elasticity of demand varies directly with the time period. Demand is generally inelastic in the short period.

It happens because consumers find it difficult to change their habits, in the short period, in order to respond to a change in the price of the given commodity. However, demand is more elastic in long rim as it is comparatively easier to shift to other substitutes, if the price of the given commodity rises.

9. Habits:

Commodities, which have become habitual necessities for the consumers, have less elastic demand. It happens because such a commodity becomes a necessity for the consumer and he continues to purchase it even if its price rises. Alcohol, tobacco, cigarettes, etc. are some examples of habit forming commodities.

Finally it can be concluded that elasticity of demand for a commodity is affected by number of factors. However, it is difficult to say, which particular factor or combination of factors determines the elasticity. It all depends upon circumstances of each case.

Importance of Elasticity of Demand:

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

1. Price fixation

The elasticity of demand for a product is the basis of its price determination. The ratio in which the demand for a product will fall with the rise in its price and vice versa can be known with the knowledge of elasticity of demand

If the demand for a product is inelastic, the producer can charge high price for it, whereas for an elastic demand product he will charge low price. Thus, the knowledge of elasticity of demand is essential for management in order to earn maximum profit.

2. Determination of factors of Production

The concept of elasticity for demand is of great importance for determining prices of various factors of production. Factors of production are paid according to their elasticity of demand. In other words, if the demand of a factor is inelastic, its price will be high and if it is elastic, its price will be low.

3. In Demand Forecasting:

The elasticity of demand is the basis of demand forecasting. The knowledge of income elasticity is essential for demand forecasting of producible goods in future. Long- term production planning and management depend more on the income elasticity because management can know the effect of changing income levels on the demand for his product.

4. In the Determination of Government Policies:

The knowledge of elasticity of demand is also helpful for the government in determining its policies. Before imposing statutory price control on a product, the government must consider the elasticity of demand for that product.The government decision to declare public utilities those industries whose products have inelastic demand and are in danger of being controlled by monopolist interests depends upon the elasticity of demand for their products.

5. In the Determination of Output Level:

For making production profitable, it is essential that the quantity of goods and services should be produced corresponding to the demand for that product. Since the changes in demand is due to the change in price, the knowledge of elasticity of demand is necessary for determining the output level.

6.Helpful in Adopting the Policy of Protection:

The government considers the elasticity of demand of the products of those industries which apply for the grant of a subsidy or protection. Subsidy or protection is given to only those industries whose products have an elastic demand. As a consequence, they are unable to face foreign competition unless their prices are lowered through subsidy or by raising the prices of imported goods by imposing heavy duties on them.

7.In the Determination of Gains from International Trade:

The gains from international trade depend, among others, on the elasticity of demand. A country will gain from international trade if it exports goods with less elasticity of demand and import those goods for which its demand is elastic.

In the first case, it will be in a position to charge a high price for its products and in the latter case it will be paying less for the goods obtained from the other country. Thus, it gains both ways and shall be able to increase the volume of its exports and imports.

Demand Forecasting

Introduction:

The information about the future is essential for both new firms and those planning to expand the scale of their production. Demand forecasting refers to an estimate of future demand for the product.

It is an 'objective assessment of the future course of demand". In recent times, forecasting plays an important role in business decision-making. Demand forecasting has an important influence on production planning. It is essential for a firm to produce the required quantities at the right time.

It is essential to distinguish between forecasts of demand and forecasts of sales. Sales forecast is important for estimating revenue cash requirements and expenses. Demand forecasts relate to production, inventory control, timing, reliability of forecast etc. However, there is not much difference between these two terms.

- Demand forecasting essentially involves ascertaining the expected level of demand during the period under consideration.
- Sales is a function of demand. Likewise, even cost of production depends upon demand.
- Production of any commodity requires time and resources.
- In order to plan the level of production and make arrangements for the resources to be consumed, it is important to estimate future demand.

Stages in forecasting demand

- Specification of objective(s)
- Selection of appropriate technique
- Collection of appropriate data
- Estimation and interpretation of results
- Evaluation of the forecasts

Factors governing elasticity of demand

- functional nature of demand
- Types of forecasts
- Forecasting level
- Degree of orientation
- Established or new products
- Nature of goods

- Degree of competition
- Other factors: change in technology, change in pilitical conditions, changes in customer preference and fashions etc.

Types of demand Forecasting:

Based on the time span and planning requirements of business firms, demand forecasting can be classified in to

1. Short-term demand forecasting and
2. Long – term demand forecasting.

1. Short-term demand forecasting:

Short-term demand forecasting is limited to short periods, usually for one year. It relates to policies regarding sales, purchase, price and finances. It refers to existing production capacity of the firm. Short-term forecasting is essential for formulating is essential for formulating a suitable price policy. If the business people expect of rise in the prices of raw materials of shortages, they may buy early. This price forecasting helps in sale policy formulation. Production may be undertaken based on expected sales and not on actual sales. Further, demand forecasting assists in financial forecasting also. Prior information about production and sales is essential to provide additional funds on reasonable terms.

2. Long – term forecasting:

In long-term forecasting, the businessmen should now about the long-term demand for the product. Planning of a new plant or expansion of an existing unit depends on long-term demand. Similarly a multi product firm must take into account the demand for different items. When forecast are mode covering long periods, the probability of error is high. It is vary difficult to forecast the production, the trend of prices and the nature of competition. Hence quality and competent forecasts are essential.

Prof. C. I. Savage and T.R. Small classify demand forecasting into time types. They are:

1. Economic forecasting,
2. Industry forecasting,
3. Firm level forecasting.

Economic forecasting is concerned with the economics, while industrial level forecasting is used for inter-industry comparisons and is being supplied by trade association or chamber of commerce. Firm level forecasting relates to individual firm.

Demand forecasting techniques

1. survey method

   (a) survey of buyers intention

   - census method
   - Sample method

   (b) sales force opinion

2. Statistical methods

   (a) Trend projection methods

   - trend line by observation
   - Least squares method
   - Time series analysis
   - Moving averages method
   - Exponential smoothing

   (b) Barometric techniques

   (c) Simultaneous equation method

   (d)correlation and regression method

3. Other methods

   (a) Expert opinion method

   (b) Test marketing

   (c) controlled experiments

   (d) Judgmental approach

1. Survey method

(a)Consumer's Survey Method or Survey of Buyer's Intentions:

In this method, the consumers are directly approached to disclose their future purchase plans. I his is done by interviewing all consumers or a selected group of consumers out of the relevant population. This is the direct method of estimating demand in the short run. Here the burden of forecasting is shifted to the buyer. The firm may go in for complete enumeration or for sample surveys. If the commodity under consideration is an intermediate product then the industries using it as an end product are surveyed

(b) Sales Force Opinion Method:

This is also known as collective opinion method. In this method, instead of consumers, the opinion of the salesmen is sought. It is sometimes referred as the "grass roots approach" as it is a bottom-up method that requires each sales person in the company to make an individual forecast for his or her particular sales territory.

These individual forecasts are discussed and agreed with the sales manager. The composite of all forecasts then constitutes the sales forecast for the organisation. The advantages of this method are that it is easy and cheap. It does not involve any elaborate statistical treatment. The main merit of this method lies in the collective wisdom of salesmen. This method is more useful in forecasting sales of new products.

2. Statistical Method:

Statistical methods have proved to be immensely useful in demand forecasting. In order to maintain objectivity, that is, by consideration of all implications and viewing the problem from an external point of view, the statistical methods are used.

The important statistical methods are:

(i) Trend Projection Method:

A firm existing for a long time will have its own data regarding sales for past years. Such data when arranged chronologically yield what is referred to as 'time series'. Time series shows the past sales with effective demand for a particular product under normal conditions. Such data can be given in a tabular or graphic form for further analysis. This is the most popular method among business firms, partly because it is simple and inexpensive and partly because time series data often exhibit a persistent growth trend.

(a)Trend line by observation method

This is the simplest technique to determine the trend. All values of output or sale for different years are plotted on a graph and a smooth free hand curve is drawn passing through as many points as possible. The direction of this free hand curve—upward or downward— shows the trend.

(b) Least Square Method:

Under the least square method, a trend line can be fitted to the time series data with the help of statistical techniques such as least square regression. When the trend in sales over time is given by straight line, the equation of this line is of the form: y = a + bx. Where 'a' is the intercept and 'b' shows the impact of the independent variable. We have two variables—the independent variable x and the dependent variable y. The line of best fit establishes a kind of mathematical relationship between the two variables .v and y. This is expressed by the regression y on x.

In order to solve the equation s = x + y(T), we have to make use of the following normal equations:

$\Sigma S = Nx + y\Sigma T$

$\Sigma ST = x \Sigma T + Y \Sigma T^2$

Whereas S= sales, T= year number, N= number of years

(c) Time series analysis:

Time series has got four types of components namely, Secular Trend (T), Secular Variation (S), Cyclical Element (C), and an Irregular or Random Variation (I). These elements are expressed by the equation O = TSCI. Secular trend refers to the long run changes that occur as a result of general tendency.

Seasonal variations refer to changes in the short run weather pattern or social habits. Cyclical variations refer to the changes that occur in industry during depression and boom. Random variation refers to the factors which are generally able such as wars, strikes, flood, and famine and so on.

When a forecast is made the seasonal, cyclical and random variations are removed from the observed data. Thus only the secular trend is left. This trend is then projected. Trend projection fits a trend line to a mathematical equation.

(ii) Barometric Technique:

A barometer is an instrument of measuring change. This method is based on the notion that "the future can be predicted from certain happenings in the present." In other words, barometric techniques are based on the idea that certain events of the present can be used to predict the directions of change in the future. This is accomplished by the use of economic and statistical indicators which serve as barometers of economic change.

c. Regression and correlation method:

Regression and correlation are used for forecasting demand. Based on post data the future data trend is forecasted. If the functional relationship is analyzed with the independent variable it is simple correction. When there are several independent variables it is multiple correlation. In correlation we analyze the nature of relation between the variables while in regression; the extent of relation between the variables is analyzed. The results are expressed in mathematical form. Therefore, it is called as econometric model building. The main advantage of this method is that it provides the values of the independent variables from within the model itself.

(d)Simultaneous Equations Model:

Under simultaneous equation model, demand forecasting involves the estimation of several simultaneous equations. These equations are often the behavioral equations, market-clearing equations, and mathematical identities.

The regression technique is based on the assumption of one-way causation, which means independent variables cause variations in the dependent variables, and not vice-versa. In simple terms, the independent variable is in no way affected by the dependent variable. For example**, D = a – bP**, which shows that price affects demand, but demand does not affect the price, which is an unrealistic assumption.

On the contrary, the simultaneous equations model enables a forecaster to study the **simultaneous interaction between the dependent and independent variables.** Thus, simultaneous equation model is a systematic and complete approach to forecasting. This method employs several mathematical and statistical tools of estimation.

III) OTHER METHODS

(a)Expert opinion method

In this **method of demand forecasting**, the firm makes an effort to obtain the opinion of experts who have long standing experience in the field of enquiry related to the product under consideration. If the forecast is based on the opinion of several experts then the approach is called forecasting through the use of **panel consensus.** Although the panel consensus method usually results in forecasts that embody the collective wisdom of consulted experts, it may be at times unfavorably affected by the force of personality of one or few key individuals.

To counter this disadvantage of panel consensus, another approach is developed called the **Delphi method.** In this method a panel of experts is individually presented a series of questions pertaining to the forecasting problem. Responses acquired from the experts are analyzed by an independent party that will provide the feedback to the panel members. Based on the responses of other individuals, each expert is then asked to make a revised forecast. This process continues till a consensus is reached or until further iterations generate no change in estimates.

The advantage of Delphi technique is that it helps individual panel members in assessing their forecasts. However Delphi method is quite expensive. Often, the most knowledgeable experts in the industry will command more fees. Besides, those who consider themselves as experts may be reluctant to be influenced by the opinions of others on the panel.

The main advantage of the Experts Opinion Survey Method is its simplicity. It does not require extensive statistical or mathematical calculations However this method has its own limitations. It is purely subjective. It substitutes opinion in place of analysis of the situation. Experts may have

different forecasts or any one among them may influence others. Who knows experts may be biased or have their own intentions behind providing their opinions. If the consulted experts are genuinely reliable then panel consensus could be perhaps the best method of forecasting.

(b) Test marketing:

The Test Marketing is one of the methods used under the Market Test. **What** The **Test Marketing** is yet another method of sales forecasting, wherein the new product is launched in the selected geographical areas, the representative of the final market, to check the viability of the product and its demand among the selected group of people.

The test marketing is the most reliable method of sales forecasting wherein the product is launched in a few selected cities/town to check the response of customers towards the product. On the basis of such response, the firm decides whether to commercialize the product on a large scale or not. The test marketing must be performed with utmost care; the marketers must select those areas for testing that depicts the true image of the overall market.

(c) Controlled Experiments:

Under this method, an effort is made to ascertain separately certain determinants of demand which can be maintained, e.g., price, advertising etc. and conducting the experiment, assuming etc., and conducting the experiment, assuming that the other factors remain constant.

Thus, the effect of demand determinants like price, advertisement packing etc., on sales can be assessed by either varying them over different markets or by varying them over different time periods in the same market.

(d)Judgmental methods

When none of the above methods are directly related to the given product or service, the management has no alternative other than using its own judgment. Judgmental forecasting methods incorporate intuitive judgment, opinions and subjective probability estimates. Judgmental forecasting is used in cases where there is lack of historical data or during completely new and unique market condition.

Consumers Equilibrium

When consumers make choices about the quantity of goods and services to consume, it is presumed that their objective is to **maximize total utility.** In maximizing total utility, the consumer faces a number of **constraints**, the most important of which are the consumer's*income* and the *prices* of the goods and services that the consumer wishes to consume. The consumer's effort to maximize total utility, subject to these constraints, is referred to as the **consumer's problem.** The solution to the consumer's problem, which entails decisions about how much the consumer will consume of a number of goods and services, is referred to as **consumer equilibrium.**

Determination of consumer equilibrium: Consider the simple case of a consumer who cares about consuming only two goods: good 1 and good 2. This consumer knows the prices of goods 1 and 2 and has a fixed income or budget that can be used to purchase quantities of goods 1 and 2. The consumer will purchase quantities of goods 1 and 2 so as to completely exhaust the budget for such purchases. The actual quantities purchased of each good are determined by the condition for consumer equilibrium, which is

$$\frac{\text{marginal utility of good 1}}{\text{price of good 1}} = \frac{\text{marginal utility of good 2}}{\text{price of good 2}} = \cdots = \frac{\text{marginal utility of good } N}{\text{price of good } N}$$

This condition states that the marginal utility per dollar spent on good 1 must equal the marginal utility per dollar spent on good 2. If, for example, the marginal utility per dollar spent on good 1 were higher than the marginal utility per dollar spent on good 2, then it would make sense for the consumer to purchase more of good 1 rather than purchasing any more of good 2. After purchasing more and more of good 1, the marginal utility of good 1 will eventually fall due to the law of diminishing marginal utility, so that the marginal utility per dollar spent on good 1 will eventually equal that of good 2. Of course, the amount purchased of goods 1 and 2 cannot be limitless and will depend not only on the marginal utilities per dollar spent, but also on the consumer's budget.

Unit-III: Production & cost Analysis

Production function, Production functions with one/two variables, Cobb-Douglas Production Function Marginal Rate of Technical Substitution, Isoquants and Isocosts, Returns to Scale and Returns to Factors, Economies of scale. Cost concepts, determinants of cost, cost-output relationship in the short run and long run, short run vs. long run costs, average cost curves, Overall Cost leadership.

Introduction: Production Function

Production

Production is processes that create/adds value or utility. It is the process in which the inputs are converted in to outputs.

Inputs : Fixed inputs and Variable inputs

The factors of production that is carry out the production is called inputs.

Fixed inputs	Variable inputs
❑ Remain the same in the short period . ❑ At any level of out put, the amount is remain the same. ❑ The cost of these inputs are called Fixed Cost ❑ Examples:- Building, Land etc ❑ (In the long run fixed inputs are become varies)	❑ In the long run all factors of production are varies according to the volume of outputs. ❑ The cost of variable inputs__is called Variable Cost ❑ Example:- Raw materials, labour, etc

What is Production Function?

The basic relationship between the factors of production and the output is reffered to as a Production Function.

The firm's production function for a particular good (q) shows the maximum amount of the good that can be produced using alternative combinations of capital (K) and labor (L)

The production function expresses a functional relationship between physical inputs and physical outputs of a firm at any particular time period. The output is thus a function of inputs. Mathematically production function can be written as

Q= f (L1, L2, C,O,T)

Where "Q" stands for the **quantity of output** and L1, L2, C,O,T are various input factors such as land, labour, capital and organization and technology. Here output is the function of inputs. Hence output becomes the dependent variable and inputs are the independent variables.
It is a technical relation which connects factors inputs used in the production function and the level of outputs

Q = f (Land, Labour, Capital, Organization, Technology, etc)

The above function does not state by how much the output of "Q" changes as a consequence of change of variable inputs. In order to express the quantitative relationship between inputs and output, Production function has been expressed in a precise mathematical equation i.e.

Y= a+b (x)

Which shows that there is a constant relationship between applications of input (the only factor input 'X' in this case) and the amount of output (y) produced.

Importance:

1. When inputs are specified in physical units, production function helps to estimate the level of production.
2. It becomes is equates when different combinations of inputs yield the same level of output.
3. It indicates the manner in which the firm can substitute on input for another without altering the total output.
4. When price is taken into consideration, the production function helps to select the least combination of inputs for the desired output.
5. It considers two types' input-output relationships namely 'law of variable proportions' and 'law of returns to scale'. Law of variable propositions explains the pattern of output in the short-run as the units of variable inputs are increased to increase the output. On the other hand law of returns to scale explains the pattern of output in the long run as all the units of inputs are increased.
6. The production function explains the maximum quantity of output, which can be produced, from any chosen quantities of various inputs or the minimum quantities of various inputs that are required to produce a given quantity of output.

Production function can be fitted the particular firm or industry or for the economy as whole. Production function will change with an improvement in technology.

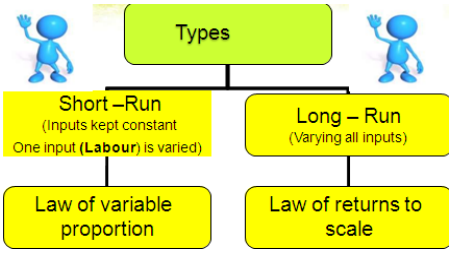
Assumptions:

Production function has the following assumptions.

1. The production function is related to a particular period of time.
2. There is no change in technology.
3. The producer is using the best techniques available.
4. The factors of production are divisible.

5. Production function can be fitted to a short run or to long run.

Types of production function:-



These two types of relationships have been explained in the form of laws.

i) Law of variable proportions (short run production function)
ii) Law of returns to scale (long run production function)

I. Law of variable proportions:

The law of variable proportions which is a new name given to old classical concept of "Law of diminishing returns has played a vital role in the modern economics theory. Assume that a firms production function consists of fixed quantities of all inputs (land, equipment, etc.) except labour which is a variable input when the firm expands output by employing more and more labour it alters the proportion between fixed and the variable inputs. The law can be stated as follows:

"When total output or production of a commodity is increased by adding units of a variable input while the quantities of other inputs are held constant, the increase in total production becomes after some point, smaller and smaller"

"If equal increments of one input are added, the inputs of other production services being held constant, beyond a certain point the resulting increments of product will decrease i.e. the marginal product will diminish". (**G. Stigler**)

"As the proportion of one factor in a combination of factors is increased, after a point, first the marginal and then the average product of that factor will diminish". (**F. Benham**)

The law of variable proportions refers to the behaviour of output as the quantity of one Factor is increased Keeping the quantity of other factors fixed and further it states that the marginal product and average product will eventually do cline. This law states three types of productivity an input factor – Total, average and marginal physical productivity.

Assumptions of the Law: The law is based upon the following assumptions:

i) The state of technology remains constant. If there is any improvement in technology, the average and marginal output will not decrease but increase.
ii) Only one factor of input is made variable and other factors are kept constant. This law does not apply to those cases where the factors must be used in rigidly fixed proportions.
iii) All units of the variable factors are homogenous.

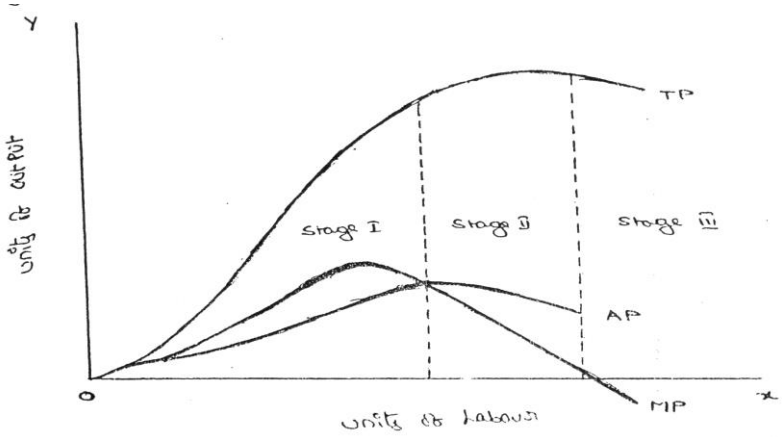
Three stages of law:

The behaviors of the Output when the varying quantity of one factor is combines with a fixed quantity of the other can be divided in to three district stages. The three stages can be better understood by following the table.

Fixed factor	Variable factor (Labour)	Total product	Average Product	Marginal Product	Stages
1	1	100	100	-	**Stage I**
1	2	220	120	120	
1	3	270	90	50	
1	4	300	75	30	**Stage II**
1	5	320	64	20	
1	6	330	55	10	
1	7	330	47	0	**Stage III**
1	8	320	40	-10	

Above table reveals that both average product and marginal product increase in the beginning and then decline of the two marginal products drops of faster than average product. Total product is maximum when the farmer employs 6th worker, nothing is produced by the 7th worker and its marginal productivity is zero, whereas marginal product of 8th worker is '-10', by just creating credits 8th worker not only fails to make a positive contribution but leads to a fall in the total output.

Production function with one variable input and the remaining fixed inputs is illustrated as below



From the above graph the law of variable proportions operates in three stages.

In the first stage, total product increases at an increasing rate. The marginal product in this stage increases at an increasing rate resulting in a greater increase in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal

product. The law of increasing returns is in operation at this stage. The law of diminishing returns starts operating from the second stage awards. At the second stage total product increases only at a diminishing rate. The average product also declines.

The second stage comes to an end where total product becomes maximum and marginal product becomes zero.

The marginal product becomes negative in **the third stage**. So the total product also declines. The average product continues to decline.

We can sum up the above relationship thus when 'A.P.' is rising, "M. P.' rises more than " A. P; When 'A. P." is maximum and constant, 'M. P.' becomes equal to 'A. P.' when 'A. P.' starts falling, 'M. P.' falls faster than ' A. P.'Thus, the total product, marginal product and average product pass through three phases, viz., increasing diminishing and negative returns stage. The law of variable proportion is nothing but the combination of the law of increasing and demising returns.

II. Law of Returns of Scale:

The law of returns to scale explains the behavior of the total output in response to change in the scale of the firm, i.e., in response to a simultaneous to changes in the scale of the firm, i.e., in response to a simultaneous and proportional increase in all the inputs. More precisely, the Law of returns to scale explains how a simultaneous and proportionate increase in all the inputs affects the total output at its various levels.

When a firm expands, its scale increases all its inputs proportionally, then technically there are three possibilities. (i) The total output may increase proportionately (ii) The total output may increase more than proportionately and (iii) The total output may increase less than proportionately.

Types of returns to scale

1. Increasing Return to Scale: If increase in the output is greater than the proportional increase in the inputs, it means increasing return to scale**.**

2. Constant returns to scale: If increase in the total output is proportional to the increase in input, it means constant returns to scale.

3. Diminishing Returns to Scale: If increase in the output is less than proportional increase in the inputs, it means diminishing returns to scale.

Labour	Capital	TP	MP
2	1	8	8

4	2	18	10
6	3	30	12
8	4	40	10
10	5	50	10
12	6	60	10
14	7	68	8
16	8	74	6
18	9	78	4

Increasing returns to scale (Inputs 10% increase – Outputs 15% increase)

Constant returns to scale (Inputs 10% increase – Outputs 10% increase)

Decreasing returns to scale (Inputs 10% increase – Outputs 5% increase)

Production Function with Two Variable Factors

For the analysis of production function with two variable factors we make use of the concept called isoquants or iso- product curves which are similar to indifference curves of the theory of demand. Therefore, before we explain the production function with two variable factors and returns to scale, we shall explain the concept of isoquants (that is, equal product curves) and their properties.

ISOQUANTS:

The term Isoquants is derived from the words 'iso' and 'quant' – 'Iso' means equal and 'quant' implies quantity. Isoquant therefore, means equal quantity. A family of iso-product curves or isoquants or production difference curves can represent a production function with two variable inputs, which are substitutable for one another within limits.

Isoquants are the curves, which represent the different combinations of inputs producing a particular quantity of output. Any combination on the Isoquant represents the some level of output.

For a given output level firm's production become,

Q= f (L, K)

Where 'Q', is the units of output is a function of the quantity of two inputs 'L' and 'K'.

Thus an Isoquant shows all possible combinations of two inputs, which are capable of producing equal or a given level of output. Since each combination yields same output, the producer becomes indifferent towards these combinations.

Assumptions:

1. There are only two factors of production, viz. labour and capital.
2. The two factors can substitute each other up to certain limit
3. The shape of the Isoquant depends upon the extent of substitutability of the two inputs.
4. The technology is given over a period.

An Isoquant may be explained with the help of an arithmetical example. Labor is on the X-axis and capital is on the Y-axis. IQ is the ISO-Product curve which shows all the alternative combinations A, B, C, D, E which can produce 50 quintals of a product.

Combinations	Labour (units)	Capital (Units)	Output (quintals)
A	1	12	50
B	2	8	50
C	3	5	50
D	4	3	50
E	5	2	50

The concept of isoquant can be easily understood from Table 17.1. It is presumed that two factors labour and capital are being employed to produce a product. Each of the factor combinations A. B, C, D and E produces the same level of output, say 100 units. To start with, factor combination A consisting of 1 unit of labour and 12 units of capital produces the given 100 units of output.
Similarly, combination B consisting of 2 units of labour and 8 units of capital, combination C consisting of 3 units of labour and 5 units of capital, combination D consisting of 4 units of labour and 3 units of capital, combination E consisting of 5 units of labour and 2 units of capital are capable of producing the same amount of output, i.e., 100 units. In the above graph we have plotted all these combinations and by joining them we obtain an isoquant showing that every combination represented on it can produce 100 units of output.

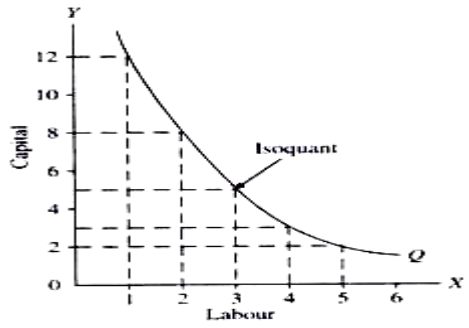


Fig. 17.1. *Isoquant*

Though isoquants are similar to be indifference curves of the theory of consumer's behaviour, there is one important difference between the two. An indifference curve represents all those combinations of two goods which provide the same satisfaction or utility to a consumer but no attempt is made to specify the level of utility in exact quantitative terms it stands for.
This is so because the cardinal measurement of satisfaction or utility in unambiguous thermos is not possible. That is why we usually label indifference curves by ordinal numbers as I, II, III etc. indicating that a higher indifference curve represents a higher level of satisfaction than a lower one, but the information as to how much one level of satisfaction is greater than another is not provided.

On the other hand, we can label isoquants in the physical units of output without any difficulty. Production of a good being a physical phenomenon lends itself easily to absolute measurement in physical units. Since each isoquant represents a specified level of production, it is possible to say by how much one isoquant indicates greater or less production than another.

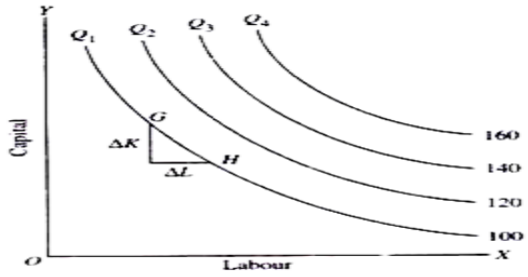


Fig. 17.2. *Isoquant map*

The above figure we have drawn an isoquant-map or equal- product map with a set of four isoquants which represent 100 units, 120 units, 140 units and 160 units of output respectively. Then, from this set of isoquants it is very easy to judge by how much production level on one isoquant curve is greater or less than on another.

Isoquants of Perfect Substitutes and Complements:

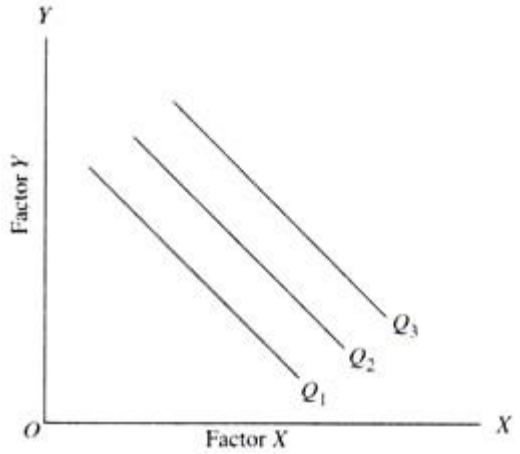


Fig. 17.4. *Perfect Substitutes*

The following are the important properties of isoquants:

1. Isoquants, like indifference curves, slope downward from left to right (i.e., they have a negative slope):

This is so because when the quantity of a factor, say labour, is increased, the quantity of other capital i.e., capital must be reduced so as to keep output constant on a given isoquant.

2. No two isoquants can intersect each other:

If the two isoquants, one corresponding to 20 units of output and the other to 30 units of output intersect each other, there will then be a common factor combination corresponding to the point of intersection.

It means that the same factor combination which can produce 20 units of output according to one isoquant can also produce 30 units of output according to the other isoquant. But this is quite absurd. How can the same factor combination produce two different levels of output, technique of production remaining unchanged?

3. Isoquants, like indifference curves, are convex to the origin:

The convexity of isoquant curves means that as we move down the curve successively smaller units of capital are required to be substituted by a-given increment of labour so as to keep the level of output unchanged. Thus, the convexity of equal product curves is due to the diminishing marginal rate of technical substitution of one factor for the other.

4. Do not touch any axis: the iso quant touches neither X- axis nor Y- axis, as both inputs are required to produce a given product.

Marginal Rate of Technical Substitution:

Marginal rate of technical substitution in the theory of production is similar to the concept of marginal rate of substitution in the indifference curve analysis of consumer's demand. Marginal rate of technical substitution indicates the rate at which factors can be substituted at the margin without altering the level of output.

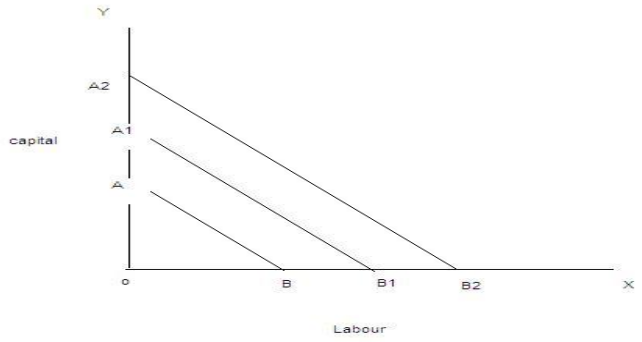
More precisely, marginal rate of technical substitution of labour for capital may be defined as the number of units of capital which can be replaced by one unit of labour, the level of output remaining unchanged. The concept of marginal rate of technical substitution can be easily understood from below table

Combinations	**Labour (units)**	**Capital (Units)**	**Output (quintals)**	MRTS
A	1	12	50	----
B	2	8	50	4:1
C	3	5	50	3:1
D	4	3	50	2:1
E	5	2	50	1:1

Isocost curve

Isocost curve is the locus traced out by various combinations of L and K, each of which costs the producer the same amount of money (C) Differentiating equation with respect to L, we have $dK/dL = -w/r$ This gives the slope of the producer's budget line (isocost curve). Iso cost line shows various combinations of labour and capital that the firm can buy for a given factor prices. The slope of iso cost line = PL/Pk. In this equation , PL is the price of labour and Pk is the price of capital. The slope of iso cost line indicates the ratio of the factor prices. A set of isocost lines can be drawn for different levels of factor prices, or different sums of money. The iso cost line will shift to the right when money spent on factors increases or firm could buy more as the factor prices are given.

Slope of iso cost line: With the change in the factor prices the slope of iso cost lien will change. If the price of labour falls the firm could buy more of labour and the line will shift away from the origin. The slope depends on the prices of factors of production and the amount of money which the firm spends on the factors. When the amount of money spent by the firm changes, the isocost line may shift but its slope remains the same. A change in factor price makes changes in the slope of isocost lines as shown in the figure.



Least Cost Combination of Inputs

A given level of output can be produced using many different combinations of two variable inputs. In choosing between the two resources, the saving in the resource replaced must be greater than the cost of resource added. The principle of least cost combination states that if two input factors are considered for a given output then the least cost combination will have inverse price ratio which is equal to their marginal rate of substitution.

Where the slope of isoquant is equal to that of isocost , there lies the lowest point of cost of production. The below graph explains the same

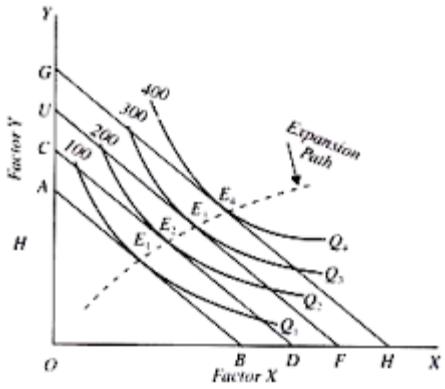


Fig. 18.8. *Expansion Path*

RETURNS TO FACTORS

Returns to factors are also called factor productivities. Productivity is the ratio of output to the input. Factor productivity refers to the short-run relationship of input and output. The productivity of one unit of a factor of production will be equal to the output it can generate. The productivity of a particular factor is measured with the assumption that the other factors are not changed or remain unchanged. Only that particular factor under study is changed.

Returns to factors refer to the output or return generated as a result of change in one or more factors, keeping the other factors unchanged. Given a percentage of increase or decrease in a particular factor such as labour, is it yielding proportionate increase or decrease in production? This is analysed in 'returns to factors.'

The change in productivity can be measured in terms of

(a) Total productivity The total output generated at varied levels of input of a particular factor (while other factors remain constant), is called total physical product.

(b) Average productivity The total physical product divided by the number units of that particular factor used yields average productivity.

(c) Marginal productivity The marginal physical product is the additional output generated by adding an additional unit of the factor under study, keeping the other factors constant.

The total physical product increases along with an increase in the inputs. However, the rate of increase is varied, not constant. The total physical product at first increases at an *increasing*rate because of the law of increasing return to scale, and later its rate of increase declines because of the law of decreasing returns to scale.

Cobb-Douglas production function:

Production function of the linear homogenous type is invested by ***Junt wicksell*** and first tested by ***C. W. Cobb*** and ***P. H. Dougles*** in 1928. This famous statistical production function is known as Cobb-Douglas production function. Originally the function is applied on the empirical study of the American manufacturing industry. Cobb – Douglas production function takes the following mathematical form.

$Y= (AL^{B} K^{1-B})$

Where Y=output, K=Capital, L=Labour A,B ∞=positive constant

The function estimated for the USA by Cobb and Douglas is

$$Y= (1.01L^{0.75} K^{0.25})$$

$$R^2 = 0.9409$$

The production function shows that one percent change in labour input, capital remaining the same, is associated with a 0.75 percent change in output. Similarly, one percent change in capital, labour remaining the same, is associated with a 0.25 percent change in output.

The co efficient of determination R^2 means that 94 percent of the variations on the dependent variable (p) were accounted for by the variations in the independent variables (L and c).

Assumptions:

It has the following assumptions

1. The function assumes that output is the function of two factors viz. capital and labour.
2. It is a linear homogenous production function of the first degree
3. The function assumes that the logarithm of the total output of the economy is a linear function of the logarithms of the labour force and capital stock.
4. There are constant returns to scale
5. All inputs are homogenous
6. There is perfect competition
7. There is no change in technology

ECONOMIES OF SCALE

Production may be carried on a small scale or o a large scale by a firm. When a firm expands its size of production by increasing all the factors, it secures certain advantages known as economies of production. Marshall has classified these economies of large-scale production into internal economies and external economies.

Internal economies are those, which are opened to a single factory or a single firm independently of the action of other firms.

External economies are those benefits, which are shared in by a number of firms or industries when the scale of production in an industry or groups of industries increases.

Causes of internal economies:

Internal economies are generally caused by two factors

1. Indivisibilities
2. Specialization.

1. Indivisibilities:

Many fixed factors of production are indivisible in the sense that they must be used in a fixed minimum size. For instance, if a worker works half the time, he may be paid half the salary. But he cannot be chopped into half and asked to produce half the current output. Thus as output increases the indivisible factors which were being used below capacity can be utilized to their full capacity thereby reducing costs. Such indivisibilities arise in the case of labour, machines, marketing, finance and research.

2. Specialization:

Division of labour, which leads to specialization, is another cause of internal economies. Specialization refers to the limitation of activities within a particular field of production. Specialization may be in labour, capital, machinery and place. For example, the production process may be split into four departments relation to manufacturing, assembling, packing and marketing under the charge of separate managers who may work under the overall charge of the general manger and coordinate the activities of the for departments. Thus specialization will lead to greater productive efficiency and to reduction in costs.

Internal Economies:

Internal economies may be of the following types.

A). Technical Economies.

Technical economies arise to a firm from the use of better machines and superior techniques of production. As a result, production increases and per unit cost of production falls. A large firm, which employs costly and superior plant and equipment, enjoys a technical superiority over a small firm. Another technical economy lies in the mechanical advantage of using large machines. The cost of operating large machines is less than that of operating mall machine. More over a larger firm is able to reduce it's per unit cost of production by linking the various processes of production. Technical economies may also be associated when the large firm is able to utilize all its waste materials for the development of by-products industry. Scope for specialization is also available in a large firm. This increases the productive capacity of the firm and reduces the unit cost of production.

B). Managerial Economies:

These economies arise due to better and more elaborate management, which only the large size firms can afford. There may be a separate head for manufacturing, assembling, packing, marketing, general administration etc. Each department is under the charge of an expert. Hence the appointment of experts, division of administration into several departments, functional specialization and scientific co-ordination of various works make the management of the firm most efficient.

C). Marketing Economies:

The large firm reaps marketing or commercial economies in buying its requirements and in selling its final products. The large firm generally has a separate marketing department. It can buy and sell on behalf of the firm, when the market trends are more favorable. In the matter of buying they could enjoy advantages like preferential treatment, transport concessions, cheap credit, prompt delivery and fine relation with dealers. Similarly it sells its products more effectively for a higher margin of profit.

D). Financial Economies:

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

E). Risk bearing Economies:

The large firm produces many commodities and serves wider areas. It is, therefore, able to absorb any shock for its existence. For example, during business depression, the prices fall for every firm. There is also a possibility for market fluctuations in a particular product of the firm. Under such circumstances the risk-bearing economies or survival economies help the bigger firm to survive business crisis.

F). Economies of Research:

A large firm possesses larger resources and can establish it's own research laboratory and employ trained research workers. The firm may even invent new production techniques for increasing its output and reducing cost.

G). Economies of welfare:

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

External Economies:

Business firm enjoys a number of external economies, which are discussed below:

A). Economies of Concentration:

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

B). Economies of Information

The industry can set up an information centre which may publish a journal and pass on information regarding the availability of raw materials, modern machines, export potentialities and provide other information needed by the firms. It will benefit all firms and reduction in their costs.

C). Economies of Welfare:

An industry is in a better position to provide welfare facilities to the workers. It may get land at concessional rates and procure special facilities from the local bodies for setting up housing colonies for the workers. It may also establish public health care units, educational institutions both general and technical so that a continuous supply of skilled labour is available to the industry. This will help the efficiency of the workers.

D). Economies of Disintegration:

The firms in an industry may also reap the economies of specialization. When an industry expands, it becomes possible to spilt up some of the processes which are taken over by specialist firms. For example, in the cotton textile industry, some firms may specialize in manufacturing thread, others in printing, still others in dyeing, some in long cloth, some in dhotis, some in shirting etc. As a result the efficiency of the firms specializing in different fields increases and the unit cost of production falls.

Thus internal economies depend upon the size of the firm and external economies depend upon the size of the industry.

DISECONOMIES OF LARGE SCALE PRODUCTION

Internal and external diseconomies are the limits to large-scale production. It is possible that expansion of a firm's output may lead to rise in costs and thus result diseconomies instead of economies. When a firm expands beyond proper limits, it is beyond the capacity of the manager to manage it efficiently. This is an example of an internal diseconomy. In the same manner, the expansion of an industry may result in diseconomies, which may be called external diseconomies. Employment of additional factors of production becomes less efficient and they are obtained at a higher cost. It is in this way that external diseconomies result as an industry expands.

The major diseconomies of large-scale production are discussed below:

Internal Diseconomies:

A). Financial Diseconomies:

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

B). Managerial diseconomies:

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

C). Marketing Diseconomies:

As business is expanded, prices of the factors of production will rise. The cost will therefore rise. Raw materials may not be available in sufficient quantities due to their scarcities. Additional output may depress the price in the market. The demand for the products may fall as a result of changes in tastes and preferences of the people. Hence cost will exceed the revenue.

D). Technical Diseconomies:

There is a limit to the division of labour and splitting down of production p0rocesses. The firm may fail to operate its plant to its maximum capacity. As a result cost per unit increases. Internal diseconomies follow.

E). Diseconomies of Risk-taking:

As the scale of production of a firm expands risks also increase with it. Wrong decision by the management may adversely affect production. In large firms are affected by any disaster, natural or human, the economy will be put to strains.

External Diseconomies:
When many firms get located at a particular place, the costs of transportation increases due to congestion. The firms have to face considerable delays in getting raw materials and sending finished products to the marketing centers. The localization of industries may lead to scarcity of raw material, shortage of various factors of production like labour and capital, shortage of power, finance and equipments. All such external diseconomies tend to raise cost per unit.

Cost- introduction

- Cost refers to the expenditure incurred to produce a particular product or service .
- All costs involve a sacrifice of some kind or other to acquire some benefit.
- Costs may be monetary or non monetary , tangible or non – tangible, determined subjectively or objectively.
- Cost of production normally includes the cost of raw materials, labor, and other expenses. This cost is known as total cost(TC).
- TC is compared with the total revenue (TR) realized on the sale of the products manufactured.
- This difference is termed as profit/loss

Cost Concepts

It is used for analyzing the cost of a project in short and long run.

- Long run Vs short run costs
- Fixed Vs variable costs
- Semi fixed Vs semi variable costs
- Marginal costs
- Controllable Vs non controllable costs
- Opportunity Vs outlay costs
- Incremental Vs sunk costs
- Out of pocket Vs book costs
- Explicit Vs implicit Costs
- Replacement cost Vs historical cost
- Past Vs future costs
- Separable Vs joint costs
- Accounting Vs economic costs
- Urgent Vs postponable costs

- Escapable vs unavoidable costs

Long run Vs short run costs

- Short run costs are costs that vary with variation in output. Short run costs are the same as variable costs
- Long run costs are costs that are incurred on fixed assets like plant, machinery, etc
- It is to be noted that running costs and depreciation of capital assets are included under short run costs.

Fixed Costs(FC)

Fixed Cost denotes the costs which do not vary with the level of production. FC is independent of output.

Eg: Depreciation, Interest Rate, Rent, Taxes

Total fixed cost (TFC):

All costs associated with the fixed input

Average fixed cost per unit of output:

AFC = TFC /Output

Variable Costs(VC)

Variable Costs is the rest of total cost, the part that varies as you produce more or less. It depends on Output.

Eg: Increase of output with labour.

Total variable cost (TVC):

All costs associated with the variable input.

Average variable cost- cost per unit of output: AVC =TVC/ Output

Semi fixed Vs semi variable costs

- Semi variable costs are also called semi fixed costs. Semi fixed or semi variable costs are fixed up to a given level and beyond that they vary.
- For example electricity bill, telephone bill etc…

Marginal Costs

The additional cost incurred from producing an additional unit of output:

MC=Δ TC /Δ Output

MC=Δ TVC /Δ Output

Controllable Vs non controllable costs

- Controllable costs are those costs that can be influenced by the action or authority of a plant or any other official.
- Some times few costs are not controllable like direct costs. For example cost of raw material , wages etc..

Opportunity Vs outlay costs

- The opportunity cost may be defined as the expected returns form the second best use of the resources which foregone due to the scarcity of resources.
- The opportunity cost is also called alternative cost. Had the resource available been unlimited, there would be no opportunity cost.
- Actual Costs or Outlay Costs or Absolute Costs mean the actual amount of expenses incurred for producing or acquiring a good or service.
- These are the costs which are generally recorded in the books of accounts for cost or financial purposes such as payment for wages, raw-materials purchased, other expenses paid etc.

Incremental Vs sunk costs

Incremental Cost:

- Is the additional cost due to change in the level or nature of business activity.
- The question of this type of cost, would not arise when a business has to be set up a fresh. It arises only when a change is contemplated in the existing business.

Sunk Cost:

- Is one which is not affected or altered by a change in the level or nature of business activity. It will remain the same whatever the level of activity may be.

Out of pocket Vs book costs

Out of Pocket Costs:

- Refer to costs that involve current cash payments to outsiders. On the other hand book costs such as depreciation, do not require current cash payments.

Book costs

- These can be converted into out of pocket costs by selling the assets and having them on hire. Rent would then replace depreciation and interest, while understanding expansion; book costs do not come into the picture until the assets are purchased.

Explicit Vs implicit Costs

- "The total cost of production of any particular goods can be said to include expenditure or explicit costs and non-expenditure or implicit costs."
- Explicit cost involve payment of cash.
- Implicit costs do not involve any

Replacement cost Vs historical cost

- Historical Costs mean the cost of an asset or the price originally paid for it.
- Replacement cost means the price that would have to be paid currently for acquiring the same plant.

Past Vs future costs

- Past Costs are actual costs or historical costs are records of past costs.
- Future costs are based on forecasts. The costs relevant for most managerial decisions are forecasts of future costs or comparative conjunctions concerning future situations

Separable Vs joint costs

- A separable or Direct or Traceable Cost is one which can be identified easily and indisputably with a unit of operation, i.e., costing unit/cost centre.
- Joint or Indirect or Common Costs are not traceable to any plant, department or operation as well as those that are not traceable to indirect final products.

Accounting Vs economic costs

- Accounting cost refers to what are recorded as expenses in the books of accounting records
- Economic costs include the same explicit costs that accounting costs use in calculations, but economic costs also include implicit costs. Implicit costs are those values that are not listed on the ledger, and they are assumed by the business to utilize resources

Urgent Vs postponable costs

- Urgent costs are those costs which must be incurred in order to continue operations of the firm. For example, the costs of materials and labour which must be incurred if production is to take place.
- Postponable costs refer to those costs which can be postponed at least for some time e.g., maintenance relating to building and machinery. Railways usually make use of this distinction. They know that the maintenance of rolling stock and permanent way can be postponed for some time.

Escapable vs unavoidable costs

- Escapable costs or An **avoidable cost** is a cost that is not incurred if the activity is not performed.
- For example, supply expenses are avoidable costs. You can simply decide to not buy the supplies, and no expense will be incurred.
- These costs are often identified as **variable costs**, which vary based on production. If there is no production, there is no cost.
- An **unavoidable cost**, on the other hand, is a cost that is still incurred even if the activity is not performed.
- For example, if a manufacturing plant shuts down, its avoidable costs (i.e. variable costs), like materials or supplies, will be $0, but it still needs to pay for idle equipment, property taxes, lease payments, etc.
- These costs are often considered **fixed costs**. Fixed costs are expenses that do not depend on production.

cost output relationship/ cost function

the costs and output are related. The cost of production depends upon several factors such as volume of production , relation between the costs and output, prices and productivity of the inputs such as land, labour, capital and so forth , and the time scale.

The cost – output relationship significantly differs in the short run and in the long run. It is because , in the short run , the costs can be classified into fixed costs and variable costs. The cost-output relationship in the short run is governed by certain restrictions in terms of fixed costs .

Cost-Output Relation during Short Run or Short Run Cost Curves:

Time element plays an important role in price determination of a firm. During short period two types of factors are employed. One is fixed factor while others are variable factors of production. Fixed factor of production remains constant while with the increase in production, we can change variable inputs only because time is short in which all the factors cannot be varied.

Raw material, semi-finished material, unskilled labour, energy, etc., are variable inputs which can be changed during short run. Machines, capital, infrastructure, salaries of managers and technical experts are included in fixed inputs. During short period an individual firm can change variable factors of production according to requirements of production while fixed factors of production cannot be changed.

The cost-output relation during short period can be studied with the help of short run cost curves based on short run costs as given below:

A. Short Run Total Costs:

Short run total costs of a firm are of following types:

(1) Total Costs:

Those costs which are incurred by a firm in the production of any commodity on the basis of total fixed cost and total variable cost.

Total costs are calculated on the basis of the following formula:

Total cost (TC) = Total fixed cost (TFC) + Total variable cost (TVC)

Total costs change due to change in the total variable costs only during short period because total fixed costs (TFC) remain constant.

Short run total costs can be seen from the following table:

Table 1

Short Run Total Costs

Output (Units)	Total Fixed Cost (TFC) Rs.	Total Variable Cost (TVC) Rs.	Total Cost (TC) Rs.
0	100	0	100
1	100	30	130
2	100	60	160
3	100	80	180
4	100	90	190
5	100	100	200
6	100	120	220
7	100	150	250
8	100	190	290
9	100	240	340
10	100	320	420

The table reveals that total fixed cost remain constant when the production is zero or its is increasing while total variable cost is zero when production is zero and it changes with the change in output and total cost is the aggregate of total fixed cost and total variable cost.

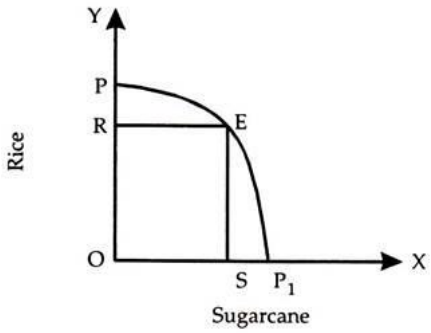
(2) Total Fixed Cost (TFC):

Those costs which remain constant when the output is zero as well as it is increasing are called total fixed costs. Such costs are borne by the firm whether there is production or not. These costs are not concerned with the production of a commodity. Plant, land and building, machinery, tools, equipment, implements, contractual rent, insurance fee, maintenance cost, property tax, interest on the capital, manager's salary, etc., are the items which are included in total fixed costs.

These costs are borne even there is zero production during short period. The Table 1 shows when production is zero the total fixed cost is Rs. 100 and when it is 10 units even then it is Rs. 100. Hence,

total fixed costs remain constant. These costs are also known as supplementary costs, general costs, indirect costs and overhead costs. TFC is shown in Diagram 1 which is perfectly horizontal to OX-axis.

Diagram 1 : Opportunity Cost



(3) Total Variable Costs (TVC):

Those costs which vary with the production of a commodity during short period and they have direct relation with the change in production. When production is zero these costs will be zero and when production increases they will move in the same direction. These costs are incurred on raw material, direct wages and expenses on energy or power. Variable costs are also called prune costs or direct costs. Total variable costs show an increasing trend as shown in Diagram 1.

Thus, total costs are the summation (aggregates) of total fixed costs and total variable costs. All these costs are related to short run production. They are shown in the Diagram 2 on the basis of the Table 2.

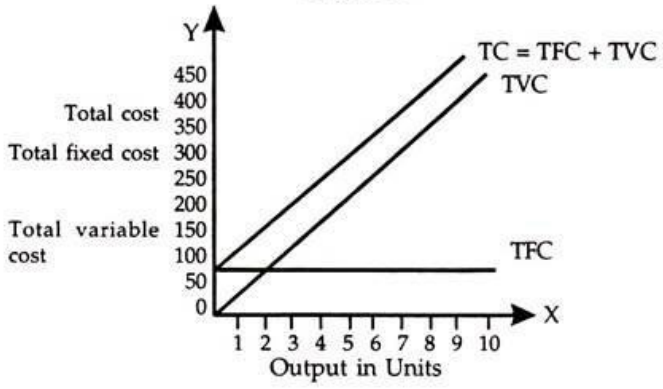
Table 2

Short Run Output Relation (Rs.)

Output (Units)	Total Costs			Average costs			
	TFC	TVC	TC (TFC+ TVC)	AFC	AVC	AC (AFC+ (AVC)	MC
1	2	3	4	5	6	7	8
0	100	0	100	0	0	0	-
1	100	30	130	100	30	130	30
2	100	60	160	50	30	80	30
3	100	80	180	33.3	26.7	60	20
4	100	90	190	25	22.5	47.5	10
5	100	100	200	20	20.0	40.0	10
6	100	120	220	16.66	20.0	36.66	20
7	100	150	250	14.3	21.4	35.7	30
8	100	190	290	12.5	23.75	36.25	40
9	100	240	340	11.1	26.67	37.7	50
10	100	320	420	10.0	32.0	42.0	80

The Diagram 2 shows TC, TFC and TVC. TFC is parallel to OX-axis and it remains constant whether production is zero or it is 10 units. TVC starts from zero production where it is zero and goes on increasing with the increase in output. TC is the total of TFC and TVC. When production is zero total cost is equal to TFC and it increases with increase in production. The difference between TVC and TC is equivalent to TFC which remains constant.

Diagram 2



B. Average Costs or Per Unit Costs:

During short period average costs or per unit costs can be divided into following categories:

(1) Average fixed costs (AFC)

(2) Average variable costs (AVC)

(3) Average Costs (AC)

(4) Marginal Cost (MC).

(1) Average Fixed Cost (AFC):

The average fixed cost is the total fixed cost divided by the volume of output. There is an inverse relation between output and average fixed cost. With the increase in output average fixed cost decreases and with the decrease in output the average fixed cost will increase. The shape of average fixed cost curve becomes rectangular hyperbola with the increase in output.

It is calculated from the following formula:

AFC = TFC/O

O is volume of output AFC and TFC are average fixed cost and total fixed cost.

(2) Average Variable Cost (AVC):

The average variable cost is total variable cost divided by the volume of output. Average variable cost falls with the increase in output, reaches at its minimum and then starts rising. By the operation of law of increasing returns the AVC decreases, and by the operation of constant returns leads to constancy in AVC and the law of diminishing returns leads to increase in AVC. The shape of AVC is U-shaped because of the operation of the laws of returns during short period.

The AVC is calculated by the formula given below:

AVC = TVC/O

AVC and TVC are average variable cost and total variable cost while O is the volume of output.

(3) Average Cost (AC):

Average cost is also called average total cost (ATC) during short period because it is the aggregate of AFC and AVC. AC can be calculated from total cost (TC) divided by the volume of output or by aggregating AVC and AFC.

The following is the formula of calculating AC:

AC = TC/O

AC and TC are average cost and total cost while O is the volume of output.

Another formula for the calculation of AC is as given under:

AC = AFC + AVC

The AC curve decreases with the increase in output and remains constant up to a point and thereafter it increases with the increase in output. Its shape is U-shaped because of the operation of the laws of return during short period.

(4) Marginal Cost (MC):

It is an addition to total cost by producing an additional unit of output. It can be calculated as the change in total cost divided by an additional unit change in the output.

The formula for its calculation is as given below:

$MC = \Delta TC/\Delta O$

MC is marginal cost, ΔTC is change in TC and ΔO is change in the volume of output.

For example, if the total cost (TC) of 5 units of a commodity is Rs. 550 and 6 units of a commodity is Rs. 600, then the marginal cost of 6th units is Rs. 50.

It can be calculated on the basis of the above formula as given under:

$MC = \Delta TC/\Delta O = 50/1 = 50$ or Rs. 50

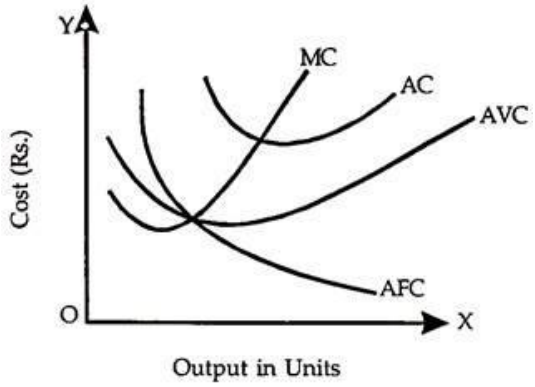
The MC cost changes with the change in AVC and it is independent of fixed cost. In the beginning the MC falls, reaches at its minimum and thereafter continuously rises. MC is also U- shaped. The MC curve cuts the AC and AVC curves at their minimum points.

The cost-output relation during short period can be seen from Table 2.

The table reveals the trends in total costs (TFC and TVC), average cost (AFC and TVC) and MC. TFC remains constant and TVC goes on increasing and consequently TC is also increasing. AFC is decreasing, but it is positive. AVC decreases, remains constant and thereafter increases. AC also decreases, remains constant and shows an increasing trend. MC increases, remains constant and thereafter shows an increasing trend.

On the basis of the Table 2 we can show the costs and output relation during short period in the following diagram:

Diagram 3 : Cost–Output Relation



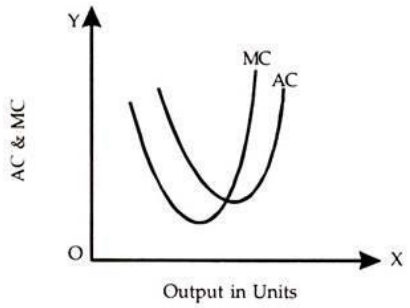
The diagram shows AC, AFC, AVC and MC on OY-axis and units of output on OX-axis. AC, MC and AVC are U-shaped curves. The U-shaped curves are on account of the operation of the laws of return during short period. AFC curve shows a decreasing trend. MC curve passes through the minimum points of AC and AVC curves.

There is a close relationship between AC and MC as given below:

(1) AC and MC fall in the beginning but MC falls more rapidly than AC and MC is below AC or AC is greater than MC (AC>MC).

(2) When AC rises, MC also rises but it rises more rapidly than the AC and MC is greater than AC (MC>AC).
(3) When AC is minimum it is equal to AC. The MC curve cuts the AC curve at its minimum point.
The relation between AC and MC can be seen from the following diagram during short period:

Diagram 4 : Relation between AC and MC

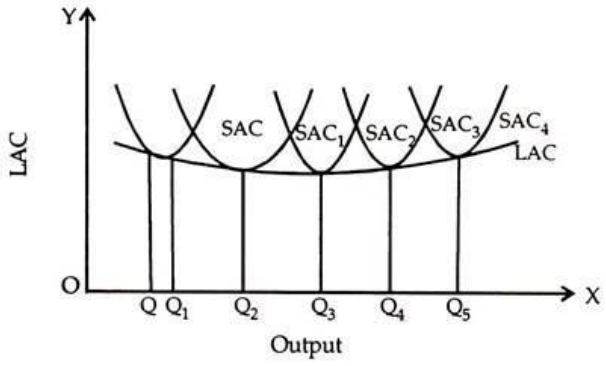


The diagram shows AC and MC on OY-axis and volume of output on OX-axis.

Cost-Output Relation during Long Run or Long Run Cost Curves:
Long period gives sufficient time to business managers to change even the scale of production. All the factors of production are variable. All the costs are variable costs and there is no fixed cost. The supply of goods can be adjusted to their demands because scale of production and factors of production can be changed. In the long run we can study the long run average cost curve and long run marginal cost curve.

I. Long Run Average Cost (LAC):
In the long run, all the factors of production are variable and the firm has a variety of choices to select the size of the plants and the factors of production to be employed. Various short run average cost curves represent the various sizes of the plants available to a firm. We can get the long run average cost curve with the help of all the short run average cost curves. The long run average cost curve envelopes all the short run average cost curves in it. It is also called an 'Envelope Curve' or 'Planning Curve'.
The long run average cost curve is also a flat U-shaped curve as shown in the following diagram:

Diagram 5 : Long Run Average Cost Curve (LAC Curve)



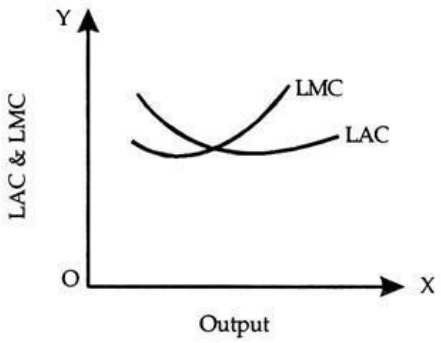
The diagram shows long run cost on OY-axis and output on OX-axis. SAC, SAC_1, SAC_2, SAC_3 and SAC_4 are short run average cost curves which represent the different size of plants. LAC has been drawn by combining all those points of least cost of producing the corresponding output. The least per unit cost of production is OQ, OQ_1, OQ_2, OQ_3, OQ_4, and OQ_5 respectively.

II. Long Run Marginal Cost (LMC):

The long run marginal cost is an addition to the long run total cost when an additional unit of a commodity is produced. It is calculated as the short run marginal cost is calculated. Long run marginal cost curve is also U-shaped but the fall and rise in the marginal cost curve is not sharp but it is gradual.

The LAC and LMC can be seen from the following diagram:

Diagram 6 : LAC and LMC Curves



the diagram shows that LAC and LMC are shown on OY- axis while output is shown on OX-axis. The shape of LAC and LMC are U-shaped. The relation between LAC and LMC is the same as is between short run average cost (SAC) and short run marginal cost (SMC) curves. The LMC curve cuts the LAC curve from its minimum point.

Why LAC Curve is U-Shaped?

In the short run SAC curve is U-shaped because the laws of return operate but in the long run LAC is also U-shaped because the laws of return of scale operate, namely, law of increasing returns to scale, law of constant returns to scale and the law of diminishing returns to scale.

As the level of output is expanded or scale of operation is increased by the large firm they will enjoy economies of scale but if these firms produce beyond their installed capacity then they might get diseconomies of scale. Economies of scale bring down the fall in unit cost and diseconomies results into rise in it.

Overall cost leadership:

What is the definition of cost leadership?

It's a method to reduce costs and produce the least expensive goods in a market or industry in an effort to gain market share. The modern business environment is a very complex and sophisticated one with consumers being aware of the choices available to them. One way firms differentiate themselves is through competitive pricing. Businesses who have the least production costs are able to offer the same level of product quality compared to their competitor for a much lower price. Consumers are constantly looking to increase their purchasing power and if that cannot be achieved through an income increment, then buying more at a lower price is the next best alternative. Businesses who seek to be cost leaders tap into this opportunity to offer the average consumers great products at great prices.

Unit-IV: Market Structure and Pricing Practices, Features and Types of different competitive situations - Price-Output determination in Perfect competition, Monopoly, Monopolistic competition and Oligopoly - both the long run and short run. Pricing philosophy

Market – introduction:

What is a Market?

Market is defined as a place or point at which buyers and sellers negotiate their exchange of well-defined products or services.

Market is a place where buyer and seller meet, goods and services are offered for the sale and transfer of ownership occurs

Definition of Market

Market is any area over which buyers and sellers are in close touch with one another, either directly or through dealers, that the price obtainable in one part of the market affects the prices paid in other parts. - *Benham*

COMPONENTS AND MARKET STRUCTURE

As seen from the definition of market, the components of a market are:

1. Sellers (Producer)
2. Buyers (Customers)
3. Nature of product (Types of Product)
4. Conditions of entry and exit
5. Negotiation (Price)
6. Transfer of Ownership and Product
7. Transfer of Money or Equal Value

Types of market

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

1. Perfect Competition
2. Monopoly
3. Duopoly
4. Oligopoly
5. Monopolistic Competition

Table 1 : Features of Market Structures

Features	*(Market Forms)*			
	Perfect Competition	Monopoly	Monopolistic Competition	Oligopoly
1. No. of Firms	Large	One	Varied but not too many	A few
2. Nature of Product	Homoge-neous	One type	Product Differentiation	Homogeneous or Differentiated
3. Entry of Firms	Free	No entry	Free	Restricted
4. Degree of Mono-poly Power	Zero	Full	Limited	Limited due to product differentiation
5. Price Policy of Firm	Price-taker	Price-maker	Price-maker	Price-maker
6. Market Knowledge	Complete	Incomplete	Incomplete	Incomplete
7. Elasticity of Demand	Perfectly elastic	Less elastic	Less elastic	Less elastic
8. AR and MR	Equal	Different	Different	Different
9. Selling Cost	No	Small	Large	Small

1.

Perfect Competition Market:

A perfectly competitive market is one in which the number of buyers and sellers is very large, all engaged in buying and selling a homogeneous product without any artificial restrictions and possessing perfect knowledge of market at a time. In the words of A. Koutsoyiannis, “Perfect competition is a market structure characterised by a complete absence of rivalry among the individual firms.” According to R.G. Lipsey, “Perfect competition is a market structure in which all firms in an industry are price- takers and in which there is freedom of entry into, and exit from, industry.”

Characteristics of Perfect Competition:

The following are the conditions for the existence of perfect competition:

(1) Large Number of Buyers and Sellers:

The first condition is that the number of buyers and sellers must be so large that none of them individually is in a position to influence the price and output of the industry as a whole. The demand of individual buyer relative to the total demand is so small that he cannot influence the price of the product by his individual action.

Similarly, the supply of an individual seller is so small a fraction of the total output that he cannot influence the price of the product by his action alone. In other words, the individual seller is unable to influence the price of the product by increasing or decreasing its supply.

Price taker: Rather, he adjusts his supply to the price of the product. He is "output adjuster". Thus no buyer or seller can alter the price by his individual action. He has to accept the price for the product as fixed for the whole industry. He is a "price taker".

(2) Freedom of Entry or Exit of Firms:

The next condition is that the firms should be free to enter or leave the industry. It implies that whenever the industry is earning excess profits, attracted by these profits some new firms enter the industry. In case of loss being sustained by the industry, some firms leave it.

(3) Homogeneous Product:

Each firm produces and sells a homogeneous product so that no buyer has any preference for the product of any individual seller over others. This is only possible if units of the same product produced by different sellers are perfect substitutes. In other words, the cross elasticity of the products of sellers is infinite.

No seller has an independent price policy. Commodities like salt, wheat, cotton and coal are homogeneous in nature. He cannot raise the price of his product. If he does so, his customers would leave him and buy the product from other sellers at the ruling lower price.

The above two conditions between themselves make the average revenue curve of the individual seller or firm perfectly elastic, horizontal to the X-axis. It means that a firm can sell more or less at the ruling market price but cannot influence the price as the product is homogeneous and the number of sellers very large.

(4) Absence of Artificial Restrictions:

The next condition is that there is complete openness in buying and selling of goods. Sellers are free to sell their goods to any buyers and the buyers are free to buy from any sellers. In other words, there is no discrimination on the part of buyers or sellers.

Moreover, prices are liable to change freely in response to demand-supply conditions. There are no efforts on the part of the producers, the government and other agencies to control the supply, demand or price of the products. The movement of prices is unfettered.

(5) Profit Maximisation Goal:

Every firm has only one goal of maximising its profits.

(6) Perfect Mobility of Goods and Factors:

Another requirement of perfect competition is the perfect mobility of goods and factors between industries. Goods are free to move to those places where they can fetch the highest price. Factors can also move from a low-paid to a high-paid industry.

(7) Perfect Knowledge of Market Conditions:

This condition implies a close contact between buyers and sellers. Buyers and sellers possess complete knowledge about the prices at which goods are being bought and sold, and of the prices at which others are prepared to buy and sell. They have also perfect knowledge of the place where the transactions are being carried on. Such perfect knowledge of market conditions forces the sellers to sell their product at the prevailing market price and the buyers to buy at that price.

(8) Absence of Transport Costs:

Another condition is that there are no transport costs in carrying of product from one place to another. This condition is essential for the existence of perfect competition which requires that a commodity must have the same price everywhere at any time. If transport costs are added to the price of the product, even a homogeneous commodity will have different prices depending upon transport costs from the place of supply.

(9) Absence of Selling Costs:

Under perfect competition, the costs of advertising, sales-promotion, etc. do not arise because all firms produce a homogeneous product.

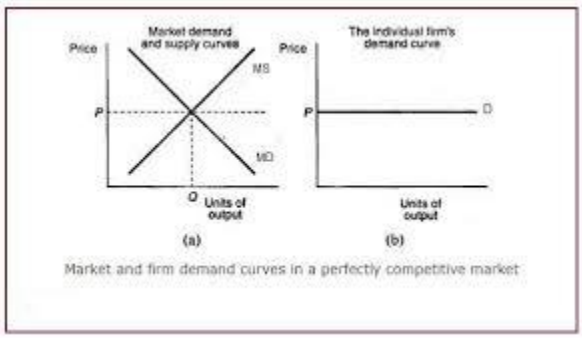
Price Determination under Perfect Competition

Under perfect competition, many factors influence the determination of the price of goods. In this article, we will look at the equilibrium of the industry and the equilibrium of a firm as important factors behind price determination under perfect competition.

Relation Between Price, TR, MRand AR in Perfect Competition

- However, in Perfect Competition, **Price (P) = MR = AR**.
- As more units can be sold at the same price, addition to total revenue (ie. MR) is constant and equal to price (P).
- Let's have a look at a firm's schedule:
- As you can note, MR = P = AR.
- Since, P = MR, we can restate the equilibrium condition (MR=MC) of a firm in Perfect Competition as P = MC.
- However, it's to be noted that the equilibrium condition of P = MC is applicable only for *Perfect Competition* where MR = P. In other market structures, MR may not be equal to P, and hence the condition P = MC may not be true.

P	Q	TR	AR	MR
1	10	10	10	10
2	10	20	10	10
3	10	30	10	10
4	10	40	10	10
5	10	50	10	10



Market and firm demand curves in a perfectly competitive market

Price determination under perfect competition can be analyzed into three periods:

1. Very Short Period
2. Short Period

3. Long Period

1. Very Short Period:

Refers to a time period in which quantity supplied of a product cannot be increased with increase in its demand.

In simple terms, in very short period of time, the supply of a product is fixed. For example, a confectioner has 20 pastries at a particular time.

After an hour, a customer requires 40 pieces of pastries. In such a case, the confectioner cannot prepare 20 more pastries in an hour and can only supply 20 pastries. Therefore, the supply is fixed, which is 20 in the given example. The price determined in very short period is known as market price.

2. Short Period:

Refers to a time period in which the level of supply of a particular product can be increased, but only as per the production capacity of an organization. For example, an organization can produce 50 mobile phones in a day. This is the maximum production capacity of the organization.

Suppose the demand of mobile phones increases to 150 per day for three days. In such a scenario, the organization cannot install new machines or hire more labor in three days to meet the additional demand. Thus, the supply is fixed even in short period and the price determined in this period is known as sub-normal price.

3. Long Period:

Refers to a period in which the supply of a product can be increased or decreased with the changing level of demand. In this period, organizations can install new machines or hire more labor to meet the supply requirements.

Generally, in the long period, demand is determined by change in the size of population and change in customer's tastes and preferences.' On the other hand, organizations can reduce production level if there is decrease in demand. Therefore, it can be said that in the long period, the price of a product is influenced by supply. The price in the long period is called normal price.

Equilibrium of the Industry under Perfect Competition

In economic terms, an industry consists of many independent firms. Each firm has a number of factories, farms or mines, as required. Each such firm in an industry produces a homogeneous product. Equilibrium of the industry happens when the total output of the industry is equal to the total demand. In such a scenario, the prevailing price of a commodity is its equilibrium price.

Relation Between Price, TR, MR and AR in Perfect Competition

- However, in Perfect Competition, **Price (P) = MR = AR**.

- As more units can be sold at the same price, addition to total revenue (ie. MR) is constant and equal to price (P).
- Let's have a look at a firm's schedule:
- As you can note, MR = P = AR.
- Since, P = MR, we can restate the equilibrium condition (MR=MC) of a firm in Perfect Competition as P = MC.
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P	Q	TR	AR	MR
1	10	10	10	10
2	10	20	10	10
3	10	30	10	10
4	10	40	10	10
5	10	50	10	10

We know that under competitive conditions, the interaction of demand and supply determines the equilibrium price as shown below:

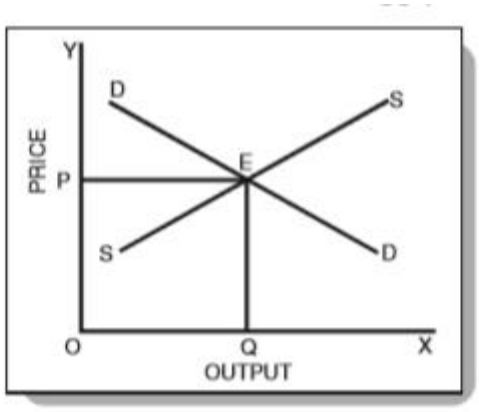


Fig. 1 : Equilibrium of a competitive industry

In Fig. 1 above, OP is the equilibrium price. Further, OQ is the equilibrium quantity sold at that price. Now, the equilibrium price is the price at which both the demand and supply are equal. In other words, no buyer, who wanted to buy at that price, goes dissatisfied and no seller, who wanted to sell his goods at that price, goes dissatisfied either.

Note that with the demand remaining the same, if the price is higher or lower than OP, then the market is not in equilibrium. Also, if goods are lesser or higher than the demand, the equilibrium is not attained.

Equilibrium of the Firm under Perfect Competition

A firm is in equilibrium when it maximizes its profits. Hence, the output that offers maximum profit to a firm is the equilibrium output. When a firm is in an equilibrium, there is no reason to increase or decrease the output.

In a competitive market, firms are price-takers. The reason being the presence of a large number of firms who produce homogeneous products. Therefore, firms cannot influence the price in their individual capacities. They have to follow the price determined by the industry.

The following figure shows a firm's demand curve under perfect competition:

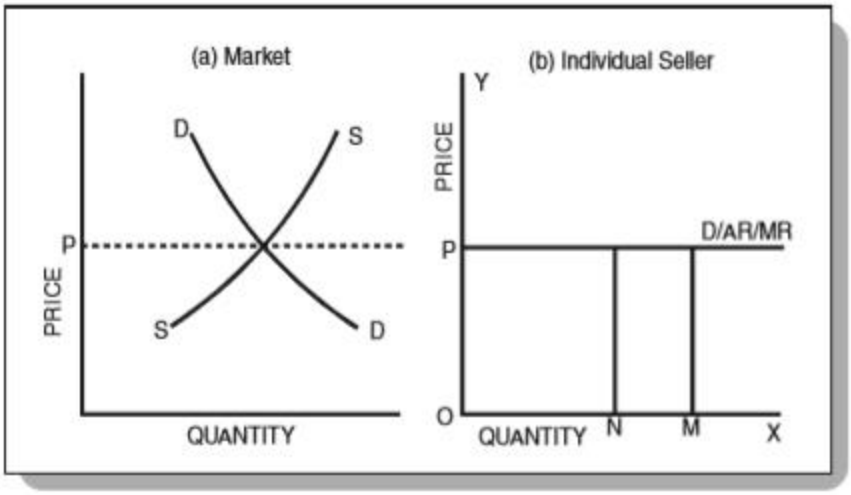


Fig. 2 : The firm's demand curve under perfect competition

From Fig. 2 above, you can see that the industry price, OP, is fixed throughout the interaction of demand and supply of the industry. Firms have to accept this price. Hence, they are price-takers and NOT price-makers. Hence, they cannot increase or decrease the price OP.

Therefore, the line P acts as a demand curve for such firms. Hence, in a perfect competition, the demand curve of an individual firm is a horizontal line at the level of the industry-set market price. Firms have to choose the level of output that yields maximum profit.

Conditions for the equilibrium of a firm

To attain an equilibrium position, a firm must satisfy the following two conditions:

1. They must ensure that the marginal revenue is equal to the marginal cost (MR = MC).
    1. If MR > MC, the firm has an incentive to expand its production and sell additional units.
    2. If MR < MC, the firm must reduce the output since additional units add more cost than revenue.
    3. The firm gets maximum profits only when MR = MC.
2. The MC curve must have a positive slope and cut the MR curve from below.

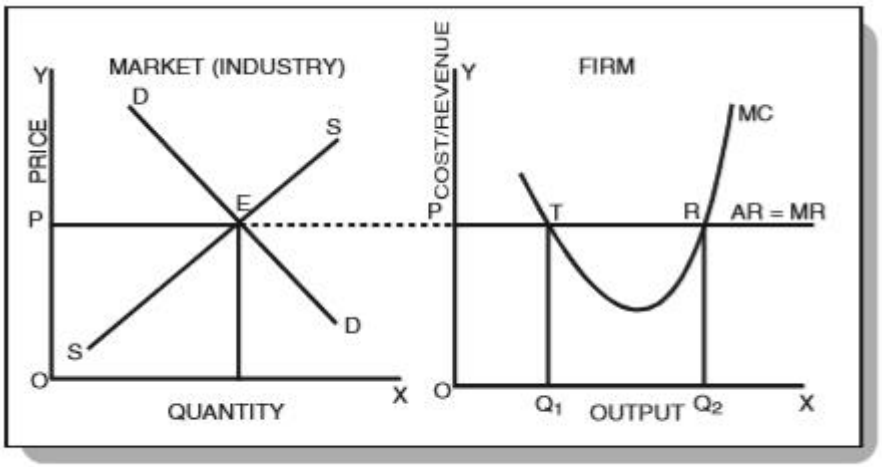


Fig. 3 : Equilibrium position for a firm under perfect competition

In Fig. 3 above, DD is the demand curve and SS is the supply curve. They equilibrate at point E and set the market price as OP. Under perfect competition, firms adopt OP as the industry price and consider the P-line as the demand curve or AR – average revenue curve (perfectly elastic at P).

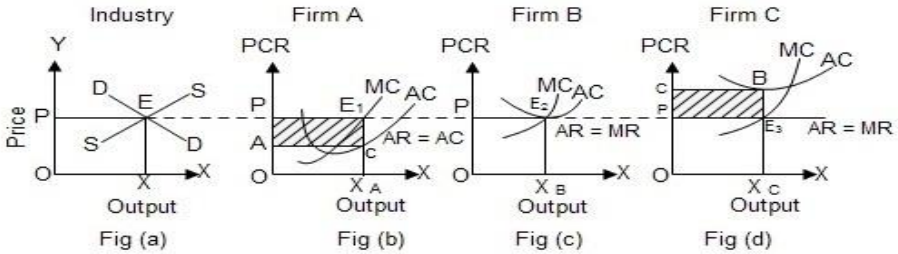
Since all units are equally priced, the MR curve is a horizontal line and is equal to the AR line. Observe that the curve MC cuts the MR curve at two points – T and R. At point T, the MC curve cuts the MR curve from above whereas at point R it cuts the MR curve from below. Therefore, according to the conditions of equilibrium of a firm, point R is the point of equilibrium and OQ_2 is the equilibrium level of output.

Short-Run Equilibrium of Firm and Industry

Whether a firm makes abnormal profit or loss depends on the level of AC in the short run equilibrium. It generally consists of 3 cases i.e abnormal profit, normal profit, and loss.

According to marginal revenue (MR) and marginal cost (MC) approach firm can get equilibrium when it mentioned two conditions which are:

- Marginal revenue (MR) must be equal to marginal cost (MC) i.e. MC = MR
- Slope of MC curve > Slope of MR curve i.e. MC curve cuts MR curve from below



- . Fig: Short run equilibrium of firm and industry

From the figure, the industry demand curve DD and supply curve SS intersect each other at point 'E' where the market price is P. Firm A enjoys abnormal profit as AC lies below equilibrium of the AR curve. So, the shaded region PACE1 is the abnormal profit enjoyed by the firm. Likewise, firm B faces normal profit, as AC is tangent to AR at equilibrium. Finally, firm C bears loss and the shaded region PCBE3 is the loss faced by the firm.

Long-Run Equilibrium of Firm and Industry

A firm, in the long run, can adjust their fixed inputs. In the long run, under perfect competition, entry and exit are easy and free. All the firms in the perfect competition can earn only normal profit in the long run.

Under perfect competition, the firms could be in long run equilibrium if they fulfill the following conditions:

- Long run marginal revenue (LMR) = Long run marginal cost (LMC)
- Long run marginal cost (LMC) must cut long run marginal revenue (LMR) from below at equilibrium point.
- The slope of LMC must be greater than the slope of LMR.

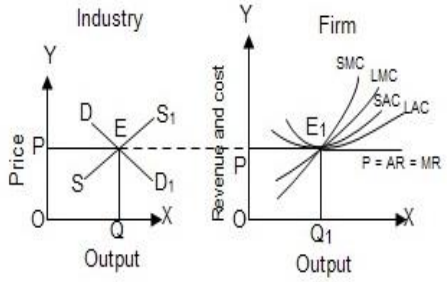


Fig: Long run equilibrium of firm and industry

The given figure shows the equillibrium of firm and industry respectively under perfect competition market. An industry demand curve DD_1 and supply curve SS_1 intersect each other at point E where the market price is P. At point E, industry determine OP price for OQ quantity of product.

Next figure of firm explains long run equilibrium of competitive firm where LMC and LAC represent long run marginal cost and average cost curves where, at point E, P= LAR = LMR = LMC = LAC respectively. OP price is determined for OQ_1 level of output and firm making only normal profit.

IMPERFECT COMPETITION

Based on poly- seller **based on psony- buyer**

1. Monopoly Market
2. Monopolistic Market
3. Duopoly Market
4. Oligopoly Market
5. Monopsony Market
6. Duopsony Market
7. Oligopsony Market

Monopoly Market

Monopoly is a market situation in which there is only one seller of a product with barriers to entry of others. The product has no close substitutes. The cross elasticity of demand with every other product is very low. This means that no other firms produce a similar product. According to D. Salvatore, "Monopoly is the form of market organisation in which there is a single firm selling a commodity for which there are no close substitutes." Thus the monopoly firm is itself an industry and the monopolist faces the industry demand curve.

The demand curve for his product is, therefore, relatively stable and slopes downward to the right, given the tastes, and incomes of his customers. It means that more of the product can be sold at a lower price than at a higher price. He is a price-maker who can set the price to his maximum advantage.

However, it does not mean that he can set both price and output. He can do either of the two things. His price is determined by his demand curve, once he selects his output level. Or, once he sets the price for his product, his output is determined by what consumers will take at that price. In any situation, the ultimate aim of the monopolist is to have maximum profits.

Characteristics of Monopoly:

The main features of monopoly are as follows:

1. Under monopoly, there is one producer or seller of a particular product and there is no difference between a firm and an industry. Under monopoly a firm itself is an industry.

2. A monopoly may be individual proprietorship or partnership or joint stock company or a co-operative society or a government company.

3. A monopolist has full control on the supply of a product. Hence, the elasticity of demand for a monopolist's product is zero.

4. There is no close substitute of a monopolist's product in the market. Hence, under monopoly, the cross elasticity of demand for a monopoly product with some other good is very low.

5. There are restrictions on the entry of other firms in the area of monopoly product.

6. A monopolist can influence the price of a product. He is a price-maker, not a price-taker.

7. Pure monopoly is not found in the real world.

Causes of Monopoly Market

1. A monopoly may arise because of some natural causes. Some minerals are available only in certain regions. For example, almost all the nickel in the world is available in Canada. So the International Nickel Corporation of Canada has the monopoly of nickel. Similarly, South Africa has the monopoly of diamonds.
2. Some crops, which require special conditions of climate and soil are found only in one or two areas. For example, jute is grown in India and Pakistan.
3. Some products are produced by a secret process in some firms. This is particularly true of most of the chemical industries. Such firms have monopoly of some goods.
4. Some firms enjoy legal rights such as patent rights, copyright and so on. This leads to legal monopoly.
5. The manufacture of some goods requires a large amount of capital. All firms cannot enter the field because they cannot afford to invest a large amount of capital. This may give rise to monopoly.
6. Lastly, the government will have the sole right of producing and selling goods. For example, we have 'public utilities.' They are state monopolies.

Pricing under Monopoly

Monopoly refers to a market situation where there is only one seller. He has complete control over the supply of a commodity. He is therefore in a position to fix any price. Under monopoly

there is no distinction between a firm and an industry. This is because the entire industry consists of a single firm.

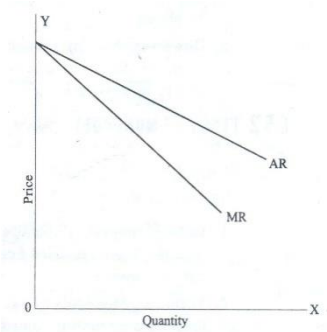


Fig. 6.11

Determination of Price in the SHORT Period:

If, in a short period, the cost of production of a commodity is zero, he will go on producing it to the extent or so long the marginal revenue from the sale of that commodity does not fall to zero. As soon as the marginal reserve is zero he will not increase its supply.

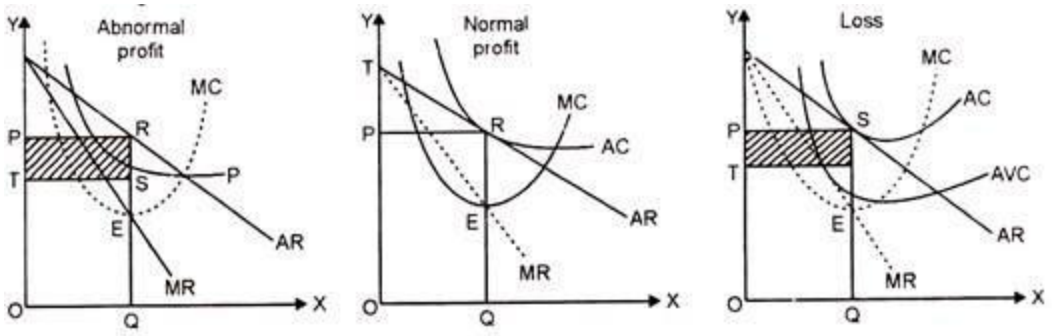
Some economists think that, in a short period, three different situations may arise before the monopolist:

(i) When the monopolist earns abnormal profits,

(ii) When he gets only normal profits, and

(iii) When he suffers losses.

The explanation and diagrams of these situations are given below:



PRODUCTION

On the point E the firm is in equilibrium when MC = MR. Thereafter MC curve starts to rise. Under the condition, OP is the price and OQ is the 'total production' of the commodity so determined. In order to calculate profits or losses, we will have to measure the difference between AR and AC. If AR > AC, the difference between the two is profit per unit and by multiply it with total number of units produced we can get total profit.

In the first figure RQ = OP is the price, TO is the cost of production per unit. Thus, RS =PT is unit for profit. On the OQ quantity of production, total profit is PTSR shaded area which is

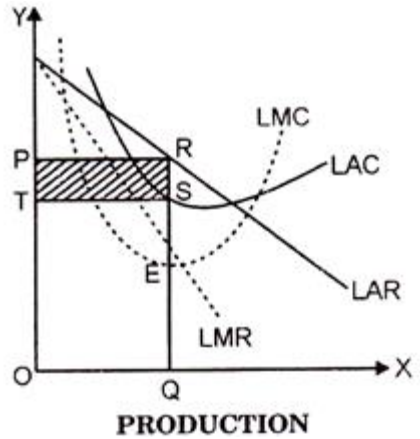
abnormal profit. In the second figure RQ = OP is the determined price and RQ is the average cost. Under this condition, there will be only normal profit.

In the figure three also price per unit is RQ = OP but cost per unit is SQ. Thus, SR (TP) is loss per unit. As a result TPRS shaded area will be the total loss. But this loss is only short period phenomenon. In the long period, this loss will disappear, under that condition and situation, only profit will be earned.

Determination of Price in the Long Period:

In the long period the monopolist introduces changes in his equipment's and techniques of production. During this period in order to gain excess profit, he will change efficiency and capacity of his resources according to his need. But the determination of the quantity of production follows, the same line as under short period.

This is clear from the following figure:



In this figure LMC and LMR intersect each other at the point E and after that LMC goes on rising. Thus OQ production is determined and OP is the price. But average cost is SQ. So profit per unit is RS and at OQ output the total profit is PTSR.

Under Price Competition AR =MR, where-as under Monopoly MR <AR.

Under perfect competition price is determined by the interaction of total demand and supply. This price is acceptable to all the firms in the industry. No firm can change this price. So, average revenue and marginal revenue, at every level of production, will be constant and equal. Their curves are parallel to X-axis.

Under Monopoly, to sell every additional unit of the commodity price will have to be lower. In this way, with the sale of every additional unit, average and marginal income goes on falling. But the decrease in average revenue is relatively less sharp than the decrease in marginal revenue, It is because marginal revenue is limited to one unit, whereas in case of average revenue, the decrease price is divided by the number of units. Therefore, the fall in average revenue has relatively less slope. That is the reason why marginal revenue is less than average revenue.

Duopoly:

Duopoly is a special case of the theory of oligopoly in which there are only two sellers. Both the sellers are completely independent and no agreement exists between them. Even though they are independent, a change in the price and output of one will affect the other, and may set a chain of reactions. A seller may, however, assume that his rival is unaffected by what he does, in that case he takes only his own direct influence on the price.

If, on the other hand, each seller takes into account the effect of his policy on that of his rival and the reaction of the rival on himself again, then he considers both the direct and the indirect influences upon the price. Moreover, a rival seller's policy may remain unaltered either to the amount offered for sale or to the price at which he offers his product. Thus the duopoly problem can be considered as either ignoring mutual dependence or recognising it.

Characteristics Of Duopoly Market The duopoly market have some characteristics which is alike characteristics of oligopoly market. So the characteristics of duopoly market are as follows:-

- Presence of monopoly element- products are differentiated and each product enjoy some amount of customer loyalty as a result firm enjoy some monopoly power.
- Price rigidity exists in this type of market structure. It means price of product in this market does not change immediately with change in demand and supply in market.
- In this type of market structure either advertising is done to increase its sales volume or by improving quality of its product.
- There is interdependency among firms as no firm can ignore the action and reaction of its rival firm.
- The demand curve is indeterminate, any step taken by rival firm will effect firms product demand.
- There exists a conflict attitude among a firm as they have two types of attitude on one hand they want to have joint venture to increase their profit and on the other hand they want to earn profit individually. So these both attitude have conflict among themselves.

Monopolistic Competition

Monopolistic Competition refers to a situation where *there are many sellers of a differentiated product.*

There is *competition which is not perfect,* between many firms making very similar products *which are close but not perfect substitutes.*

Monopolistic market *exhibits characteristic of both perfect competition and monopoly*

Features of Monopolistic Competition

1. *A large number of sellers*: In a market with monopolistic competition, there are a large number of sellers who have a small share of the market.
2. *Product differentiation*: In a monopolistic competition, all brands try to create product differentiation to add an element of monopoly over the competing products. This

ensures that the product offered by the brand does not have a perfect substitute. Therefore, the manufacturer can raise the price of the product without having to worry about losing all its customers to other brands. However, in such a market, while all brands are not perfect substitutes, they are close substitutes for each other. Hence, the seller might lose at least some customers to his competitors.

3. *Freedom of entry or exit*: Like in perfect competition, firms can enter and exit the market freely.
4. *Non-price competition*: In a monopolistic competition, sellers compete on factors other than price. These factors include aggressive advertising, product development. better distribution, after sale services etc. Sellers don't cut the price of their products but incur high costs for the promotion of their goods. If the firms indulge in price-wars, which is the possibility under a perfect competition, some firms might get thrown out of the market.

5. Selling Cost:

Another feature of the monopolistic competition is that every firm tries to promote its product by different types of expenditures. Advertisement is the most important constituent of the selling cost which affects demand as well as cost of the product. The main purpose of the monopolist is to earn maximum profits; therefore, he adjusts this type of expenditure accordingly.

6.Lack of Perfect Knowledge:

The buyers and sellers do not have perfect knowledge of the market. There are innumerable products each being a close substitute of the other. The buyers do not know about all these products, their qualities and prices.

Therefore, so many buyers purchase a product out of a few varieties which are offered for sale near the home. Sometimes a buyer knows about a particular commodity where it is available at low price. But he is unable to go there due to lack of time or he is too lethargic to go or he is unable to find proper conveyance. Likewise, the seller does not know the exact preference of buyers and is, therefore, unable to get advantage out of the situation.

7. More Elastic Demand:

Under monopolistic competition, demand

8. Less Mobility:Under monopolistic competition both the factors of production as well as goods and services are not perfectly mobile curve is more elastic. In order to sell more, the firms must reduce its price.

PRICE DETERMINATION UNDER MONOPOLISTIC COMPETITION:

Under monopolistic competition, the firm will be in equilibrium position when marginal revenue is equal to marginal cost. So long the marginal revenue is greater than marginal cost, the seller will find it profitable to expand his output, and if the MR is less than MC, it is obvious he will reduce his output where the MR is equal to MC. In short run, therefore, the firm will be in equilibrium when it is maximising profits, i.e., when MR = MC.

(a) Short Run Equilibrium: Short run equilibrium is illustrated in the following diagram:

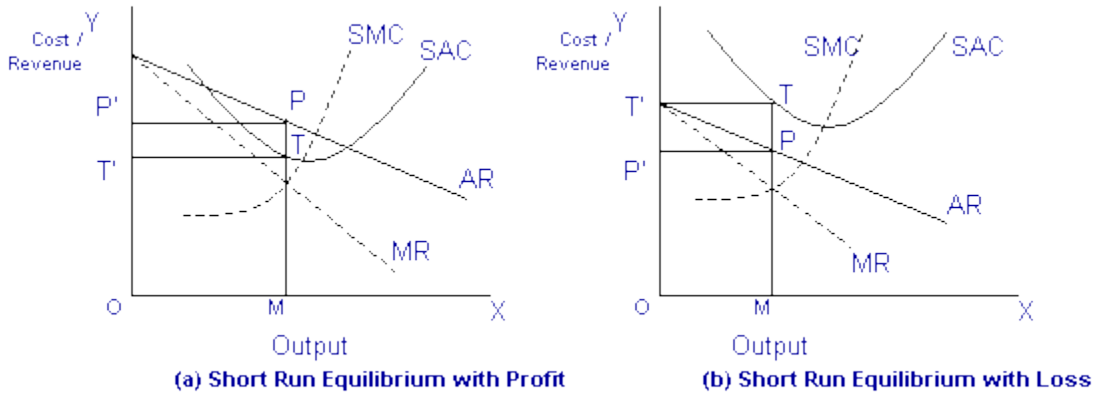
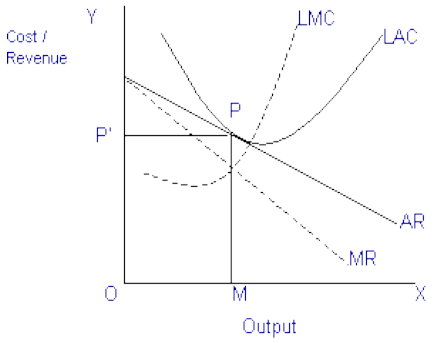


Diagram: Monopolistic Competition Short Run Equilibrium

In the above diagram, the short run average cost is MT and short run average revenue is MP. Since the AR curve is above the AC curve, therefore, the profit is shown as PT. PT is the supernormal profit per unit of output. Total supernormal profit will be measured by multiplying the supernormal profit to the total output, i.e. PT × OM or PTT'P' as shown in figure (a). The firm may also incur losses in the short run if it is facing AR curve below the AC curve. In figure (b) MP is less than MT and TP is the loss per unit of output. Total loss will be measured by multiplying loss per unit of output to the total output, i.e., TP × OM or TPP'T'.

(b) Long Run Equilibrium: Under monopolistic competition, the supernormal profit in the long run is disappeared as new firms are entered into the industry. As the new firms are entered into the industry, the demand curve or AR curve will shift to the left, and therefore, the supernormal profit will be competed away and the firms will be earning normal profits. If in the short run firms are suffering from losses, then in the long run some firms will leave the industry so that remaining firms are earning normal profits.

The AR curve in the long run will be more elastic, since a large number of substitutes will be available in the long run. Therefore, in the long run, equilibrium is established when firms are earning only normal profits. Now profits are normal only when AR = AC. It is further illustrated in the following diagram:



Long Run Equilibrium in Monopolistic Competition

Oligopoly

Definition: The **Oligopoly Market** characterized by few sellers, selling the homogeneous or differentiated products. In other words, the Oligopoly market structure lies between the pure monopoly and monopolistic competition, where few sellers dominate the market and have control over the price of the product.

Under the Oligopoly market, a firm either produces:

- **Homogeneous product:** The firms producing the homogeneous products are called as Pure or Perfect Oligopoly. It is found in the producers of industrial products such as aluminum, copper, steel, zinc, iron, etc.
- **Heterogeneous Product:** The firms producing the heterogeneous products are called as Imperfect or Differentiated Oligopoly. Such type of Oligopoly is found in the producers of consumer goods such as automobiles, soaps, detergents, television, refrigerators, etc.

Features of Oligopoly Market

1. **Few Sellers:** Under the Oligopoly market, the sellers are few, and the customers are many. Few firms dominating the market enjoys a considerable control over the price of the product.

2. **Interdependence:** it is one of the most important features of an Oligopoly market, wherein, the seller has to be cautious with respect to any action taken by the competing firms. Since there are few sellers in the market, if any firm makes the change in the price or promotional scheme, all other firms in the industry have to comply with it, to remain in the competition.

   Thus, every firm remains alert to the actions of others and plan their counterattack beforehand, to escape the turmoil. Hence, there is a complete interdependence among the sellers with respect to their price-output policies.

3. **Advertising:** Under Oligopoly market, every firm advertises their products on a frequent basis, with the intention to reach more and more customers and increase their customer base.This is due to the advertising that makes the competition intense.

   If any firm does a lot of advertisement while the other remained silent, then he will observe that his customers are going to that firm who is continuously promoting its product. Thus, in order to be in the race, each firm spends lots of money on advertisement activities.

4. **Competition:** It is genuine that with a few players in the market, there will be an intense competition among the sellers. Any move taken by the firm will have a considerable impact on its rivals. Thus, every seller keeps an eye over its rival and be ready with the counterattack.

5. **Entry and Exit Barriers:** The firms can easily exit the industry whenever it wants, but has to face certain barriers to entering into it. These barriers could be Government license, Patent, large firm's economies of scale, high capital requirement, complex technology, etc. Also, sometimes the government regulations favor the existing large firms, thereby acting as a barrier for the new entrants.

6. **Lack of Uniformity:** There is a lack of uniformity among the firms in terms of their size, some are big, and some are small.

7. **Group Behaviour**: In oligopoly, the most relevant aspect is the behaviour of the group. There can be two firms in the group, or three or five or even fifteen, but not a few hundred. Whatever the number, it is quite small so that each firm knows that its actions will have some effect on other firms in the group. In contrast, under perfect competition there are a large number of firms each attempting to maximise its profits.

8. **Existence of Price Rigidity:**

   In oligopoly situation, each firm has to stick to its price. If any firm tries to reduce its price, the rival firms will retaliate by a higher reduction in their prices. This will lead to a situation of price war which benefits none. On the other hand, if any firm increases its price with a view to increase its profits; the other rival firms will not follow the same. Hence, no firm would like to reduce the price or to increase the price. The price rigidity will take place.

9. **No Unique Pattern of Pricing Behaviour:**

   The rivalry arising from interdependence among the oligopolists leads to two conflicting motives. Each wants to remain independent and to get the maxmium possible profit. Towards this end, they act and react on the price-output movements of one another which are a continuous element of uncertainty.

10. **Indeterminateness of Demand Curve:**

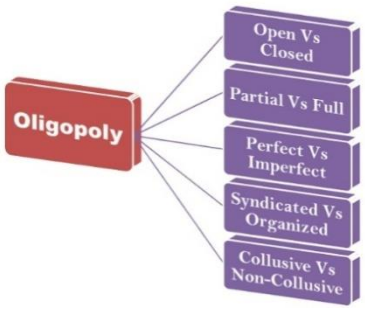
In market structures other than oligopolistic, demand curve faced by a firm is determinate. The interdependence of the oligopolists, however, makes it impossible to draw a demand curve for such sellers except for the situations where the form of interdependence is well defined. In real business operations, the demand curve remains indeterminate. Under oligopoly a firm can expect at least three different reactions of the other sellers when it lowers its prices.

Since there are less number of firms, any action taken by one firm has a considerable effect on the other. Thus, every firm must keep a close eye on its counterpart and plan the promotional activities accordingly.

Types of Oligopoly Market

Definition: The **Oligopoly** is a market structure wherein few sellers dominate the market and sell the homogeneous or heterogeneous products.

Types of Oligopoly Market



1. **Open Vs Closed Oligopoly:** This classification is made on the basis of freedom to enter into the new industry. An open Oligopoly is the market situation wherein firm can enter into the industry any time it wants, whereas, in the case of a closed Oligopoly, there are certain restrictions that act as a barrier for a new firm to enter into the industry.
2. **Partial Vs Full Oligopoly:** This classification is done on the basis of price leadership. The partial Oligopoly refers to the market situation, wherein one large firm dominates the market and is looked upon as a price leader. Whereas in full Oligopoly, the price leadership is conspicuous by its absence.
3. **Perfect (Pure) Vs Imperfect (Differential) Oligopoly:** This classification is made on the basis of product differentiation. The Oligopoly is perfect or pure when the firms deal in the homogeneous products. Whereas the Oligopoly is said to be imperfect, when the firms deal in heterogeneous products, i.e. products that are close but are not perfect substitutes.
4. **Syndicated Vs Organized Oligopoly:** This classification is done on the basis of a degree of coordination found among the firms. When the firms come together and sell their products with the common interest is called as a Syndicate Oligopoly. Whereas, in the case of an Organized Oligopoly, the firms have a central association for fixing the prices, outputs, and quotas.
5. **Collusive Vs Non-Collusive Oligopoly:** This classification is made on the basis of agreement or understanding between the firms. In Collusive Oligopoly, instead of competing with each other, the firms come together and with the consensus of all fixes the price and the outputs. Whereas in

the case of a non-collusive Oligopoly, there is a lack of understanding among the firms and they compete against each other to achieve their respective targets.

Thus, oligopoly market is a market structure that lies between the monopolistic competition and a pure monopoly.

Causes of oligopoly

- Economies of scale
- Mergers and acquisitions
- Entrepreneurial genius
- Patent rights
- Exclusive control of factor input

Price Determination under Oligopoly:

The Sweezy Model of Kinked Demand Curve (Rigid Prices):

In his article published in 1939, Prof. Sweezy presented the kinked demand curve analysis to explain price rigidities often observed in oligopolistic markets. Sweezy assumes that if the oligopolistic firm lowers its price, its rivals will react by matching that price cut m order to avoid losing their customers. Thus the firm lowering the price will not be able to increase its demand much. This portion of its demand curve is relatively inelastic.

On the other hand, if the oligopolistic firm increases its price, its rivals will not follow it and change their prices. Thus the quantity demanded of this firm will fall considerably. This portion of the demand curve is relatively elastic. In these two situations, the demand curve of the oligopolistic firm has a kink at the prevailing market price which explains price rigidity.

Assumptions:

The kinked demand curve hypothesis of price rigidity is based on the following assumptions:

(1) There are few firms in the oligopolistic industry.

(2) The product produced by one firm is a close substitute for the other firms.

(3) The product is of the same quality. There is no product differentiation.

(4) There are no advertising expenditures.

(5) There is an established or prevailing market price for the product at which all the sellers are satisfied.

(6) Each seller's attitude depends on the attitude of his rivals.

(7) Any attempt on the part of a seller to push up his sales by reducing the price of his product will be counteracted by the other sellers who will follow his move.

(8) If he raises the price, others will not follow him. Rather they will stick to the prevailing price and cater to the customers, leaving the price-raising seller.

(9) The marginal cost curve passes through the dotted portion of the marginal revenue curve so that changes in marginal cost do not affect output and price.

Explanation about kinked demand curve:

- In an oligopolistic market, firms cannot have a fixed demand curve since it keeps changing as competitors change the prices/quantity of output.
- Since an oligopolistic is not aware of the demand curve, economists have designed various price-output models based on the behavior pattern of other firms in the industry.
- In many oligopolistic markets, it has been observed that prices tend to remain inflexible for a very long time. hypothesis, thedemand curve facing an oligopolistic has a kink at the level of Even in the face of declining costs, they tend to change infrequently.
- American economist Sweezy came up with the kinked demand curve hypothesis to explain the reason behind this price rigidity under oligopoly.

Kinked Demand Curve

In many oligopolist markets, it has been observed that prices tend to remain inflexible for a very long time. Even in the face of declining costs, they tend to change infrequently. American economist Sweezy came up with the kinked demand curve hypothesis to explain the reason behind this price rigidity under oligopoly.

According to the kinked demand curve hypothesis, the demand curve facing an oligopolist has a kink at the level of the prevailing price. This kink exists because of two reasons:

1. **The segment above the prevailing price level is highly elastic.**
2. **The segment below the prevailing price level is inelastic.**

The following figure shows a kinked demand curve dD with a kink at point P.

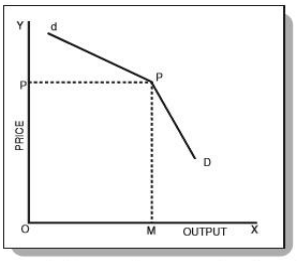


Fig. 1 : Kinked Demand Curve under oligopoly

From the figure, we know that

i. The prevailing price level = P

ii. The firm produces and sells output = OM

iii. Also, the upper segment (dP) of the demand curve (dD) is elastic.

iv. The lower segment (PD) of the demand curve (dD) is relatively inelastic.

This difference in elasticities is due to an assumption of the kinked demand curve hypothesis.

Assumption:

Each firm in an oligopoly believes the following two things:

a. If he lowers the price below the prevailing level, then the competitors will follow him.

b. If he increases the price above the prevailing level, then the competitors will NOT follow him.

There is a logical reasoning behind this assumption. When an oligopolist lowers the price of his product, the competitors feel that if they don't follow the price cut, then their customers will leave them and buy from the firm who is offering a lower price. Therefore, they lower their prices too in order to maintain their customers. Hence, the lower portion of the curve is inelastic. It implies that if an oligopolist lowers the price, he can obtain very little sales.

On the other hand, when a firm increases the price of its product, it experiences a substantial reduction in sales. The reason is simple – consumers will buy the same/similar product from its competitors. This increases the competitors' sales and they will have no motivation to match the price rise. Therefore, the firm that raises the price suffers a loss and hence refrain from increasing the price.

This behavior of oligopolists can help us understand the elasticity of the upper portion of the demand curve (dP). The figure shows that if a firm raises the price of a product, then it experiences a large fall in sales. Hence, no firm in an oligopolistic market will try to increase the price and a kink is formed at the prevailing price. This is how the kinked demand curve hypothesis explains the rigid or sticky prices.

Here **PSONY** refers to buyer

MONOPSONY

If there is only one buyer, monopsony market is said to exist.

DUOPSONY

If there are two buyers, duopsony is said to exist.

OLIGOPSONY

If there are few buyers, oligopsony is said to exist.

UNIT:V- Macro Economics & Business

Macro Economics: Nature, Concept and measurement of National Income. Classical and Keynesian approaches to Income, Employment and Investment.
Inflation: Types, causes and measurement of inflation. Philips curve, stagflation.
Trade Cycles: Causes - Policies to counter trade cycle

INTRODUCTION OF MACROECONOMICS

Recall that managerial macroeconomics is constituted of theory of demand and supply, theory of production and cost conditions, market structure and level of competition ,pricing principles and practices ,capital budgeting and investment decisions. The micro level managerial decisions are made generally with a short-run perspective assuming that the general economic condition and

business environment of the country would continue to remain the same and the charges, if any, would not be of much significance from business point of view. Macroeconomics examines the economy as a whole to explain broad aggregates and their interactions "top down," that is, using a simplified form of general –equilibrium theory. Such aggregates include national income and output, the unemployment rate and price inflation and sub aggregates like total consumption and investment spending and their components. It also studies effects of monetary policy and fiscal policy.

WHAT IS MACROECONOMICS

It is the study of economy as a whole. The study of the economy as a whole is carried out by analyzing the behaviour of and interaction between macroeconomics variables including national output (GDP and GNP), aggregate employment, the general price level, aggregate consumption, saving and investment, price level and economics transactions with the rest of the world. Precisely, macroeconomics studies the relationship and interaction between the macroeconomic variables and other internal and external 'factors or forces' that determine the level and growth of national output and employment, the general price level and the balance of payments position of an economy.

Macroeconomics seeks to answer the following types of question:

• Which factors and forces determine the GDP and GNP of a country?

• How are GDP and GNP determined and which factors determine growth and depression in the economy?

• How is the aggregate employment determined and what causes unemployment?

• What causes inflation and deflation in a country and how do they affect the economy?

• How do government policies-monetary and fiscal-affect the economy and as well as business activities?

NATURE OF MACROECONOMICS

The nature of a subject is determined on the basis of whether a science has a purely positive (theoretical) or normative (policy) orientation or both. A positive science has only theoretical orientation whereas a science having normative orientation aims at setting norms for finding solution to practical problems and provides policy guidelines Macroeconomics has both positive (theoretical) and policy orientations.

IMPORTANCE OF MACROECONOMICS

Lies in providing a theoretical framework for finding solutions to three major macroeconomic problems confronting most countries of the world, viz.,(i) problems of economic growth , (ii) unemployment and (iii) inflation.

As regards the problems of economic growth, both developed and underdeveloped countries have been striving, especially after the Second World War, to achieve and maintain a high growth rate. While industrially advanced nations have succeeded in achieving a high growth rate during the post-war II period, most of them, excepting japan, are still striving to achieve a reasonably high growth of the economy and to sustain it over a long period of time.

PRE-KEYNESIAN ERA: The pre- Keynesian era refers to the period of economic thoughts of classical and pre-classical economists. Their macroeconomic thought were in the forms of certain 'postulates' which can be summarized .If market forces of demand and supply are allowed to have free play, i.e., the laissez-faire system, then (i)there will always be full employment in the long –run,(ii) there will be neither overproduction nor under-production and (iii) the economy will always be in equilibrium in the long-run.

THE KEYNESIAN REVOLUTION: The collapse of the classical economics necessitated a fresh look at the working of the economic system and devising corrective measures and safeguards against the failure of the market economy, it was in this background that Keynes published his General Theory which laid the foundation of macroeconomics.

THE POST-KEYNESIAN DEVELOPMENTS: Until the 1970s, the Keynesian thoughts and policies had global appeal and application. However, Keynesian economics started showing signs of failures during the 1970s. This raised the doubt about the relevance and applicability of Keynesian economics. Consequently, several other schools of macroeconomic thoughts emerged, viz., Monetarism, supply-side macroeconomics, New Classical macroeconomics and New Keynesianism.

NEW CLASSICAL MACROECONOMICS: During the 1980s, the Keynesian view was attacked by another group of economists, called radicalists led by Robert E. Lucus, the Nobel Laureate of 1995, their views known as new classical macroeconomics.

SUPPLY-SIDE ECONOMICS: Another school of macroeconomics that emerged meanwhile is called "Supply-Side Economics". While Keynesians and monetarists have both built their arguments for 'what determines the aggregate demand 'on the basis of the factors operating on the demand side of the market," supply-side economists'," led by Arthur Laffer, emphasized the role of the factors operating on the supply-side of the market.

National Income

National Income Is the final outcome of all economic activities of a nation valued in terms of money. **National income** is the most important macroeconomic variable and determinant of the business level and economic status of a country. **National income** is the money value of all final goods and services produced in a country during a period of one year. **National income** is the money value of all the final goods and services produced by a country during a period of one year. **National income** consists of a collection of different types of goods and services of different types.

In common terms, **National Income** means the total value of goods and services produced annually in a country.

In other words, **National Income** is the total amount of income accruing to a country from economic activities in a year‘s time.

National Income helps us to know the economic progress achieved and to make comparative study.

Simon Kuznets defines it 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.

JM.Keynes, a famous economist defined **National Income** as - ”**National Income** is the money value of all goods and services produced in the country during a year.”

Methods of Measuring National Income

PRODUCT METHOD

>> The total value of the final goods and services produced in a country during a year is calculated at market price.

>> All productive activities such as agricultural products, commodities produced at industries, etc are collected and assessed at market price.

>> Only final goods and services are included and the intermediary goods and services are left.

>> Money sent by Indian citizens working aboard are also added.

GROSS NATIONAL INCOME = Money Value of total goods and services + Income from abroad

INCOME METHOD

>> The net income payments received by all citizens of a country in a particular year are added up.

>> Income details are obtained from Income Tax Dept. (High Income) and Wages Bills. (Workers)

>> Income by way of net wages, net rents, net interest, net profits are added together but

incomes received in form of transfer payments are exempted.

GROSS NATIONAL INCOME = Rent + Wages + Interest + Profit + Income from abroad

EXPENDITURE METHOD

The total expenditure incurred by the society in a particular year is added together. This includes personal consumption expenditure, net domestic investment, government expenditure on goods and services, net foreign investment.

GROSS NATIONAL INCOME = Individual Expenditure + Government Expenditure

VALUE ADDED METHOD

>> The difference between the value of material outputs and inputs at each stage of production is the value added.

>> All such difference are added up for all industries in the economy, to arrive at the GDP

CONCEPTS OF NATIONAL INCOME

Gross Domestic Product (Gdp)
Gross National Prodcut (Gnp)
National Domestic Product (Ndp)
Net National Product (Nnp)
Personal Income
Per Capita Income
Personal Disposable Income

LIMITATIONS IN MEASURING NATIONAL INCOME

o Non availability of reliable statistics
o Service of Housewives
o Owner-occupied Houses
o Self Employed persons
o Goods meant for self-consumption
o Illegal Activites
o Wages and Salaries paid in Kind
o Intermediate and Final Goods
o Second-hand Goods and Assets
o Price Changes
o Transfer Payments etc..

Inflation: Types, Causes and Effects

Inflation and unemployment are the two most talked-about words in the contemporary society.

These two are the big problems that plague all the economies.

Almost everyone is sure that he knows what inflation exactly is, but it remains a source of great deal of confusion because it is difficult to define it unambiguously.

1. Meaning of Inflation:

Inflation is often defined in terms of its supposed causes. Inflation exists when money supply exceeds available goods and services. Or inflation is attributed to budget deficit financing. A deficit budget may be financed by the additional money creation. But the situation of monetary expansion or budget deficit may not cause price level to rise. Hence the difficulty of defining 'inflation'.

Inflation may be defined as 'a sustained upward trend in the general level of prices' and not the price of only one or two goods. G. Ackley defined inflation as 'a persistent and appreciable rise in the general level or average of prices'. In other words, inflation is a state of rising prices, but not high prices.

It is not high prices but rising price level that constitute inflation. It constitutes, thus, an overall increase in price level. It can, thus, be viewed as the devaluing of the worth of money. In other words, inflation reduces the purchasing power of money. A unit of money now buys less. Inflation can also be seen as a recurring phenomenon.

While measuring inflation, we take into account a large number of goods and services used by the people of a country and then calculate average increase in the prices of those goods and services over a period of time. A small rise in prices or a sudden rise in prices is not inflation since they may reflect the short term workings of the market.

It is to be pointed out here that inflation is a state of disequilibrium when there occurs a sustained rise in price level. It is inflation if the prices of most goods go up. Such rate of increases in prices may be both slow and rapid. However, it is difficult to detect whether there is an upward trend in prices and whether this trend is sustained. That is why inflation is difficult to define in an unambiguous sense.

Let's measure inflation rate. Suppose, in December 2007, the consumer price index was 193.6 and, in December 2008, it was 223.8. Thus, the inflation rate during the last one year was

223.8- 193.6/ 193.6 x 100 = 15.6

As inflation is a state of rising prices, deflation may be defined as a state of falling prices but not fall in prices. Deflation is, thus, the opposite of inflation, i.e., a rise in the value of money or purchasing power of money. Disinflation is a slowing down of the rate of inflation.

2. Types of Inflation:

As the nature of inflation is not uniform in an economy for all the time, it is wise to distinguish between different types of inflation. Such analysis is useful to study the distributional and other effects of inflation as well as to recommend anti-inflationary policies. Inflation may be caused by a variety of factors. Its intensity or pace may be different at different times. It may also be classified in accordance with the reactions of the government toward inflation.

Thus, one may observe different types of inflation in the contemporary society:

A. On the Basis of Causes:

(i) Currency inflation:

This type of inflation is caused by the printing of currency notes.

(ii) Credit inflation:

Being profit-making institutions, commercial banks sanction more loans and advances to the public than what the economy needs. Such credit expansion leads to a rise in price level.

(iii) Deficit-induced inflation:

The budget of the government reflects a deficit when expenditure exceeds revenue. To meet this gap, the government may ask the central bank to print additional money. Since pumping of additional money is required to meet the budget deficit, any price rise may the be called the deficit-induced inflation.

(iv) Demand-pull inflation:

An increase in aggregate demand over the available output leads to a rise in the price level. Such inflation is called demand-pull inflation (henceforth DPI). But why does aggregate demand rise? Classical economists attribute this rise in aggregate demand to money supply. If the supply of money in an economy exceeds the available goods and services, DPI appears. It has been described by Coulborn as a situation of "too much money chasing too few goods."

Keynesians hold a different argument. They argue that there can be an autonomous increase in aggregate demand or spending, such as a rise in consumption demand or investment or government spending or a tax cut or a net increase in exports (i.e., C + I + G + X – M) with no increase in money supply. This would prompt upward adjustment in price. Thus, DPI is caused by monetary factors (classical adjustment) and non-monetary factors (Keynesian argument).

DPI can be explained in terms of Fig. 4.2, where we measure output on the horizontal axis and price level on the vertical axis. In Range 1, total spending is too short of full employment output, Y_F. There is little or no rise in the price level. As demand now rises, output will rise. The economy enters Range 2, where output approaches towards full employment situation. Note that in this region price level begins to rise. Ultimately, the economy reaches full employment situation, i.e., Range 3, where output does not rise but price level is pulled upward. This is demand-pull inflation. The essence of this type of inflation is that "too much spending chasing too few goods."

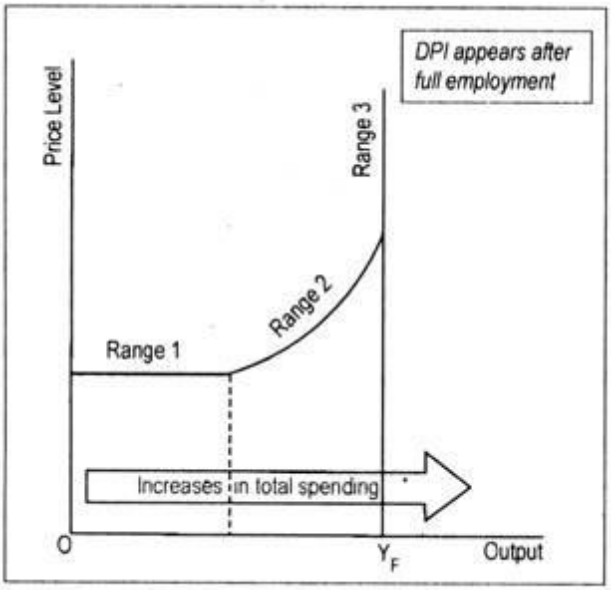


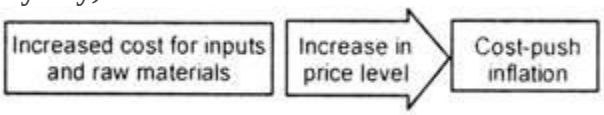
Fig. 4.2: Demand-pull Inflation

(v) Cost-push inflation:

Inflation in an economy may arise from the overall increase in the cost of production. This type of inflation is known as cost-push inflation (henceforth CPI). Cost of production may rise due to an increase in the prices of raw materials, wages, etc. Often trade unions are blamed for wage rise since wage rate is not completely market-determinded. Higher wage means high cost of production. Prices of commodities are thereby increased.

A wage-price spiral comes into operation. But, at the same time, firms are to be blamed also for the price rise since they simply raise prices to expand their profit margins. Thus, we have two important variants of CPI wage-push inflation and profit-push inflation.

Anyway, CPI stems from the leftward shift of the aggregate supply curve:



B. On the Basis of Speed or Intensity:

(i) Creeping or Mild Inflation:

If the speed of upward thrust in prices is slow but small then we have creeping inflation. What speed of annual price rise is a creeping one has not been stated by the economists. To some, a creeping or mild inflation is one when annual price rise varies between 2 p.c. and 3 p.c. If a rate of price rise is kept at this level, it is considered to be helpful for economic development. Others argue that if annual price rise goes slightly beyond 3 p.c. mark, still then it is considered to be of no danger.

(ii) Walking Inflation:

If the rate of annual price increase lies between 3 p.c. and 4 p.c., then we have a situation of walking inflation. When mild inflation is allowed to fan out, walking inflation appears. These two types of inflation may be described as 'moderate inflation'.

Often, one-digit inflation rate is called 'moderate inflation' which is not only predictable, but also keep people's faith on the monetary system of the country. Peoples' confidence get lost once moderately maintained rate of inflation goes out of control and the economy is then caught with the galloping inflation.

(iii) Galloping and Hyperinflation:

Walking inflation may be converted into running inflation. Running inflation is dangerous. If it is not controlled, it may ultimately be converted to galloping or hyperinflation. It is an extreme form of inflation when an economy gets shattered."Inflation in the double or triple digit range of 20, 100 or 200 p.c. a year is labelled "galloping inflation".

(iv) Government's Reaction to Inflation:

Inflationary situation may be open or suppressed. Because of anti-inflationary policies pursued by the government, inflation may not be an embarrassing one. For instance, increase in income leads to an increase in consumption spending which pulls the price level up.

If the consumption spending is countered by the government via price control and rationing device, the inflationary situation may be called a suppressed one. Once the government curbs are lifted, the suppressed inflation becomes open inflation. Open inflation may then result in hyperinflation.

3. Causes of Inflation:

Inflation is mainly caused by excess demand/ or decline in aggregate supply or output. Former leads to a rightward shift of the aggregate demand curve while the latter causes aggregate supply curve to shift leftward. Former is called demand-pull inflation (DPI), and the latter is called cost-push inflation (CPI). Before describing the factors, that lead to a rise in aggregate demand and a decline in aggregate supply, we like to explain "demand-pull" and "cost-push" theories of inflation.

(i) Demand-Pull Inflation Theory:

There are two theoretical approaches to the DPI—one is classical and other is the Keynesian.

According to classical economists or monetarists, inflation is caused by an increase in money supply which leads to a rightward shift in negative sloping aggregate demand curve. Given a situation of full employment, classicists maintained that a change in money supply brings about an equiproportionate change in price level.

That is why monetarists argue that inflation is always and everywhere a monetary phenomenon. Keynesians do not find any link between money supply and price level causing an upward shift in aggregate demand.

According to Keynesians, aggregate demand may rise due to a rise in consumer demand or investment demand or government expenditure or net exports or the combination of these four components of aggreate demand. Given full employment, such increase in aggregate demand leads to an upward pressure in prices. Such a situation is called DPI. This can be explained graphically.

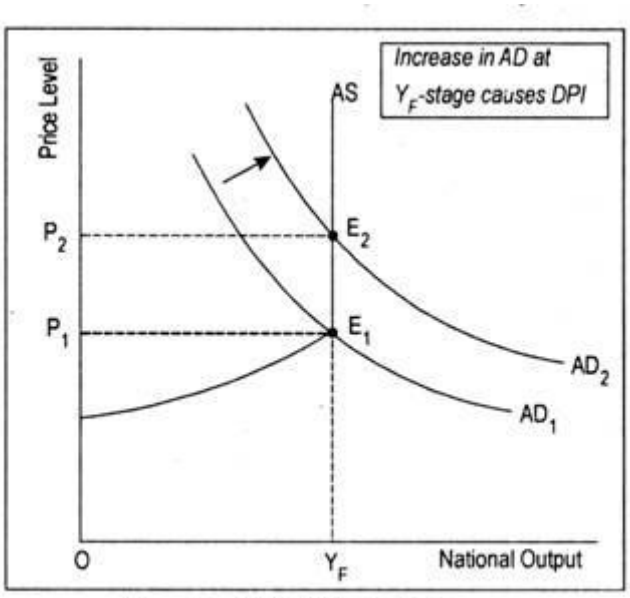


Fig. 4.3: DPI: Shifts in AD Curve

Just like the price of a commodity, the level of prices is determined by the interaction of aggregate demand and aggregate supply. In Fig. 4.3, aggregate demand curve is negative sloping while aggregate supply curve before the full employment stage is positive sloping and becomes vertical after the full employment stage is reached. AD_1 is the initial aggregate demand curve that intersects the aggregate supply curve AS at point E_1.

The price level, thus, determined is OP_1. As aggregate demand curve shifts to AD_2, price level rises to OP_2. Thus, an increase in aggregate demand at the full employment stage leads to an increase in price level only, rather than the level of output. However, how much price level will rise following an increase in aggregate demand depends on the slope of the AS curve.

(ii) Causes of Demand-Pull Inflation:

DPI originates in the monetary sector. Monetarists' argument that "only money matters" is based on the assumption that at or near full employment excessive money supply will increase aggregate demand and will, thus, cause inflation.

An increase in nominal money supply shifts aggregate demand curve rightward. This enables people to hold excess cash balances. Spending of excess cash balances by them causes price level to rise. Price level will continue to rise until aggregate demand equals aggregate supply.

Keynesians argue that inflation originates in the non-monetary sector or the real sector. Aggregate demand may rise if there is an increase in consumption expenditure following a tax cut. There may be an autonomous increase in business investment or government expenditure. Government expenditure is inflationary if the needed money is procured by the government by printing additional money.

In brief, increase in aggregate demand i.e., increase in (C + I + G + X – M) causes price level to rise. However, aggregate demand may rise following an increase in money supply generated by the printing of additional money (classical argument) which drives prices upward. Thus, money plays a vital role. That is why Milton Friedman argues that inflation is always and everywhere a monetary phenomenon.

There are other reasons that may push aggregate demand and, hence, price level upwards. For instance, growth of population stimulates aggregate demand. Higher export earnings increase the purchasing power of the exporting countries. Additional purchasing power means additional aggregate demand. Purchasing power and, hence, aggregate demand may also go up if government repays public debt.

Again, there is a tendency on the part of the holders of black money to spend more on conspicuous consumption goods. Such tendency fuels inflationary fire. Thus, DPI is caused by a variety of factors.

(iii) Cost-Push Inflation Theory:

In addition to aggregate demand, aggregate supply also generates inflationary process. As inflation is caused by a leftward shift of the aggregate supply, we call it CPI. CPI is usually associated with non-monetary factors. CPI arises due to the increase in cost of production. Cost of production may rise due to a rise in cost of raw materials or increase in wages.

However, wage increase may lead to an increase in productivity of workers. If this happens, then the AS curve will shift to the right- ward not leftward—direction. We assume here that productivity does not change in spite of an increase in wages.

Such increases in costs are passed on to consumers by firms by raising the prices of the products. Rising wages lead to rising costs. Rising costs lead to rising prices. And, rising prices again prompt trade unions to demand higher wages. Thus, an inflationary wage-price spiral starts. This causes aggregate supply curve to shift leftward.

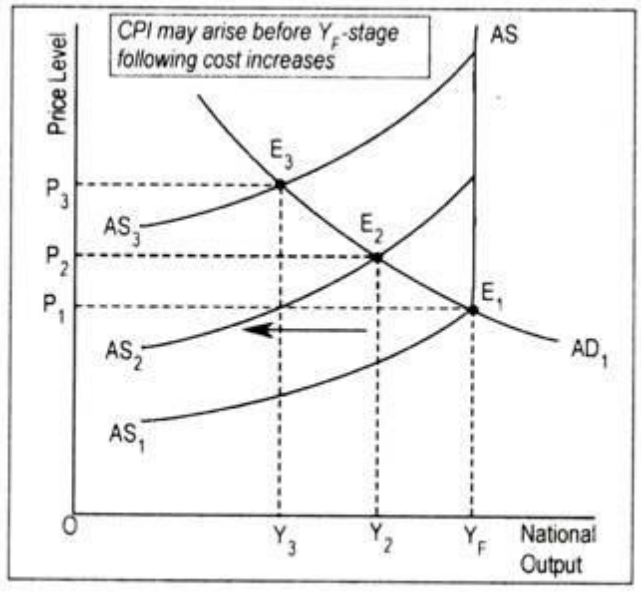


Fig. 4.4: CPI: Shifts in AS Curve

This can be demonstrated graphically where AS_1 is the initial aggregate supply curve. Below the full employment stage this AS curve is positive sloping and at full employment stage it becomes perfectly inelastic.

Intersection point (E_1) of AD_1 and AS_1 curves determine the price level (OP_1). Now there is a leftward shift of aggregate supply curve to AS_2. With no change in aggregate demand, this causes price level to rise to OP_2 and output to fall to OY_2. With the reduction in output, employment in the economy declines or unemployment rises. Further shift in AS curve to AS_3 results in a higher price level (OP_3) and a lower volume of aggregate output (OY_3). Thus, CPI may arise even below the full employment (Y_F) stage.

(iv) Causes of Cost-Push Inflation:

It is the cost factors that pull the prices upward. One of the important causes of price rise is the rise in price of raw materials. For instance, by an administrative order the government may hike the price of petrol or diesel or freight rate. Firms buy these inputs now at a higher price. This leads to an upward pressure on cost of production.

Not only this, CPI is often imported from outside the economy. Increase in the price of petrol by OPEC compels the government to increase the price of petrol and diesel. These two important raw materials are needed by every sector, especially the transport sector. As a result, transport costs go up resulting in higher general price level.

Again, CPI may be induced by wage-push inflation or profit-push inflation. Trade unions demand higher money wages as a compensation against inflationary price rise. If increase in money wages exceed labour productivity, aggregate supply will shift upward and leftward. Firms

often exercise power by pushing prices up independently of consumer demand to expand their profit margins.

Fiscal policy changes, such as increase in tax rates also leads to an upward pressure in cost of production. For instance, an overall increase in excise tax of mass consumption goods is definitely inflationary. That is why government is then accused of causing inflation.

Finally, production setbacks may result in decreases in output. Natural disaster, gradual exhaustion of natural resources, work stoppages, electric power cuts, etc., may cause aggregate output to decline. In the midst of this output reduction, artificial scarcity of any goods created by traders and hoarders just simply ignite the situation.

Inefficiency, corruption, mismanagement of the economy may also be the other reasons. Thus, inflation is caused by the interplay of various factors. A particular factor cannot be held responsible for any inflationary price rise.

4. Effects of Inflation:

People's desires are inconsistent. When they act as buyers they want prices of goods and services to remain stable but as sellers they expect the prices of goods and services should go up. Such a happy outcome may arise for some individuals; "but, when this happens, others will be getting the worst of both worlds."

When price level goes up, there is both a gainer and a loser. To evaluate the consequence of inflation, one must identify the nature of inflation which may be anticipated and unanticipated. If inflation is anticipated, people can adjust with the new situation and costs of inflation to the society will be smaller.

In reality, people cannot predict accurately future events or people often make mistakes in predicting the course of inflation. In other words, inflation may be unanticipated when people fail to adjust completely. This creates various problems.

One can study the effects of unanticipated inflation under two broad headings:

(a) Effect on distribution of income and wealth; and

(b) Effect on economic growth.

(a) Effects of Inflation on Distribution of Income and Wealth:

During inflation, usually people experience rise in incomes. But some people gain during inflation at the expense of others. Some individuals gain because their money incomes rise more rapidly than the prices and some lose because prices rise more rapidly than their incomes during inflation. Thus, it redistributes income and wealth.

Though no conclusive evidence can be cited, it can be asserted that following categories of people are affected by inflation differently:

(i) Creditors and debtors:

Borrowers gain and lenders lose during inflation because debts are fixed in rupee terms. When debts are repaid their real value declines by the price level increase and, hence, creditors lose. An individual may be interested in buying a house by taking loan of Rs. 7 lakh from an institution for 7 years.

The borrower now welcomes inflation since he will have to pay less in real terms than when it was borrowed. Lender, in the process, loses since the rate of interest payable remains unaltered as per agreement. Because of inflation, the borrower is given 'dear' rupees, but pays back 'cheap' rupees. However, if in an inflation-ridden economy creditors chronically loose, it is wise not to advance loans or to shut down business.

Never does it happen. Rather, the loan-giving institution makes adequate safeguard against the erosion of real value. Above all, banks do not pay any interest on current account but charges interest on loans.

(ii) Bond and debenture-holders:

In an economy, there are some people who live on interest income—they suffer most. Bondholders earn fixed interest income: These people suffer a reduction in real income when prices rise. In other words, the value of one's savings decline if the interest rate falls short of inflation rate. Similarly, beneficiaries from life insurance programmes are also hit badly by inflation since real value of savings deteriorate.

(iii) Investors:

People who put their money in shares during inflation are expected to gain since the possibility of earning of business profit brightens. Higher profit induces owners of firm to distribute profit among investors or shareholders.

(iv) Salaried people and wage-earners:

Anyone earning a fixed income is damaged by inflation. Sometimes, unionised worker succeeds in raising wage rates of white-collar workers as a compensation against price rise. But wage rate changes with a long time lag. In other words, wage rate increases always lag behind price increases. Naturally, inflation results in a reduction in real purchasing power of fixed income-earners.

On the other hand, people earning flexible incomes may gain during inflation. The nominal incomes of such people outstrip the general price rise. As a result, real incomes of this income group increase.

(v) Profit-earners, speculators and black marketers:

It is argued that profit-earners gain from inflation. Profit tends to rise during inflation. Seeing inflation, businessmen raise the prices of their products. This results in a bigger profit. Profit margin, however, may not be high when the rate of inflation climbs to a high level.

However, speculators dealing in business in essential commodities usually stand to gain by inflation. Black marketers are also benefited by inflation.

Thus, there occurs a redistribution of income and wealth. It is said that rich becomes richer and poor becomes poorer during inflation. However, no such hard and fast generalisation can be made. It is clear that someone wins and someone loses during inflation.

These effects of inflation may persist if inflation is unanticipated. However, the redistributive burdens of inflation on income and wealth are most likely to be minimal if inflation is anticipated by the people. With anticipated inflation, people can build up their strategies to cope with inflation.

If the annual rate of inflation in an economy is anticipated correctly people will try to protect them against losses resulting from inflation. Workers will demand 10 p.c. wage increase if inflation is expected to rise by 10 p.c.

Similarly, a percentage of inflation premium will be demanded by creditors from debtors. Business firms will also fix prices of their products in accordance with the anticipated price rise. Now if the entire society “learn to live with inflation”, the redistributive effect of inflation will be minimal.

However, it is difficult to anticipate properly every episode of inflation. Further, even if it is anticipated it cannot be perfect. In addition, adjustment with the new expected inflationary conditions may not be possible for all categories of people. Thus, adverse redistributive effects are likely to occur.

Finally, anticipated inflation may also be costly to the society. If people's expectation regarding future price rise become stronger they will hold less liquid money. Mere holding of cash balances during inflation is unwise since its real value declines. That is why people use their money balances in buying real estate, gold, jewellery, etc. Such investment is referred to as unproductive investment. Thus, during inflation of anticipated variety, there occurs a diversion of resources from priority to non-priority or unproductive sectors.

(b) Effect on Production and Economic Growth:

Inflation may or may not result in higher output. Below the full employment stage, inflation has a favourable effect on production. In general, profit is a rising function of the price level. An inflationary situation gives an incentive to businessmen to raise prices of their products so as to earn higher volume of profit. Rising price and rising profit encourage firms to make larger investments.

As a result, the multiplier effect of investment will come into operation resulting in a higher national output. However, such a favourable effect of inflation will be temporary if wages and production costs rise very rapidly.

Further, inflationary situation may be associated with the fall in output, particularly if inflation is of the cost-push variety. Thus, there is no strict relationship between prices and output. An increase in aggregate demand will increase both prices and output, but a supply shock will raise prices and lower output.

Inflation may also lower down further production levels. It is commonly assumed that if inflationary tendencies nurtured by experienced inflation persist in future, people will now save less and consume more. Rising saving propensities will result in lower further outputs.

One may also argue that inflation creates an air of uncertainty in the minds of business community, particularly when the rate of inflation fluctuates. In the midst of rising inflationary trend, firms cannot accurately estimate their costs and revenues. That is, in a situation of unanticipated inflation, a great deal of risk element exists.

It is because of uncertainty of expected inflation, investors become reluctant to invest in their business and to make long-term commitments. Under the circumstance, business firms may be deterred in investing. This will adversely affect the growth performance of the economy.

However, slight dose of inflation is necessary for economic growth. Mild inflation has an encouraging effect on national output. But it is difficult to make the price rise of a creeping variety. High rate of inflation acts as a disincentive to long run economic growth. The way the hyperinflation affects economic growth is summed up here. We know that hyper-inflation discourages savings.

A fall in savings means a lower rate of capital formation. A low rate of capital formation hinders economic growth. Further, during excessive price rise, there occurs an increase in unproductive investment in real estate, gold, jewellery, etc. Above all, speculative businesses flourish during inflation resulting in artificial scarcities and, hence, further rise in prices.

Again, following hyperinflation, export earnings decline resulting in a wide imbalances in the balance of payment account. Often galloping inflation results in a 'flight' of capital to foreign countries since people lose confidence and faith over the monetary arrangements of the country, thereby resulting in a scarcity of resources. Finally, real value of tax revenue also declines under the impact of hyperinflation. Government then experiences a shortfall in investible resources.

Phillips Curve

What is the Phillips Curve?

The Phillips curve is an economic concept developed by A. W. Phillips stating that inflation and unemployment have a stable and inverse relationship. The theory claims that with economic growth comes inflation, which in turn should lead to more jobs and less unemployment. However, the original concept has been somewhat disproven empirically due to the occurrence of stagflation in the 1970s, when there were high levels of both inflation and unemployment.

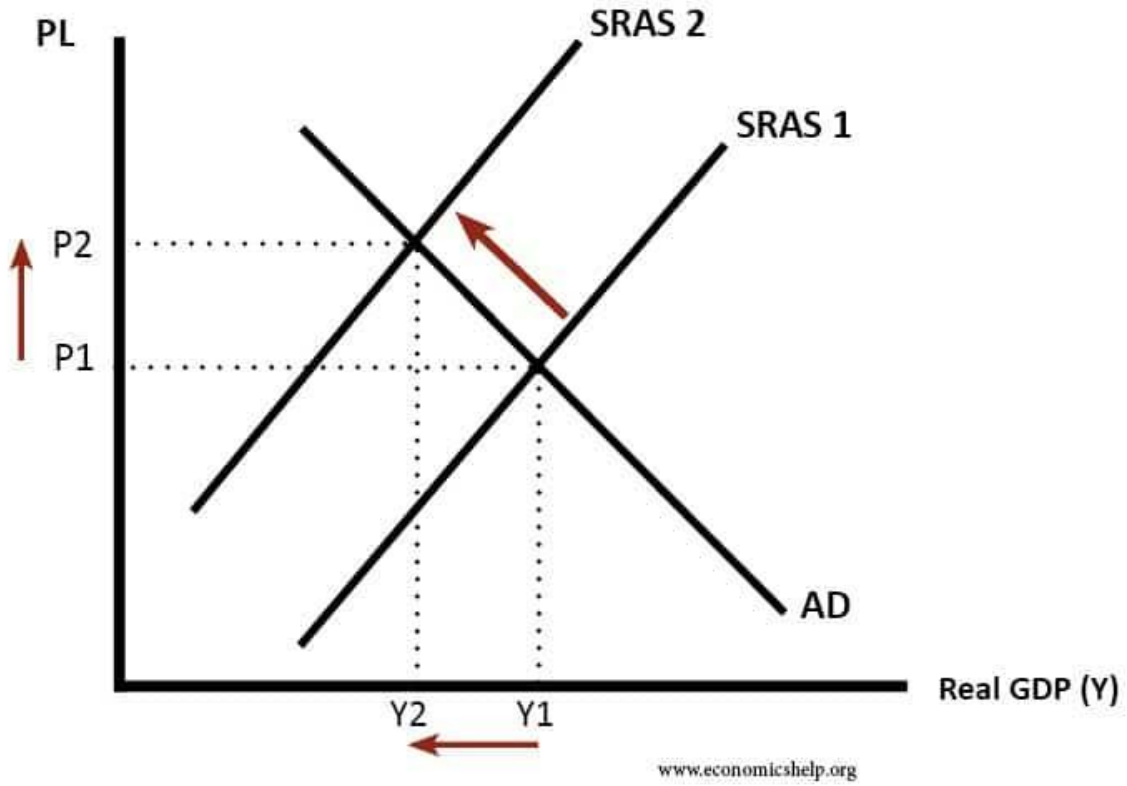
Stagflation

Definition of stagflation

- Stagflation is a period of rising inflation but falling output and rising unemployment.
- Stagflation is often caused by a rise in the price of commodities, such as oil. Stagflation occurred in the 1970s following the tripling in the price of oil.

- A degree of stagflation occurred in 2008, following the rise in the price of oil and the start of the global recession.

Diagram stagflation



Higher oil prices increase costs of firms causing SRAS to shift to the left.
AD/AS diagram showing stagflation (higher price level P1 to P2 and lower real GDP Y1 to Y2)

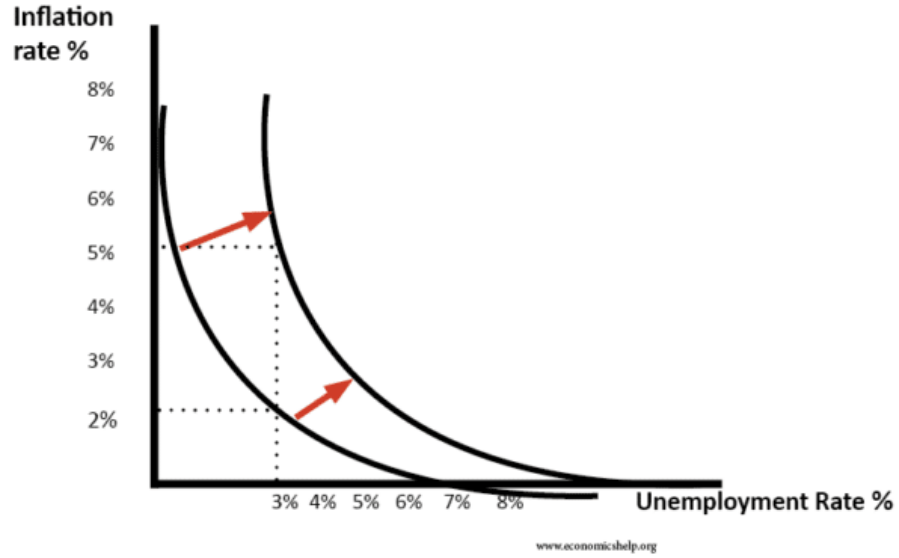
Causes of stagflation

- **Oil price rise** Stagflation is often caused by a supply-side shock. For example, rising commodity prices, such as oil prices, will cause a rise in business costs (transport more expensive) and short-run aggregate supply will shift to the left. This causes a higher inflation rate and lower GDP.
- **Powerful trade unions**. If trade unions have strong bargaining power – they may be able to bargain for higher wages, even in periods of lower economic growth. Higher wages are a significant cause of inflation.
- **Falling productivity**. If an economy experiences falling productivity – workers becoming more inefficient; costs will rise and output fall.
- **Rise in structural unemployment**. If there is a decline in traditional industries, we may get more structural unemployment and lower output. Thus we can get higher unemployment – even if inflation is also increasing.

People may talk about stagflation if there is a rise in inflation and a fall in the growth rate. This is less damaging than higher inflation and negative growth. But, it still represents a deterioration in the trade-off between unemployment and inflation.

Stagflation and Phillips Curve

The traditional Phillips curve suggests there is a trade-off between inflation and unemployment. A period of stagflation will shift the Phillips



curve to the right, giving a worse trade-off.

Phillips curve shifting to the right, indicating stagflation (higher inflation and higher unemployment.

Trade Cycles: Causes - Policies to counter trade cycle

Meaning of Trade Cycle:

A trade cycle refers to fluctuations in economic activities specially in employment, output and income, prices, profits etc. It has been defined differently by different economists. According to Mitchell, "Business cycles are of fluctuations in the economic activities of organized communities. The adjective 'business' restricts the concept of fluctuations in activities which are systematically conducted on commercial basis.

The noun 'cycle' bars out fluctuations which do not occur with a measure of regularity". According to Keynes, "A trade cycle is composed of periods of good trade characterised by rising prices and low unemployment percentages altering with periods of bad trade characterised by falling prices and high unemployment percentages".

Features of a Trade Cycle:

1. A business cycle is synchronic. When cyclical fluctuations start in one sector it spreads to other sectors.

2. In a trade cycle, a period of prosperity is followed by a period of depression. Hence trade cycle is a wave like movement.

3. Business cycle is recurrent and rhythmic; prosperity is followed by depression and vice versa.

4. A trade cycle is cumulative and self-reinforcing. Each phase feeds on itself and creates further movement in the same direction.

5. A trade cycle is asymmetrical. The prosperity phase is slow and gradual and the phase of depression is rapid.

6. The business cycle is not periodical. Some trade cycles last for three or four years, while others last for six or eight or even more years.

7. The impact of a trade cycle is differential. It affects different industries in different ways.

8. A trade cycle is international in character. Through international trade, booms and depressions in one country are passed to other countries.

Phases of a Trade Cycle:
Generally, a trade cycle is composed of four phases – depression, recovery, prosperity and recession.

Depression:
During depression, the level of economic activity is extremely low. Real income production, employment, prices, profit etc. are falling. There are idle resources. Price is low leading to a fall in profit, interest and wages. All the sections of the people suffer. During this phase, there will be pessimism leading to closing down of business firms.

Recovery:
Recovery denotes the turning point of business cycle form depression to prosperity. In this phase, there is a slow rise in output, employment, income and price. Demand for commodities go up. There is increase in investment, bank loans and advances. Pessimism gives way to optimism. The process of revival and recovery becomes cumulative and leads to prosperity.

Prosperity: It is a state of affairs in which real income and employment are high. There are no idle resources. There is no wastage of materials. There is rise in wages, prices, profits and

interest. Demand for bank loans increases. There is optimism everywhere. There is a general uptrend in business community.

However, these boom conditions cannot last long because the forces of expansion are very weak. There are bottlenecks and shortages. There may be scarcity of labour, raw material and other factors of production. Banks may stop their loans. These conditions lead to recession.

Recession: When the entrepreneurs realize their mistakes, they reduce investment, employment and production. Then fall in employment leads to fall in income, expenditure, prices and profits. Optimism gives way to pessimism. Banks reduce their loans and advances. Business expansion stops. This state of recession ends in depression.

Theories of Trade Cycle:

Many theories have been put forward from time to time to explain the phenomenon of trade cycles. These theories can be classified into non-monetary and monetary theories.

Non-Monetary Theories of Trade Cycle:

1. Sunspot Theory or Climatic Theory:

It is the oldest theory of trade cycle. It is associated with W.S.Jevons and later on developed by H.C.Moore. According to this theory, the spot that appears on the sun influences the climatic conditions. When the spot appears, it will affect rainfall and hence agricultural crops.

When there is crop failure, that will result in depression. On the other hand, if the spot did not appear on the sun, rainfall is good leading to prosperity. Thus, the variations in climate are so regular that depression is followed by prosperity.

However, this theory is not accepted today. Trade cycle is a complex phenomenon and it cannot be associated with climatic conditions. If this theory is correct, then industrialised countries should be free from cyclical fluctuations. But it is the advanced, industrialised countries which are affected by trade cycles.

2. Psychological Theory:

This theory was developed by A.C. Pigou. He emphasized the role of psychological factor in the generation of trade cycles. According to Pigou, the main cause for trade cycle is optimism and pessimism among business people and bankers. During the period of good trade, entrepreneurs become optimistic which would lead to increase in production.

The feeling of optimism is spread to other. Hence investments are increased beyond limits and there is over production, which results in losses. Entrepreneurs become pessimistic and reduce their investment and production. Thus, fluctuations are due to optimism leading to prosperity and pessimism resulting depression.

Though there is an element of truth in this theory, this theory is unable to explain the occurrence of boom and starting of revival. Further this theory fails to explain the periodicity of trade cycle.

3. Overinvestment Theory:

Arthur Spiethoff and D.H. Robertson have developed the over investment theory. It is based on Say's law of markets. It believes that over production in one sector leads to over production in other sectors. Suppose, there is over production and excess supply in one sector, that will result in fall in price and income of the people employed in that sector. Fall in income will lead to a decline in demand for goods and services produced by other sectors. This will create over production in other sectors.

Spiethoff has pointed out that over investment is the cause for trade cycle. Over investment is due to indivisibility of investment and excess supply of bank credit. He gives the example of a railway company which lays down one more track to avoid traffic congestion. But this may result in excess capacity because the additional traffic may not be sufficient to utilise the second track fully.

Over investment and overproduction are encouraged by monetary factors. If the banking system places more money in the hands of entrepreneurs, prices will increase. The rise in prices may induce the entrepreneurs to increase their investments leading to over-investment. Thus Prof. Robertson has successfully combined real and monetary factors to explain business cycle.

This theory is realistic in the sense that it considers over investment as the cause of trade cycle. But it has failed to explain revival.

4. Over-Saving or Under Consumption Theory:

This theory is the oldest explanation of the cyclical fluctuations. This theory has been formulated by Malthus, Marx and Hobson. According to this theory, depression is due to over-saving. In the modern society, there is great inequalities of income. Rich people have large income but their marginal propensity to consume is less.

Hence they save and invest which results in an increase in the volume of goods. This causes a general glut in the market. At the same time, as majority of the people are poor, they have low propensity to consume. Therefore, consumption will not increase. Increase in the supply of goods and decline in the demand create under consumption and hence over production.

This theory is not free from criticism. This theory explains only the turning point from prosperity to depression. It does not say anything about recovery. This theory assumes that the amount saved would be automatically invested. But this is not true. It pays too much attention on saving and too little on others.

5. Keynes' Theory of Trade Cycles:

Keynes doesn't develop a complete and pure theory of trade cycles. According to Keynes, effective demand is composed of consumption and investment expenditure. It is effective demand which determines the level of income and employment.

Therefore, changes in total expenditure i.e., consumption and investment expenditures, affect effective demand and this will bring about fluctuation in economic activity. Keynes believes that consumption expenditure is stable and it is the fluctuation in investment expenditure which is responsible for changes in output, income and employment.

Investment depends on rate of interest and marginal efficiency of capital. Since rate of interest is more or less stable, marginal efficiency of capital determines investment. Marginal efficiency of capital depends on two factors – prospective yield and supply price of the capital asset. An increase in MEC will create more employment, output and income leading to prosperity. On the other hand, a decline in MEC leads to unemployment and fall in income and output. It results in depression.

During the period of expansion businessmen are optimistic. MEC is rapidly increasing and rate of interest is sticky. So entrepreneurs undertake new investment. The process of expansion goes on till the boom is reached. As the process of expansion continues, cost of production increases, due to scarcity of factors of production. This will lead to a fall in MEC. Further, price of the product falls due to abundant supply leading to a decline in profits.

This leads to depression. As time passes, existing machinery becomes worn out and has to be replaced. Surplus stocks of goods are exhausted. As there is a fall in price of raw-materials and equipment, costs fall. Wages also go down. MEC increases leading to recovery. Keynes states

that, “Trade cycle can be described and analyzed in terms of the fluctuations of the marginal efficiency of capital relatively to the rate of interest”.

The merit of Keynes’ theory lies in explaining the turning points-the lower and upper turning points of a trade cycle. The earlier economists considered the changes in the amount of credit given by banking system to be responsible for cyclical fluctuations. But for Keynes, the change in consumption function with its effect on MEC is responsible for trade cycle. Keynes, thus, has given a satisfactory explanation of the turning points of the trade cycle, “Keynes consumption function filled a serious gap and corrected a serious error in the previous theory of the business cycle”. (Metzler).

Critics have pointed out the weakness of Keynes’ theory. Firstly, according to Keynes the main cause for trade cycle is the fluctuations in MEC. But the term marginal efficiency of capital is vague. MEC depends on the expectations of the entrepreneur about future. In this sense, it is similar to that of Pigou’s psychological theory. He has ignored real factors.

Secondly, Keynes assumes that rate of interest is stable. But rate of interest does play an important role in decision making process of entrepreneurs.

Thirdly, Keynes does not explain periodicity of trade cycle. In a period of recession and depression, according to Keynes, rate of interest should be high due to strong liquidity preference. But, during this period, rate of interest is very low. Similarly during boom, rate of interest should be low because of weak liquidity preference; but actually the rate of interest is high.

6. Schumpeter’s Innovation Theory:

Joseph A. Schumpeter has developed innovation theory of trade cycles. An innovation includes the discovery of a new product, opening of a new market, reorganization of an industry and development of a new method of production. These innovations may reduce the cost of production and may shift the demand curve. Thus innovations may bring about changes in economic conditions.

Suppose, at the full employment level, an innovation in the form of a new product has been introduced. Innovation is financed by bank loans. As there is full employment already, factors of production have to be withdrawn from others to manufacture the new product. Hence, due to competition for factors of production costs may go up, leading to an increase in price.

When the new product becomes successful, other entrepreneurs will also produce similar products. This will result in cumulative expansion and prosperity. When the innovation is adopted by many, supernormal profits will be competed away. Firms incurring losses will go out of business. Employment, output and income fall resulting in depression.

Schumpeter's theory has been criticised on the following grounds.

Firstly, Schumpter's theory is based on two assumptions viz., full employment and that innovation is being financed by banks. But full employment is an unrealistic assumption, as no country in the world has achieved full employment. Further innovation is usually financed by the promoters and not by banks. Secondly, innovation is not the only cause of business cycle. There are many other causes which have not been analysed by Schumpter.

Monetary Theories of Trade Cycles:

1. Over-Investment Theory:

Prof. Von Hayek in his books on "Monetary Theory and Trade Cycle" and "Prices and Production" has developed a theory of trade cycle. He has distinguished between equilibrium or natural rate of interest and market rate of interest. Market rate of interest is one at which demand for and supply of money are equal.

Equilibrium rate of interest is one at which savings are equal to investment. If both equilibrium rate of interest and market rate of interest are equal, there will be stability in the economy. If equilibrium rate of interest is higher than market rate of interest there will be prosperity and vice versa.

For instance, if the market rate of interest is lower than equilibrium rate of interest due to increase in money supply, investment will go up. The demand for capital goods will increase leading to a rise in price of these goods. As a result, there will be a diversion of resources from consumption goods industries to capital goods industries. Employment and income of the factors of production in capital goods industries will increase.

This will increase the demand for consumption goods. There will be competition for factors of production between capital goods and consumption good industries. Factor prices go up. Cost of production increases. At this time, banks will decide to reduce credit expansion. This will lead to rise in market rate of interest above the equilibrium rate of interest. Investment will fall; production declines leading to depression.

Hayek's theory has certain weaknesses:

1. It is not easy to transfer resources from capital goods industries to consumer goods industries and vice versa.

2. This theory does not explain all the phases of trade cycle.

3. It gives too much importance to rate of interest in determining investment. It has neglected other factors determining investment.

4. Hayek has suggested that the volume of money supply should be kept neutral to solve the problem of cyclical fluctuations. But this concept of neutrality of money is based on old quantity theory of money which has lost its validity.

2. Hawtrey's Monetary Theory:

Prof. Hawtrey considers trade cycle to be a purely monetary phenomenon. According to him non-monetary factors like wars, strike, floods, drought may cause only temporary depression. Hawtrey believes that expansion and contraction of money are the basic causes of trade cycle. Money supply changes due to changes in rates of interest.

When rate of interest is reduced by banks, entrepreneurs will borrow more and invest. This causes an increase in money supply and rise in price leading to expansion. On the other hand, an increase in the rate of interest will lead to reduction in borrowing, investment, prices and business activity and hence depression.

Hawtrey believes that trade cycle is nothing but small scale replica of inflation and deflation. An increase in money supply will lead to boom and vice versa, a decrease in money supply will result in depression.

Banks will give more loans to traders and merchants by lowering the rate of interest. Merchants place more orders which induce the entrepreneurs to increase production by employing more labourers. This results in increase in employment and income leading to an increase in demand for goods. Thus the phase of expansion starts.

Business expands; factors of production are fully employed; price increases further, resulting in boom conditions. At this time, the banks call off loans from the borrowers. In order to repay the loans, the borrowers sell their stocks. This sudden disposal of goods leads to fall in prices and liquidation of marginal firms. Banks will further contract credit.

Thus the period of contraction starts making the producers reduce their output. The process of contraction becomes cumulative leading to depression. When the economy is at the level of depression, banks have excess reserves. Therefore, banks will lend at a low rate of interest which makes the entrepreneurs to borrow more. Thus revival starts, becomes cumulative and leads to boom.

Hawtrey's theory has been criticised on many grounds:

1. Hawtrey's theory is considered to be an incomplete theory as it does not take into account the non-monetary factors which cause trade cycles.

2. It is wrong to say that banks alone cause business cycle. Credit expansion and contraction do not lead to boom and depression. But they are accentuated by bank credit.

3. The theory exaggerates the importance of bank credit as a means of financing development. In recent years, all firms resort to plough back of profits for expansion.

4. Mere contraction of bank credit will not lead to depression if marginal efficiency of capital is high. Businessmen will undertake investment in-spite of high rate of interest if they feel that the future prospects are bright.

5. Rate of interest does not determine the level of borrowing and investment. A high rate of interest will not prevent the people to borrow. Therefore, it may be stated that banking system cannot originate a trade cycle. Expansion and contraction of credit may be a supplementary cause but not the main and sole cause of trade cycle.