



M.C.A.

SEM - I

Principles of Economics And Management

**[with effect from the academic year
2009-2010 in IDOL]**

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M.C.A.-Sem I, Principles of Economics and Management
October, 2015:

Published by : Incharge Director,
Institute of Distance and Open Education,
University of Mumbai,
Vidyanagari , Mumbai-400 098.

DTP Composed by : **SHREE GRAPHIC CENTRE**
28,MANGAL WADI, MUMBAI - 4

PRINCIPLES OF ECONOMICS AND MANAGEMENT

N.B.:

- i) Question No. 1 is compulsory.
- 2) Attempt **any two** questions from question no. 2-4.
- 3) Attempt **any two** questions from question no. 5-7.
- 4) Answer to questions should be grouped and written together.
- 5) All questions carry **equal marks**.

- | | | |
|----------|---|------------------------|
| Q. 1. A) | What do you understand by law of demand? What factors are important in explaining the law of demand? | 10 |
| B) | Discuss the contribution of F.W. Taylor towards the development of management thoughts. | 10 |
| Q2. A) | Differentiate between monopoly and oligopoly with examples | 10 |
| B) | What is law of supply and Explain briefly elasticity of supply | 10 |
| Q3. A) | Describe in detail internal and external economies of scale. | 10 |
| B) | Explain cost output relationship in short term and long term | 10 |
| Q4. A) | what is demand forecasting and brief out methods of demand forecasting | 10 |
| B) | define managerial economics and responsibilities of managerial economist | 10 |
| Q5. A) | What is organizational structure? List out different types of organizational structure and explain any two with the help of examples. | |
| B) | Explain the Maslow's theory of motivation | 10 |
| Q6. A) | Discuss the various types of interviews used in selecting employee | 10 |
| B) | Write situation leadership theory with examples | 10 |
| Q7. | Write a short note {any four) : | |
| | Product life cycle | |
| | TQM | Performance appraisals |
| | Planning | Decision making. |

PRINCIPLES OF ECONOMICS AND MANAGEMENT

Lecture : 4 Hrs/week

Practical : 1 Hr/week

One paper: 100 marks / 3 Hrs duration Practical Exam 25 marks

1. Introduction to Managerial Economics Nature und Scope of Managerial Economics. Economic Theory and Managerial Economic, Managerial Economist Role and Responsibilities
4 Hrs
 2. Demand - Law of demand, elasticity of demand, supply function, elasticity if supply, market equilibrium
4 Hrs
 3. Demand forecasting - survey methods, evaluation of forecast accuracy Cost - output relationship. Economies and Diseconomies of scale Cost control and cost reduction. Break-even analysis.
4 Hrs
 4. Market structures - Perfect and omperfect competition, Monopoly. Oligopoly, Monopolistic Competition, Price Discrimination, Price und Output Decisions under different market structures. Government intervention in pricing.
4 Hrs
 5. Management functions, responsibilities of management to society, development of management thought, contribution of F.W.Taylor, Henri Fayol, Elton Mayo, system contingency approaches to management
3 Hrs
 6. Nature of planning, decision-making process, management by objectives
3 Hrs
 7. Organization structures: functional, product matrix,, flat and vertical structures, authority relationships, decentralization and delegation of authority.
3 Hrs
 8. Maslow, Herzberg and MacGregor's theory of motivation. 3 Hrs
 9. McClelland's achievement motivation, Blanchard's situation leadership theory. 3 Hrs
 10. Marketing: Understanding the concept of marketing mix. Product policy. New product development, Product life, cycle and new product development, Channels of distribution, Pricing, Advertising and product promotion policies. Marketing research. K 8 Hrs
 11. Human resource management - selection, training and appraisal and compensation administration. 6 Hrs.
-

Reference Books

1. Principals & Practice of Management : L.M.Prasad.
2. Principals of Macroeconomics: Mankiw, Thomson.
3. Managerial Economics Varshney Maheshwari. S.Chand.
4. Managerial Economics Dean Joel PHI.
5. Managerial Economics D.N. Divedi. Vikas Publishing house.
6. Managerial Economics Naylorm Vernon, Wertz.
7. Marketing Management, Rama -Swamy, Nama Kumari.
8. Essential Management, Koontz. 7th Edition.
9. International marketing. Francis Cherunilam.
10. MR & Personnel Management, Ashwathaappa.



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Chapter 1

Introduction to Managerial Economics

Unit Structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Meaning of Managerial Economics
- 1.3 Need of Managerial Economics
- 1.4 Subject Matter of Managerial Economics
- 1.5 Ambiguity in the use of term
- 1.6 Interpretations of Managerial Economics from various universities
- 1.7 Definitions of Managerial Economics
- 1.8 Nature and Characteristics of Managerial Economics
- 1.9 Scope of Managerial Economics
- 1.10 The Nature of Managerial Decision-Making
- 1.11 Managerial Decision Making Process
- 1.12 Managerial Economist :Role and Responsibilities
- 1.13 Economic Theory in Business Practice
- 1.14 Summary
- 1.15 Questions

1.0 Objectives

- To acquaint the students with concepts and techniques used in economics.
- To study the meaning Of Economics and Managerial Economics.
- To study the changes in the nature of business firms in the context of management of services and Globalization.
- To explain the nature and interrelations between Managerial economics and other branches of Social sciences.

- To study how a business Manager makes decisions based on Economic theory & methodology.
- To study the method of managerial economist's method of solving economic problems through different types of economic systems
- To understand the application of economic theories in business practices.

1.1 Introduction

Economics is concerned with the study of the allocation of resources among competing ends. Problems of resource allocation are constantly faced by individuals, enterprises & nations. Over the years, the science of economics has developed a variety of concepts & analytical tools to deal with such allocation problems. Managerial economics (sometimes referred to as business economics), may be viewed as economics applied to problem solving at the level of the firm. The problems relate to the choices & allocation of resources, which are basically economic in nature & are faced by the managers all the time. The applied bias of managerial economics implies that the focus of the subject is an identifying solving the decision problems faced by the manager in a given enterprise situation and not merely on explaining his behaviour or theorizing about firm level phenomena. As a result, managerial economics though rooted in economic theory, draws upon and interact with other related disciplines.

1.2 Meaning of Managerial Economics

Managerial economics is a branch of economics that applies microeconomic analysis to decision methods of businesses or other management units. As such, it bridges economic theory and economics in practice. It draws heavily from quantitative techniques such as regression analysis and correlation, Lagrange calculus (linear). If there is a unifying theme that runs through most of managerial economics it is the attempt to optimize business decisions given the firm's objectives and given constraints imposed by scarcity, for example through the use of operations research and programming. Managerial economics, meaning the application of economic methods in the managerial decision-making process, is a fundamental part of any business or management course.

Almost any business decision can be analyzed with managerial economics techniques, but it is most commonly applied to:

- **Risk analysis** : various models are used to quantify risk and asymmetric information and to employ them in decision rules to manage risk.

- **Production analysis** : microeconomic techniques are used to analyze production efficiency, optimum factor allocation, costs, economies of scale and to estimate the firm's cost function.
- **Pricing analysis** : microeconomic techniques are used to analyze various pricing decisions including transfer pricing, joint product pricing, price discrimination, price elasticity estimations, and choosing the optimum pricing method.
- **Capital budgeting** : Investment theory is used to examine a firm's capital purchasing decisions.

At universities, the subject is taught primarily to advanced undergraduates and graduate business schools. It is approached as an integration subject. That is, it integrates many concepts from a wide variety of prerequisite courses.

1.3 Need of Managerial Economics

It has been receiving more attention in business as managers become more aware of its potential as an aid to decision-making, and this potential is increasing all the time. This is happening for several reasons:

- 1 It is becoming more important for managers to make good decisions and to justify them, as their accountability either to senior management or to shareholders increases.
- 2 As the number and size of multinationals increases, the costs and benefits at stake in the decision-making process are also increasing.
- 3 In the age of plentiful data it is more imperative to use quantitative and rationally based methods, rather than 'intuition'.
- 4 The pace of technological development is increasing with the impact of the 'new economy'. Although the exact nature of this impact is controversial, there is no doubt that there is an increased need for economic analysis because of the greater uncertainty and the need to evaluate it.
- 5 Improved technology has also made it possible to develop more sophisticated methods of data analysis involving statistical techniques. Modern computers are adept at 'number-crunching', and this is a considerable aid to decision-making that was not available to most firms until recent years.

Thus, **Managerial / Business economics** is that part of economic theory which focuses on business enterprises and inquires into the factors contributing to the diversity of organizational structures and to the relationships of firms with labour, capital and product markets.

Check your progress :

1. What is Managerial Economics ?
 2. What are the areas managerial economics deal with?
 3. To which areas managerial economics can be applied ?
-
-
-

1.4 Subject Matter of Managerial Economics

Managerial / Business Economics is concerned with economic issue and problems related to business organization, management and strategy. Issues and problems such as the following :

- an explanation of why firms emerge and exist;
 - why they expand: horizontally, vertically and specially;
 - the role of entrepreneurs and entrepreneurship;
 - the significance of organizational structure;
 - the relationship of firms with employees, the employees, the providers of capital, the customers, the government;
 - the interactions between firms and the business environment.
-

1.5 Ambiguity in the use of term

The term Managerial Economics is used in a variety of ways. Sometimes it used as synonymously with - Industrial Economics - Industrial organization. Managerial Economics - Economics for Business. Industrial Economics is the mostly closely over-lapping of these terms whilst there may be more substantial differences with Economics for Business and Managerial Economics. One view of the distinctions between these would be that Business Economics is wider in its scope than Industrial Economics in that it would be concerned not only with "Industry" but also businesses in the service sector and that it also takes seriously the insights of the "business strategy" literature. Economics for business looks at the major principles of economics but focuses on applying these economic principles to the real world of business. Managerial economics is the application of economic methods in the managerial decision-making process.

1.6 Interpretations of Managerial Economics from various universities

In general terms, Managerial Economics deals with issues such as: the ways markets work; what firms do, what their motives are, how they perform; and the role of government in regulating business activity". The economic methods to analyze practical aspects of business, including business administration, management, and related fields of economics. The University of Miami defines Managerial Economics as involving the study of how we use our resources for the production, distribution, and consumption of goods and services. This requires business economists to analyze social institutions, banks, the stock market, the government and they look at problems connected with labour negotiations, taxes, international trade, and urban and environmental issues.

1.7 Definitions of Managerial Economics

Although one finds the term Managerial economics defined in a variety of ways, the differences are typically more semantic than real. Following are some of the important definitions to Managerial Economics :-

Managerial economics is the application of economic theory and methodology to business administration practice.

– Eugene F. Brigharm & James L. Pappas.

Managerial economics is economics applied in decision –making. It is a special branch of economics that bridges the gap between abstract theory & managerial practice.

- Henry & Haynes.

Managerial Economics is concerned with the application of economic principles and methodologies to the decision making process under conditions of uncertainty.

- Evan J. Douglas.

Managerial Economics is concerned with resource allocation decisions that are made by enterprise managers in the private, public & not-for-profit sectors of the economy.

- Mc Guigan, Moyer & Harris.

Managerial Economics refers to the application of economic theory & tools of analysis of decision science to examine how an organization can achieve its objectives most effectively.

- Dominick Salvatore.

All these definitions reveal that Managerial economics is the application of economics in business management more specially, Managerial economics uses the tools & techniques analysis to analyze & solve business problems. In a sense , managerial economics provides the link between traditional economics & the decision science in managerial decision making as illustrated in the following :-

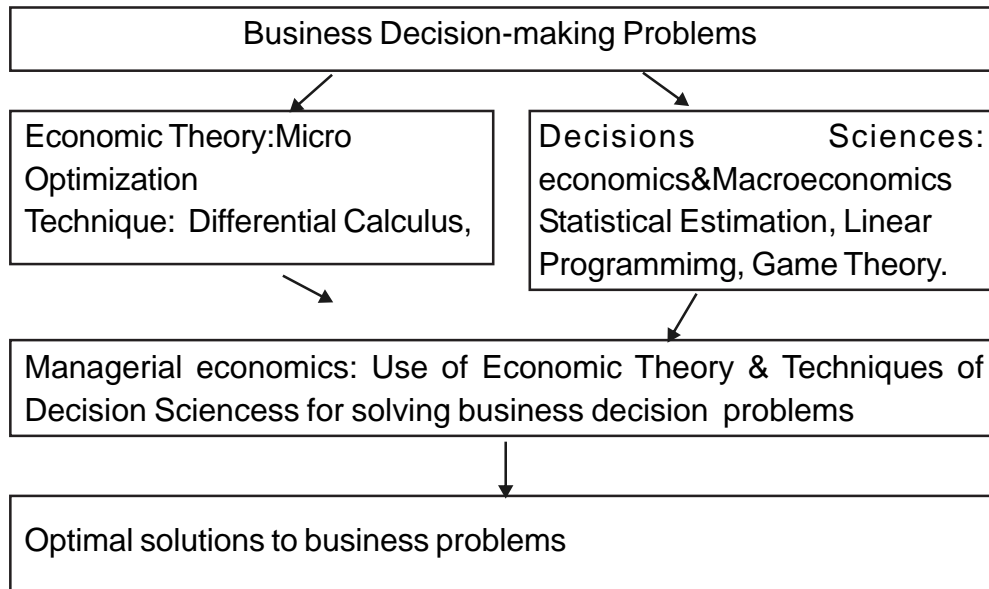


Fig. 1.1 Nature of managerial Economics.

1.8 Nature and Characteristics of Managerial Economics

- 1 Managerial economics utilizes the concepts & tools of both micro & macro economics. Micro economics is the study of the economic behavior of individual decision making units such as individual consumers , resource owners & business firms in a free enterprise system. Macro economics on the other hand, is the study of the total or aggregate level of output, income, employment, consumption, investment & the prices for the economy viewed as a whole. The economic principles & methodologies of managerial economics are derived largely from micro economics.
2. Managerial economics is pragmatic. It is concerned with analytical tools that are useful in practice or that promise to improve decision making in the future.
3. Managerial economics is normative , since it seeks to establish rules & principles to be applied in decision making in order that the desired objectives may be attained.
4. Managerial economics uses analytical tools, concepts & notions from

other disciplines such as mathematics, Statistics, Operations research, Finance, Accounting & Marketing in order to allow the managerial economist to choose the optimal solution particular decision problems.

5. Managerial economics fits into the classification of business administration studies in two places. First it serves a tool course where in certain economic theories, methods & techniques of analysis are covered in preparation for their later use in the functional areas(Finance, marketing, Personnel, production). Second, it serves as an integrating course, combining the various functional areas & showing not only how they interact with one another as the firm attempts to achieve its goals, but also how the firms interacts with the environment in which it operates.

Thus, Managerial economics helps managers in two following ways:-

1. Decision making.
2. Forward planning

Business managers have to deal with the following four types of problems:-

1. Allocation of resources.
2. Inventory control
3. Pricing policy.
4. Investment decisions.

In addition these problems, the following topics are studied under managerial economics.

1. Profit analysis.
2. Cost analysis.
3. Demand analysis.
4. Pricing theory.
5. Demand forecasting.
6. Production possibilities charts.
7. Break even analysis.
8. Capital Budgeting.
9. Investment analysis.
10. Marginal Analysis.

1.9 Scope of Managerial Economics

Managerial economics has a close connection with economic theory, decision sciences & accountancy & other categories as follows :-

1. Cost Analysis :

The theory of cost includes law of returns to factors, returns to scales etc. The analysis of cost is very useful in determining the size of a firm, the volume of output, factor proportions etc. A study of cost is essential for analyzing the profitability of a firm.

2. Pricing Theory & Policy :

Pricing theories under different market conditions help firms in fixing an appropriate price for a product. The study of competitive analysis helps the firms to understand the market for its product. It also helps determining an advertising, marketing strategy of a firm. Marginality principle, mark up pricing, price discrimination are an important aspects of pricing analysis.

3. Demand analysis & demand forecasting :

The demand for a commodity changes with changes in price & other factors such as income, Tastes, habits, prices of substitutes etc. determine the demand. The study of demand analysis is an integral part of managerial economics because it helps in forecasting future demand. Also elasticity of demand helps the firms in fixing prices of their products.

4. Capital budgeting & Investment decisions:

Capital is the produced means of production. Business managers have to take decisions regarding capital investments of a firm :-

- a) To calculate accurately the profitability of alternative investment projects .
- b) Choice of capital investment projects.
- c) Optimal allocation of capital.

Similarly it is essential to analyze various investment criteria & select the one suitable for a further course of action.

5. Profit Analysis & Break Even Analysis :

Fluctuations in demand, changes in prices of raw materials, changes in the no. of other players etc. creates uncertainty before a firm. Apart from this socio-political factors, environmental factors & economic policies go on changing. Therefore, forward planning is necessary. Proper pricing, proper break-even analysis is a must for successful forward planning.

Check your progress :

1. Define :-" Managerial Economics".
2. What is the subject matter of managerial economics ?
3. Explain the nature of managerial economics .
4. What is decision making ?

1.10 The Nature of Managerial Decision-Making

Decision making problem requires a choice among alternative courses of action so as to achieve the objective. These alternative courses of action among which choice has to be made are often called business strategies. Decision-making is nothing but the application of economic principles to the management process. To solve the business decisions problems is the task of a managerial economist. Resources at the disposal of an organization are scarce. Therefore optimum solution to the business decision-making problem requires that resources should be so used as to achieve the objective efficiently. The limited amount of resources is one type of constraint faced by the manager of a firm. The other type of constraints includes economic environment such as the state of economy, the phase of business cycles, the competition from the rival firms, Govt.'s fiscal & monetary policies, export & import policies etc.

1.11 Managerial Decision Making Process

Decision making is crucial for running business enterprise which faces a large no. of problems requiring decisions. Which product to be produced, What price to be charged, What quantity of the product to be produced, What & how much advertisement expenditure to be made to promote the sales, how much investment expenditure to be incurred are some of the problems which require to be made by managers. Decision making process in each of these problems contains several phases or steps as follows:-

Managerial Decision-Making Process :

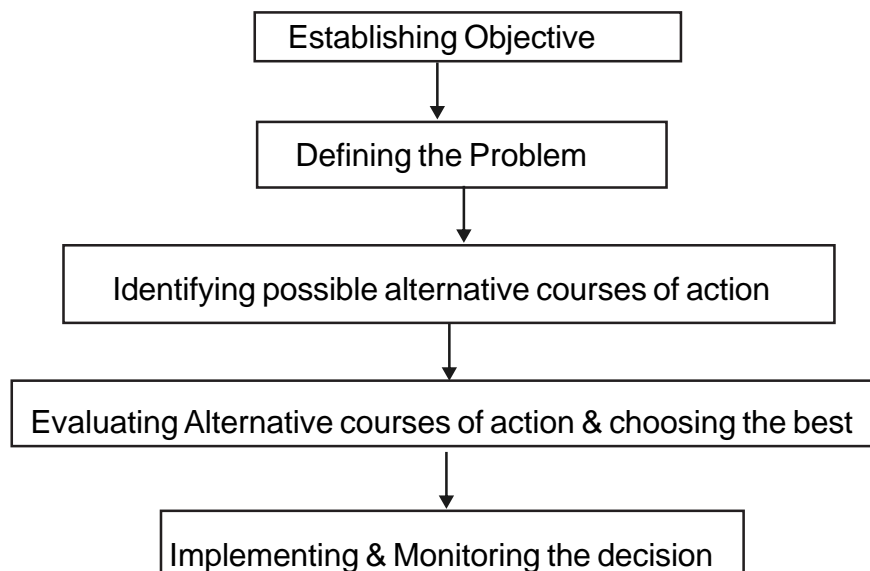


Fig 1.2 : Managerial Decision Making Process

1. Establishing the Objective :

The important objective of a private business enterprises is to maximize profits & other objectives such as maximization of sales , growth of firm etc. But the objective of a public enterprise is normally welfare of society i.e. to follow benefit-cost criterion. Accordingly PSUs should evaluate all social costs & benefits when making a decision whether to build an airport, a power plant etc.

2. Defining the Problem :

This second step is important because decision making is after all meant for solution of the problem. For e.g. A cotton textile firm may find that its profits are declining. It needs to be investigated what are the causes of the problem of decreasing profits. Whether it is the wrong pricing policy, bad labour-management relations or the use of outdated technology which is causing the problem of declining profits.

3. Identifying possible Alternative Solutions :

The next step is to find out alternative solutions to the problem. This will require considering the variables that have an impact on the problem. In this way, relationship among the variables & with the problems has to be established. For this various hypotheses can be developed which will become alternative courses for the solution of the problem.

4. Evaluating Alternative courses of Action :

The next step in business decision making is to evaluate the alternative courses of action. This requires the collection & analysis of the relevant data. Some data will be available within the various departments of the firm itself, the other may be obtained from the industry & government. The data & information so obtained can be used to evaluate the results expected from each possible course of action. Methods such as regression analysis, Linear programming, cost-benefit analysis etc are used to arrive at the optimal course. The optimum solution will be one that helps to achieve the established objective of the firm.

5. Implementing the Decision :

After the alternative courses of action have been evaluated & optimal course of action selected, the final step is to implement the decision. It requires constant monitoring so that expected results from the optimal course of action are obtained. Thus if it is found that expected results are not forthcoming due to wrong implementation of the decision, then corrective measures should be taken. However, it should be noted that once a course of action implemented to achieve established objective, changes in it may become necessary from time to time in response in changes in conditions or firm's operating environment on the basis of which decisions were taken.

Check your progress :

1. Explain the steps in decision making process.
2. What is managerial decision making process?
3. Draw the flow chart of managerial Decision making Process.

1.12 Managerial Economist :Role and Responsibilities

Managerial economist applies microeconomic analysis to specific business decisions. As such, he bridges economic theory and economics in practice. He draws heavily from quantitative techniques such as regression analysis and correlation, LaGrange calculus (linear). Managerial Economist attempt to optimize business decisions given yhe firm's objectives and given constraints imposed by scarcity, for example through the use of operations research and programming.

In the short and long run periods the following types of decisions will have to be made by him:-

1. **Demand decisions:-** A proper estimation of possible demand has to be made. This alone will help to decide on the employment of the resources for their production . Profit maximization should be the sole objective & avoiding any kind of wastage of the employed resources is vital. Both present & future trend of demand have to be studied.
2. **Planning decisions :-** Once the demand has been ascertained, planning comes next. This is the implementation of the business strategy of the firm. The product, Cost of production, expected profit, the employment of factors, the type of technology, extent of taxes , etc. have to be studied & decided upon. A proper blueprint of the entire business process will have to be prepared.
3. **Price & Output decisions :-** This is important task of manager. The price of the firm's product has to be decided. This will determine how much of the product will be sold in the market. The price factor will determine the extent of output & also the possible profits. However the decision depends upon the kind of existing market structure in the economy .i.e. perfect competition or monopoly.
4. **Advertising & Sales Promotion decisions :-** Advertising costs is a major source of expenditure for a firm. In both perfect competition & monopoly adv. Cost can be avoided But monopolistic competition & oligopoly needs expenditure on advertising.

5. **Long Run Production decisions** :- In long run period, decisions will have be made on the choice of location of the plant, its size, capacity, the technology used, the factor combinations etc.
6. **Investment decisions** :- Adequate investment is required to expand the productive capacity of the firm & to diversify its production range. This is the long term planning in which the manager has to decide the followings:-
 - A) What should be the quantity of investment for a given period ?
 - b) What should be the annual rate of investment at the prevailing rate of interest.?
 - c) What are those profitable projects & industries where investment could be made?
 - d) How safe are these projects ? Will they assure both profit & safety to the investor?

Thus, Corporate decision making is the expression of the aspirations of the firm for its bright future. It takes into consideration the changing trends in all factors including the changes in demand. In marketing, in technology etc. since changes are continuous & never ending, decision making also has to follow suit & keep tirelessly continuing.

1.13 Economic Theory in Business Practice

Economics is a practically applicable science. The economic concept can help the business manager in the efficient management of his unit. According to E. Nagel, “economic theory is a set of statements, organized in a characteristic way & designed to serve as partial premises for explaining & predicting an indeterminately large class of economic phenomenon.” So far an ideal business management, a good knowledge of economic theories is necessary.

How do economic theories help business practices?

1. Economic theories explain any economic phenomenon:- the theory collects relevant data based on past experiences & establishes the relationship between economic variables like demand , supply & price.
2. They predict economic events :- These events generally go unobserved in ordinary life. But these events have great relevance to business. For e.g. the supply of wheat may increase, but demand is constant & price falls. Given this stable demand, the production of wheat may be determined for the coming years.
3. They help to formulate economic policies :- for e.g. A policy has to be framed to reduce the level of unemployment . This problem is complementary to reducing poverty. But if income increases due to

employment then demand may rise & price may go up. So the policy must take into consideration the minimum level of unemployment that a society can sustain.

4. They help to judge the performance of the economy:- when prices of goods increase, we may be able to ascertain whether it is due to increased demand or reduced production.
5. According to Mrs. John Robinson, they provide a box of tools to act as a base to "Managerial economics". They are as follows:-
 - a) The principle of Equi marginal distribution of resources will help in the allocation of various resources such that the marginal cost equals the marginal returns.
 - b) The theory of opportunity cost helps the manager to ascertain the cost of the next best alternative action. It also explains the sacrifice involved in alternative decisions.
 - c) The time related economic concepts explain the results of business operations in the short & long run periods.
 - d) The discounting Principle distinguishes between the value of investments at present and in the future.
 - e) However economic theories don't provide accurate answer to all business problems. Economic & Business problems arise in the society of human beings. The Human mind is ever changing. So there can be no accurate estimations of the consumers' choices & preferences. Economics is not a cure for all ills.

1.14 Summary

Managerial economics is a branch of economics that applies microeconomic analysis to decision methods of businesses or other management units. As such, it bridges economic theory and economics in practice. It draws heavily from quantitative techniques such as regression analysis and correlation, Lagrange calculus (linear). If there is a unifying theme that runs through most of managerial economics it is the attempt to optimize business decisions given the firm's objectives and given constraints imposed by scarcity, for example through the use of operations research and programming. Managerial economics, meaning the application of economic methods in the managerial decision-making process, is a fundamental part of any business or management course.

Managerial / Business Economics is concerned with economic issue and problems related to business organization, management and strategy. Issues and problems such as the following :an explanation of why firms emerge and exist; why they expand: horizontally, vertically and specially;

the role of entrepreneurs and entrepreneurship; the significance of organizational structure; the relationship of firms with employees, the employees, the providers of capital, the customers, the government; the interactions between firms and the business environment.

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2. Forward planning

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2. Inventory control
3. Pricing policy.
4. Investment decisions.

Scope of Managerial Economics: In addition these problems, the following topics are studied under Managerial Economics.

1. Profit analysis.
2. Cost analysis.
3. Demand analysis.
4. Pricing theory.
5. Demand forecasting.
6. Production possibilities charts.
7. Break even analysis.
8. Capital Budgeting.
9. Investment analysis.
10. Marginal Analysis.

Decision making problem requires a choice among alternative courses of action so as to achieve the objective. These alternative courses of action among which choice has to be made are often called business strategies. Decision-making is nothing but the application of economic principles to the management process. Steps in Managerial Decision making Process are as follows :-

1. Establishing the Objective.
2. Defining the Problem.
3. Identifying possible alternative Solutions.
4. Evaluating Alternative Courses of Action.
5. Implementing the Decision.

Managerial Economist : Role & Responsibilities :-

1. Demand Decisions.
2. Planning Decisions.

3. Price & Output decisions.
4. Advertising & Sales Promotions Decisions.
5. Long Run Production decisions.
6. Investment Decisions.

1.15 Questions

1. What is Managerial Economics ? Explain the nature & scope of managerial economics?
2. Define “Managerial Economics”. Explain the need of managerial economics to business managers.
3. What is meant by the term “Decision making”?
4. Discuss the various steps in managerial decision making process.
5. Explain in detail the role & responsibilities of a managerial economist?
6. How does economic theory is useful in business practices ?



Chapter 2

Demand and Supply Analysis

Unit Objectives

- 2.0 Objectives
- 2.1 Introduction
- 2.2 The Concept of demand
- 2.3 The law of demand
- 2.4 Elasticity of demand
 - 2.4.1 Price elasticity of demand
 - 2.4.2 Five types of price elasticity of demand
 - 2.4.3 Income elasticity of demand
 - 2.4.4 Cross – elasticity of demand
- 2.5 Supply and the Supply function
- 2.6 Market equilibrium
 - Two Special Cases
- 2.7 Summary
- 2.8 Questions

2.0 Objectives

After going through this unit you will come to know –

- The concept of demand, demand function.
- The law of demand, demand determinants.
- The elasticity of demand.
- The concept of supply, law of supply.
- Factors determining supply.
- Elasticity of Supply.
- Market equilibrium.

2.1 Introduction

Demand refers to the quantity of a good that consumers are willing to purchase at various Prices, whereas, supply refers to the quantity of a good that Producers are willing to supply to the market at various Prices. Law of demand and supply states that there is an inverse and direct relationship between quantity demanded and supplied and price respectively. Let us study the demand elasticity of demand, supply, elasticity of supply and market equilibrium in this unit.

2.2 The Concept of Demand

We study the theory of demand at two different levels – at the level of an individual consumer and at the market level. The market demand for a commodity is more important for determining the price of a commodity rather than individual demand. The amount of a commodity that consumers wish to purchase is called the quantity demanded. The quantity demanded of a commodity is a desired flow. Various factors affect the quantity of a commodity demanded by a consumer. We study three types of demand in microeconomics: autonomous demand, joint demand and derived demand. Most commodities are demanded for their own sake to satisfy a need or a desire. This is known as autonomous demand. Some commodities are jointly demanded such as motor car and petrol. One has no value without the other. However, factors of production are not demanded for their own sake. The demand for a factor of production or input (such as land) is derived from the demand for a commodity (such as wheat). Thus, the demand for a factor is derived (or, indirect) demand.

2.2.1 The Demand Function:

The demand function is a mathematical expression of the relationship between the quantity of a commodity demanded and its various determinants, such as the price of the commodity, the income of the buyer, the prices of relative goods (substitutes and complements), and the taste and preference of the buyer. The market demand for a commodity also depends on the pattern of income distribution and the age composition of people.

The consumer's demand functions show the optimal amounts of each of the goods that he desires to buy as a function of prices and income faced by the consumer. The demand functions are expressed as

$$X_1 = f_1 (P_1, P_2, m) \text{ and}$$

$$X_2 = f_2 (P_1, P_2, m)$$

The left hand side of each equation shows the quantity of a commodity demanded. The right hand side of each equation is the function that relates

the prices of two goods (P_1 and P_2) and income (m) to that of quantity (X_1 or X_2). Since taste and preference cannot be measured, we have not included them in the above two demand functions.

If all variables shown on the right hand side of the above two equation change at the same time, it is not possible to know which factors exerts how much influence on X_1 or X_2 . This is why we vary one variable at a time. This is known as the *ceteris paribus* assumption. Thus if we hold P_2 and m constant, then the quantity of X_1 demanded becomes a function of its own price and we can express the first demand functions as

$$X_1 = f_1(P_1)$$

Similarly we can express the second demand function as

$$X_2 = f_2(P_2)$$

If we hold P_2 and m constant. This is indeed the *ceteris paribus* assumption, which means other things being constant. Thus X_1 is a function of only P_1 , P_2 and m remaining constant.

2.3 The Law of Demand

The law of demand expresses the functional relationship between price and quantity demanded. The law of demand states that, other things being equal, higher the price of a commodity, lower the quantity demanded of it and vice versa.

In other words, "if the price of a commodity falls (rises), the quantity demanded of it rises (falls)." Thus, according to the law of demand, there is inverse relationship in between price and quantity demanded.

2.3.1 Demand Schedule and Demand Curve:

The law of demand can be illustrated through a demand schedule and a demand curve. A demand schedule is presented in Table 2.1

Table 2.1 Demand schedule

| Price (Rs) | Quantity Demanded |
|------------|-------------------|
| 12 | 10 |
| 10 | 20 |
| 8 | 30 |
| 6 | 40 |
| 4 | 50 |
| 2 | 60 |

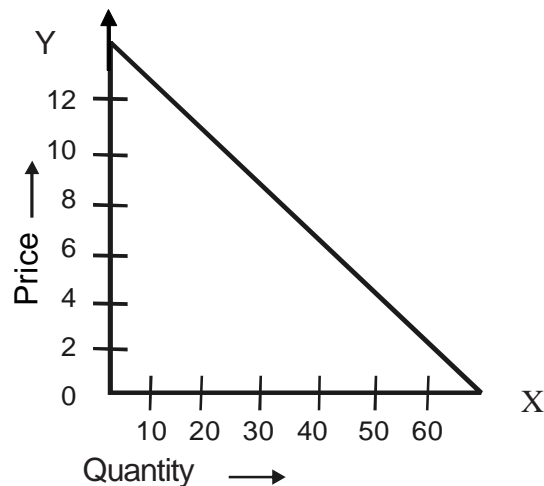


Figure 2.1 Demand Curve

It will be seen from this demand schedule that when price of a commodity is Rs. 12 per unit, consumer purchases 10 units of the commodity. When price of the commodity falls to Rs. 10, he purchases 20 units of the commodity. Similarly, when price further falls, quantity demanded by him goes on rising until at price Rs.2, the quantity demanded by him rises to 60 units. We can convert this demand schedule into a demand curve by graphically plotting the various price. Quantity combinations, and this has been done in Figure 2.1 where along the x – axis, quantity demanded is measured and along the Y-axis, price of the commodity is measured. By plotting 10 units of the commodity at price Rs. 12, we get point Q in figure 2.1, Likewise, by plotting 20 units of the commodity demanded at Price Rs. 10, we plot point S in figure 2.1

Similarly, points S, T, U and V are plotted representing other combinations of price and quantity demanded presented in Table 2.1. By joining these various points, Q, R, S, T,

U and V, we get a curve DD, Which is known as the demand curve. Thus the demand curve is a graphic statement or presentation of quantities of a good which will be demanded by the consumer at various possible prices at a given moment of time.

2.3.2 Demand Determinants:

The market demand for any commodity x depends on several factors:

- 1) The price commodity x: The Market Demand for any commodity is Primarily influenced by its price, Normally, at higher price, less of it is demanded and at lower price more it will be demanded.
- 2) The Price of substitutes of X: When the consumers go to the market to purchase some commodity x, they also try to find out the price of substitutes are available of x and then take the decision to buy. If the

nearest substitutes are available at slightly lower price the consumers demand for x will be affected adversely.

- 3) **Income of the Consumer** : The average income of the consumer's an important determinant of market demand. As people's incomes rise individuals find to buy more of almost every thing, even if prices don't change. Automobile purchases have risen sharply because of higher levels of income.
- 4) **The size of market measurable by the size of the population** : Demand for any good also depends on the number of buyers or consumers in the market.
- 5) **The composition of the consumers** : Market demand for different products will depend not only on the size of the population but also the composition of the population; such as lower. Middle and upper incomes groups, the age-wise and sex wise composition of population too affect the market demand for commodities.
- 6) **Utility of the commodity** : Utility of commodity lies at the toot of demand Utility is the mainspring of demand. Demand for any commodity x arises because of its utility to the consumer.
- 7) **Quality of the Commodity** : Demand for any good is also influenced by the quality of that good. The better the quality of the good, the more will be the demand for it.
- 8) **Taste and Fashion** : The taste of the consumer for a particular commodity influences the extent of its demand. If a particular good is favoured over the others then more of it will be demanded in the market. Similarly, when a new acceptable fashion. Comes to the market, it tickles the consumers to demand a particular type of good, but if the thing goes out of fashion then demand for it falls suddenly.
- 9) **Advertisements and Salesmanship** : In modern markets the demand for a products can be created through appropriate advertisement and salesmanship. The best salesman is one who does not merely sell what buyers want, but who makes the buyers buy what he has to sell. Thus, advertisement, publicity and salesmanship are agencies which create demand in the market.
- 10) **Climate** : Climate or seasonal variations or even festive occasions will influence demand for different goods differently. The demand for umbrella may be high in rainy seasons and demand for woolen wars may be high in certain regions. Similarly demand for sugar, fruit and sweetmeats may be high during festive seasons.
- 11) **Expectations about future prices** : Our expectations regarding prices that would prevail in the market in the near or distant future

also affects the demand for the product in the present, If the buyers anticipate further then rise in price of a commodity x in future then, depending upon the nature of the food, they will buy more of it today.

Check your Progress:

1. What do you understand by Demand function?
2. State the law of Demand.
3. What are the determinants of Demand?

2.4 ELASTICITY OF DEMAND

So far we have stressed the Law of Demand which states that quantity demanded of any commodity x is inversely related to the price of x, other things remaining the same. i.e. at higher price, less is demanded and at lower price more is demanded. In other words as the price rises, demanded goes down and as the price falls, then more is demanded. But the Law of demand does not state as to by how much the demand rises, with change in Price. It may so happen that when price falls, demand may rise proportionately or more than proportionately or when price of the commodity rises, demand for that commodity may fall proportionately or less than proportionately or even more than proportionately. Thus when we try to change price of that commodity we are attempting to measure elasticity of demand for x with reference to change in price of x. This would be regarded as the Price-elasticity of demand.

Similarly we can assess the rate of change in demand for a commodity with relation to change in consumer's income. This would lead us to measure the Income elasticity of demand. There is yet another possibility that two goods, X and Y, may be so inter-related that change in price of one good may bring about change in demand for another good. This leads us to the study of Cross elasticity of demand.

In this chapter we shall, therefore, consider the following three concept of elasticity of demand.

- 1) Price – elasticity of demand
- 1) Income – elasticity of demand
- 1) Cross-elasticity of demand

2.4.1 PRICE ELASTICITY OF DEMAND (E_p):

Changes in quantity demanded of X may show different degree of responsiveness to a change in it's Price i.e. when the price of X changes

the demand for it may change either exactly proportionately or more than proportionately or less than proportionately, of course in opposite direction (because quantity demanded of X is inversely related to price of X), other things remaining the same or at other extreme the demand may not change at all or even change infinitely. It is the degree of responsiveness of quantity demanded of commodity X or to the change in it's price of X which is called Price elasticity of demand. Price elasticity of demand is the degree of responsiveness of quantity demanded of X to the change in Price of X itself.

It is denoted by the following formula

$$EP = \frac{\text{Percentage change in } Q_{dx}}{\text{Percentage change in } P_x}$$

Thus, price-elasticity of demand is the ration of percentage change in quantity demanded of X to percentage change in price of X.

$$\therefore E_p = \frac{\% \Delta Q_{dx}}{\% \Delta P_x}$$

Mathematically Stated

$$E_d = \frac{\% \text{ change in quantity demand of } x}{\% \text{ change in price of } x}$$

$$\begin{aligned} & \frac{[\text{New Quantity demanded}] - [\text{Old Quantity demanded}]}{\text{old quantity demanded}} \times 100 \\ &= \frac{\text{New price} - \text{Old price}}{\text{Old Price}} \times 100 \end{aligned}$$

$$= \frac{\frac{\Delta D/D}{\Delta P/P}}{1} = \frac{\Delta D}{D} \times \frac{P}{\Delta P}$$

$$ED = \frac{P}{D} \times \frac{\Delta D}{\Delta P}$$

Where P = Original Price, D = Original quantity demanded, Δp = small change in price, ΔD = Small change in quantity demanded

Besides, since quantity demanded has a negative relationship with price, the elasticity of demand so obtained will have negative sign.

$$\begin{aligned} E_d &= \frac{\% \text{ change in quantity demanded of } x}{\% \text{ change in price of } x} \\ &= \frac{P}{D} \times \frac{\Delta D}{\Delta P} \end{aligned}$$

To neutralize this negative relation between price and quantity demanded, we attach a minus sign to the formula so as to make E_d as positive number, or we ignore the negative sign altogether.

Thus, in nutshell, we can State that,

(i) Elasticity is a characteristic feature of demand to change in response to the Price, (ii) Elastic demand is one which changes sufficiently enough even for a small change in the price, (iii) Inelastic demand is one which changes little even when there is a big change in the price.

2.4.2 FIVE TYPES OF PRICE-ELASTICITY OF DEMAND:

- (1) **Unit Elastic Demand** : When change in price of x brings about exactly proportionate change in quantity demanded of x the demand is unit elastic or elasticity of demand = 1. e.g. if price falls by 10% and demand rises by 10% then

$$\begin{aligned}
 E_d &= \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}} \\
 &= \frac{10}{10} = 1
 \end{aligned}$$

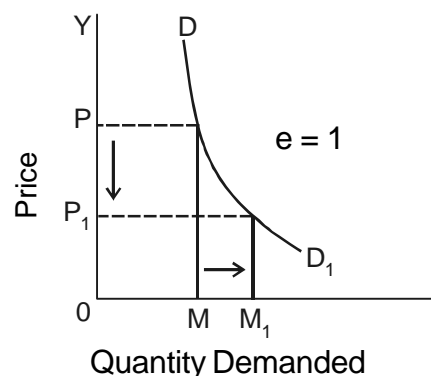


Figure 2.2 Unit Elastic Demand

- (2) **Relatively Inelastic demand** : When change in price brings about less than proportionate change in quantity demanded, then demand is relatively inelastic or E_d is less than 1, e.g. if price falls by 10% and demand rises by 5% then

$$\begin{aligned}
 E_d &= \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}} \\
 &= \frac{5}{10} \\
 &= \frac{1}{2} < 1
 \end{aligned}$$

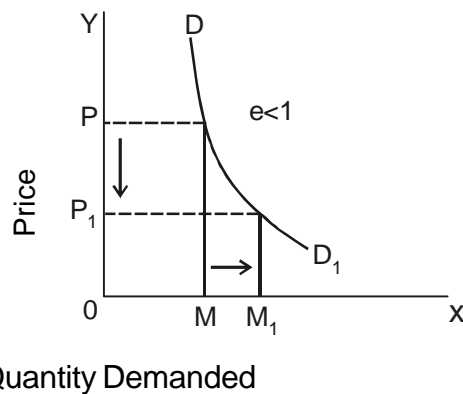


Fig 2.3 Relatively inelastic demand

- (3) **Relatively Elastic Demand :-** When change in price brings about more than proportionate change in quantity demanded, then demand is relatively elastic or E_d is greater than 1. e.g. if price falls by 10% and the quantity demanded rises by 20% then.

$$\begin{aligned}
 E_d &= \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}} \\
 &= \frac{20}{10} \\
 &= 2 > 1
 \end{aligned}$$

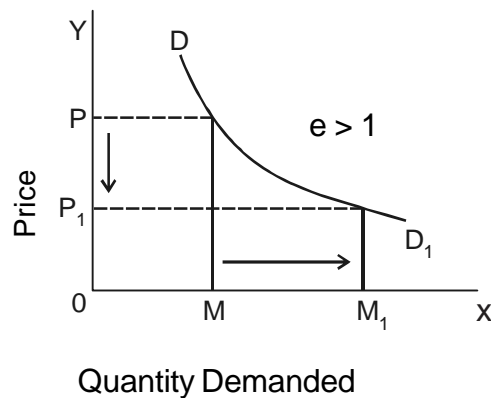


Fig 2.4 Relatively elastic demand

- (4) **Perfectly Inelastic demand :-** When change in price has no effect on quantity demanded, then demand is perfectly inelastic or E_d is zero, e.g. if price changes by 10% and demand does not change at all then,

$$\begin{aligned}
 E_d &= \frac{(\% \text{ change in quantity demanded})}{\% \text{ change in price}} \\
 &= \frac{0}{10}
 \end{aligned}$$

$$= 0$$

(Note : Perfectly Inelastic demand curve is parallel y-axis)

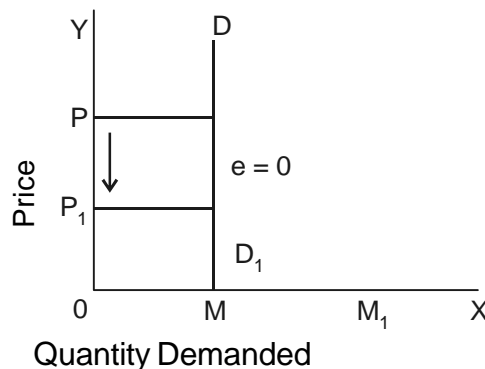


Fig 2.5 Perfectly inelastic demand

- (5) **Perfectly Elastic Demand :-** When a slight change in price brings about infinite change in the quantity demanded, then demand becomes perfectly elastic. In this case elasticity of demand is infinity.
(Note : Perfectly elastic demand curve is parallel x-axis)

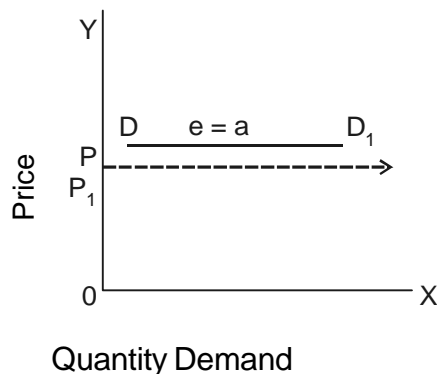


Fig 2.6 Perfectly elastic demand

Attempts have been made earlier to show that different elasticities of demand can be shown by different slopes of the demand curve. Elasticity of demand is generally indicated by the steepness of the demand curve; i.e. rectangular hyperbola indicates unit elasticity of demand; steeper slope indicates less elastic demand; flatter slope indicates more elastic demand etc. It would be improper to conclude anything definite about elasticity of demand by a mere inspection of the steepness of a demand curve. The steepness of a demand curve. The steepness of the demand curves can be compared for their elasticities only if they are drawn on the same scale. If the scales taken are different then the slopes for the same data will obviously be different and the results may mislead us. Besides, elasticity of demand will be different at different points on the same demand curve. Hence, we have to refine the methods of measuring elasticity of demand.

2.4.3 INCOME ELASTICITY OF DEMAND (E_y):

Income – elasticity of demand is the degree of responsiveness of quantity demanded of any commodity x to the change in income. It is expressed as the ratio of percentage x to percentage change in income. While measuring income elasticity of demand, all influences on demand other than income are held constant. The formula for income elasticity of demand is ;

$$E_y = \frac{\text{Percentage change in quantity demanded of x}}{\text{Percentage change in Income}}$$

$$\therefore E_y = \frac{\% \Delta Q_{dx}}{\% \Delta \text{Income}}$$

Three Types of Income – elasticity of demand

(i)Positive Income – Elasticity : If change in Income brings about change in demand for a commodity in the same direction then Income – elasticity of demand with respect to that good is positive. i.e. when income rises and demand for the good also expands or with a fall in income the demand for that good also falls then Income – elasticity of demand is positive. This happens in case of normal goods. Thus, in case of normal goods income elasticity of demand is positive.

It may further be noted that positive income elasticity may be either equal to one or more than one or less than one.

- If change in income of the consumer brings about change in demand for x in same direction and equally proportion then $E_Y = 1$
- If change in Income of the consumer brings about change in demand for x in same direction and more than proportionate them $E_y > 1$
- If change in income of the consumer brings about change in demand for x in same direction but less than proportionate then $E_y < 1$, but above zero.

(ii)Negative Income Elasticity : If change in consumer's income brings about a change in demand for a commodity in the opposite direction then income- less of a particular good or with a reduction in income more units of that good are demanded then income elasticity of demand is negative. This occurs in elasticity of demand is negative. i.e. when income rises and the consumer demands case of inferior goods. Therefore, in case of inferior good the income elasticity of demand is negative i.e., less than zero.

(iii)Zero Income – Elasticity of Demand : If change in income of the consumer has no effect on demand for the commodity, then the income elasticity of demand is zero. The income may rise or fall but if it does

not have any influence on demand then the income-elasticity of demand is zero. E.g. Our income may change but if our demand for salt is not effected due to change in income then income elasticity of demand will be zero.

Note : We have to be very particular about the sign of income elasticity of demand viz; whether it is positive or negative. We cannot ignore the sign in case of Income elasticity of demand because the sign provides an important clue due to the nature of good.

2.4.4 CROSS – ELASTICITY OF DEMAND (Ex):

In case of price –elasticity of demand we considered the degree of responsiveness of quantity demanded of commodity x to the change in price of x itself and did not take into consideration as to what will happen to the demand for other related goods. Very often we find that goods are so inter-related that a change in demand for one good will also have some influence on demand for some other good, especially if it is a substitute or a complementary good. Having ignored such inter-relationship we shall now focus our attention on inter-related goods. Let us consider two commodities A and B. Let us further assume that they are in the nature of substitutes. Suppose there are two pairs of leather chapels with a little variation in design one pair is A and another pair is B. When price of A rises obviously the demand for A will be reduced and the consumers will shift their demand from A to B and thus more of B will be demanded. The degree of responsiveness of quantity demanded of B to the change in price of A is the cross-elasticity of demand.

Mathematically it can be expressed as –

$$\therefore E_y = \frac{\text{Percentage change in } Q_{db}}{\text{Percentage change in } P_A}$$

$$\therefore \text{Thus } E_x = \frac{\% \text{ Change in } Q_{db}}{\% \text{ Change in } P_A}$$

Types of Cross-Elasticity of Demand

Cross – elasticity of demand may be either positive or negative or zero.

(i) Positive Cross-elasticity of demand :- If the two commodities A and B are so related that change in price of A brings about change in demand for B in the same direction then cross elasticity of demand is positive; i.e. due to rise in price of A, more units of B are demanded or with fall in price of A, more units of B are demanded or with fall in price of A, demand for B also falls then the cross-elasticity of demand is negative. Let us consider the case of two substitute goods A and B. Let the price of A rise then demand for A will fall but demand for B will

rise. Thus rise in price of A generates more demand for B and hence cross-elasticity of demand in this case is positive. Therefore in case of substitutes the cross-elasticity of demand is positive.

(ii) Negative Cross-Elasticity of Demand :- If change in price of one commodity brings about change in demand for another commodity in opposite direction then cross-elasticity of demand is negative. Let us consider two goods x_1 and x_2 and Let us assume that they are complementariness. i.e. they are jointly demanded; one without the other is meaningless, say tubes and tyres or fountain pen and ink.

Now when price of x_1 falls then demand for x_1 will rise and since more of x_1 are demanded, therefore automatically demand for x_2 will also rise. Thus a fall in price of x_1 will increase the demand for x_2 . Hence change in price of x_1 brings about change in demand for x_2 in the opposite direction and therefore cross-elasticity of demand is negative.

Therefore in case of complementary goods the cross-elasticity of demand is negative.

Check your Progress:

1. What is Elasticity of Demand?
2. State the types of Elasticity of Demand.
3. What are the types of Cross Elasticity of demand?

2.5 Supply and the Supply Function

We now pass on to the other side of the market and study the behavior of Producers or Suppliers. Just as there is a law of demand there is also the law of supply which is captured by a mathematical relation called the supply function. However, to start with we introduce the concept of the supply.

2.5.1 Supply:

The price of a commodity is determined both by demand and supply. Demand is half the story. The willingness and ability of suppliers to provide the good are equally important factors that must be weighted by decision makers in all societies. So we will now turn to the other side of the market, which is supply. As in the case of demand, several factors are important to Suppliers. One important factor is the own price of the good. Other things being equal, the quantity supplied will vary directly with the price of the good. This relationship is called the law of supply. The relationship between price and quantity supplied is direct, or positive.

2.5.2 The Supply Function:

The quantity supplied of a commodity is a function of various factors including its own price. The supply function shows the relationship between the quantity supplied of a commodity and its various determinants. It may be expressed as :

$$Q_x^s = f (p_x, p_y, o, w, T, t, \text{etc.}), \text{ where}$$

Q_x^s = quantity supplied of the commodity

P_x = Price of the commodity,

P_y = Prices of other commodities which compete for the same resource,

O = Objective (motivation) of the produce

W = Weather (acts of God),

T = technology and

T = time period

2.5.3 The supply curve:

The quantity supplied refers to a desired flow. The law of supply states that the higher the price is, the larger sale. If the price falls to a very low level suppliers may not be willing to supply anything because they cannot is a direct (Positive) relation between the supplied of a commodity per period. This curve see fig 2.7 which is a typical supply curve for a commodity such as apple.

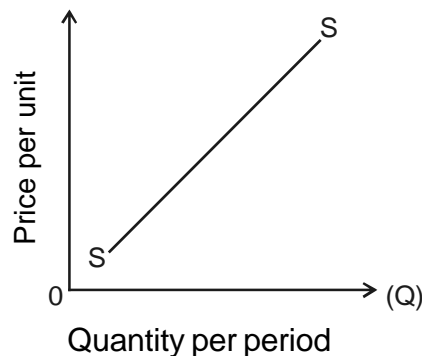


Fig 2.7 The market supply curve for apple.

The supply curve is upward sloping from left to right due to the direct relation between price and quantity. Like the demand curve for apples, the supply curve is also focus of alternative price quantity combinations. However, now price change and quantity change are in the same direction because higher and higher prices induces producers to offer larger and larger quantities for sale, *ceteris paribus*.

2.5.4 Factors Determining Supply:

The quantity supplied varies directly with price of the product. However, the supply depends not only on the price of a product but on several other factors too. The factors other than price which determine price are the following:-

(a) Production Technology :

The change in technology affects the supply function by altering the cost of production. If there occurs an improvement in production technology used by the firm, the unit cost of production declines and consequently the firm would supply more than before at the given price. That is, the supply would increase implying thereby that the entire supply curve would shift to the right.

(b) Price of factors :

Changes in prices of factors or resources also cause a change in cost of production and consequently bring about a change in supply. For example, if either wages of labor increase or prices of raw materials and fuel go up, the unit cost of production will rise. With higher unit cost of production, less would be supplied than before at various given prices. This implies that supply curve would shift to the left.

(c) Prices of other Products :

When we draw a supply curve we assume that the prices of other products remain unchanged. Now, any change in the prices of other products would influence the supply of a product by causing substitution of one product by causing substitution of one product for another. For example, if the market price of wheat rises, it will lead to the reduction in the production and supply of gram by the farmers as they would withdraw land and other resources from the production of gram and devote them to the production of wheat. This will cause a leftwards shift in the supply curve of gram.

(d) Objective of the Firm :

The objective of a firm also determines the supply of a product produced by it. If the firm aims to maximize sales or revenue rather than profits, the production of the product produced by them and hence its supply in the market would be larger.

(e) Number of producers (or firms):

If the number of firms producing a product increases, the market supply of the product will increase causing a rightward shift in the supply curve. When, in the short run, firms in an industry are making large profits, the new firms enter that industry in the long run and consequently the total production and supply of the product of the industry increases. On the

other hand due to losses if some firms leave the industry, the supply of its product will decline due to losses if some firms leave the industry, the supply of its product will decline.

(f) Future Price Expectations :

The supply of a commodity in the market at any time is also determined by sellers, expectation of future prices. If, as happens during inflationary periods, sellers expect the prices to rise in future, they would reduce supply of a product in the market at would instead hoard the commodity. The hoarding is an important factor of goods by traders is and important factor in reducing their supplies in the market and thus causing further rise in their prices.

(g) Taxes and Subsidies :

Taxes and subsidies also influence the supply of a product. If an excise duty or sales tax is levied on a product, the firms will supply the same amount of it at a higher price or less quantity of it at the same price. This implies that imposition of a sales tax or excise duty causes a leftward shift in the supply curve. The opposite happens in case of the supply of commodity on which government provides subsidies.

It follows from above that technology, prices of factors and products, expectations regarding future prices and objective of the firms are the important determinants of supply which cause rightward or leftward shift in the whole supply curve.

2.5.5 ELASTICITY OF SUPPLY:

When a small fall in price leads to large contraction in supply, the supply is comparatively elastic. But when a big fall in price leads to a very small contraction in supply, the supply is said to be comparatively inelastic. Conversely, a small rise in price leading to a big extension in supply shows more elastic supply, and a big rise in price leading to a small extension in supply indicates inelastic supply.

Consider fig 2.8 and 2.9 where two supply curve SS have been drawn.

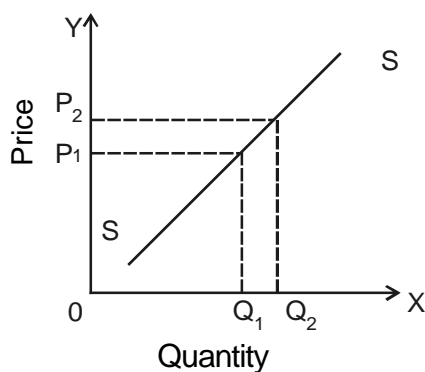


Fig 2.8 Elastic Supply

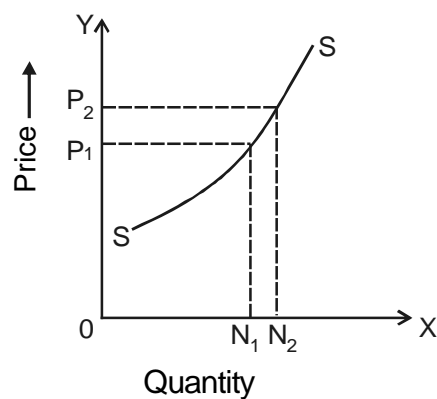


Fig 2.9 Inelastic Supply

At price OP_1 , the quantity Supplied in fig. 2.8 is OQ_1 , and the quantity supplied in fig 2.9 is ON_1 , with rise in price of the product, quantity supplied increases from OQ_1 to OQ_2 in fig 2.8 and from ON_1 to ON_2 in fig 2.9. Whereas the relative change in price is the same in both the figures, the increase in quantity supplied Q_1Q_2 in fig 2.8 is much larger as compared to the increase in quantity supplied N_1N_2 in fig 2.9.

Therefore, supply in fig 2.8 is said to be elastic, whereas that in fig.2.9 is inelastic. The elasticities of supply of various products differ very much from each other. What are the factors which determine elasticity of supply of products will be explained in some detail later.

The concept of elasticity of supply, like the elasticity of demand is a relative measure of the responsiveness of quantity supplied of a commodity to the changes in its price. The greater the responsiveness of quantity supplied of a commodity to the changes in its price. The greater the responsiveness of quantity supplied of a commodity to the changes in its price, the greater its elasticity of supply. In precise terms, the elasticity of supply can be defined as under:-

$$\text{Elasticity of Supply} = \frac{\text{Proportionate change in quantity supplied}}{\text{Proportionate change in price}}$$

$$e_s = \frac{\Delta q}{q} \div \frac{\Delta p}{p} = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

If the supply curve of a commodity is upward sloping as is generally the case the coefficient of elasticity of supply will have positive sign. When the supply curve is upward sloping, the elasticity of supply will be anything between zero and infinity.

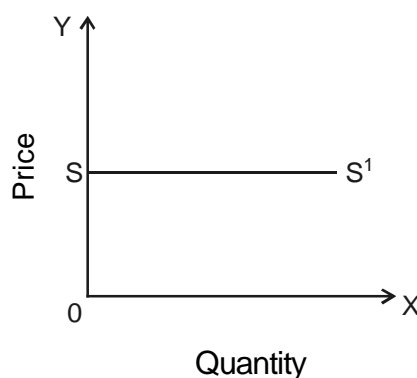
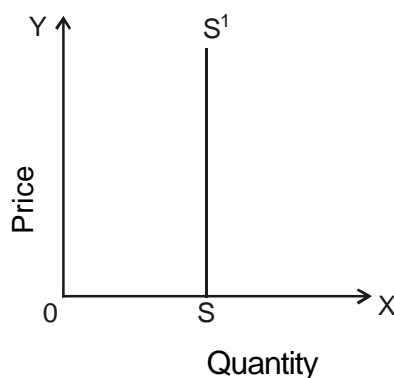


Fig 2.10 Perfectly Elastic supply Fig 2.11 Perfectly Elastic supply

When the quantity supplied of a commodity does not change at all in response to the changes in response to the changes in it's place, the elasticity of supply is zero. In the case of zero elasticity of supply, the supply

curve will be vertical straight line parallel to the x-axis and is said to be perfectly inelastic. On the other hand, if at a price, any quantity of the good is supplied, its elasticity will be equal to infinity and its supply curve will be a horizontal straight line parallel to the quantity axis and is said to be perfectly elastic. Perfectly elastic supply curve is shown in figure 2.11

Check your Progress:

1. What is Supply Function?
2. Derive a Supply Curve.
3. What are the Factors determining Supply?
4. Explain Elasticity of Supply.

2.6 Market Equilibrium

The market price of a commodity is determined by demand and supply. The market has two sides – buyers and sellers. In a typical market there are a number of consumers of a good. We can add up their individual demand curve to arrive at the market demand curve. Similarly by adding up the supply curves of independent producers of the good, we arrive at the market supply curve. In fig 2.12 two curves meet at point E and the equilibrium price P_0 is determined by the impersonal market forces of demand and supply.

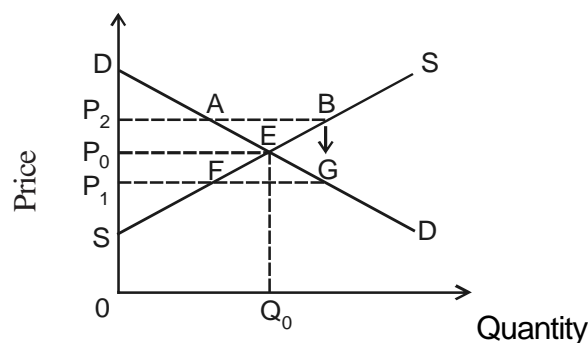


Fig 2.12 Market Price Determination

The equilibrium price of a good is the price at which the supply of the good equals the demand. The individual buyers and sellers are assumed to take prices as given outside of their control – and simply determine their optimal response given those market prices. A market where each economic agent takes the price as beyond his control is called competitive market. This assumption is justified on the ground that each consumer or producer is a small part of the market as a whole and thus has hardly any

influence on the market price by buying or selling a little more or less of the commodity. For example, each supplier of wheat takes the market price to be outside his own control. So he has to decide how much wheat to produce and supply to the market. At the same time the market price itself is determined by the actions of all the agents taken together. Although the market price is independent of any one agent's actions in a competitive environment, if aggregate supply increases price will fall and if aggregate demand increases price will rise.

If $D(P)$ is market demand function and $S(P)$ is the market supply function then the equilibrium price (P) is the one at which.

$$D(P_o) = S(P_o)$$

Only at a particular price, viz, the equilibrium price, market demand equals market supply. In other words, as per the solution to equation (1), P_o is the price where market demand equals market supply. At any other price (called disequilibrium price) there will either occur excess demand or excess supply because the behavior of different economic agents will not be consistent with one another. At a disequilibrium price, the behaviors of some buyers and / or sellers would be infeasible. So there would be a reason for their behavior to change. This means that a disequilibrium price cannot be expected to persist since at least some buyers or sellers would have a tendency to change their behavior.

The demand and supply curves show the optimal choices of buyer (demanders) and sellers (Suppliers). Secondly the fact that they are the same at the equilibrium price P_o simply suggest that their behaviors are compatible. At a disequilibrium price these two conditions will not be met.

For example at price $P_1 < P_o$, there is excess demand (shortage). This means that some suppliers will be able to charge higher prices from the disappointed demanders. As the quantity offered for sale increases, the market price will be pushed up to the equilibrium level at which

$$D(P_o) = S(P_o)$$

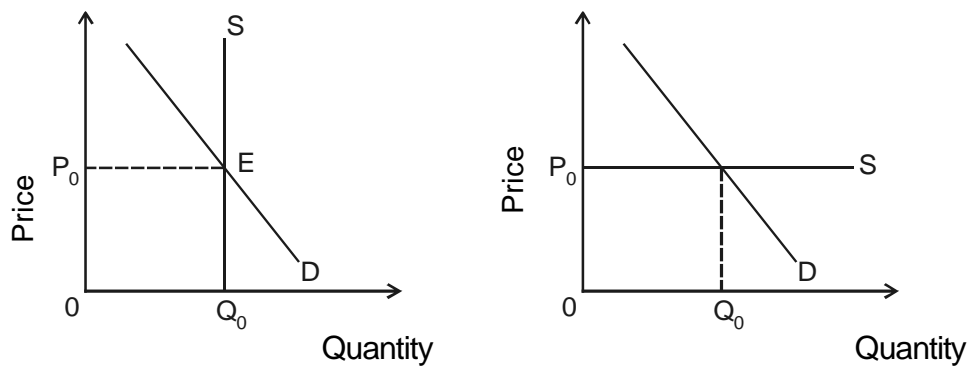
On the other hand if actual price goes above the equilibrium if actual price goes above the equilibrium level ($P_2 > P_o$), there will excess supply (surplus). Then some suppliers will be left with unsold stocks. So they will offer their output at a higher price to clear their stocks. But if some suppliers reduce their prices, other who sell identical goods will be forced to make matching price cuts in order to remain competitive. Thus excess supply exerts a downward pressure on the equilibrium price P_o . Only when the amount that consumers want to buy at a given price equals the amount that producers want to sell at that price will the market be in equilibrium market movement.

Table 2.2 Market Price Determination

| Price | Situation | Pressure on Price |
|-------|----------------------|-------------------|
| P_2 | EQ ($D(P) = S(P)$) | Downward |
| P_0 | E [$S(P) > D(P)$] | Neutral, |
| P_1 | ED [$D(P) > S(P)$] | Upward |

2.6.1 Two Special Cases

In case of fixed supply, equilibrium quantity is determined entirely by the supply condition and the equilibrium price by demand conditions. As Shown in Fig, 2.13

**Fig 2.13 Two special cases if equilibrium (a) and (b)**

If the supply curve is vertical the equilibrium price is determined solely by the demand curve. Such a supply curve is said to be completely price inelastic.

In fig 2.13 (b), where the supply curve is a horizontal straight line, the equilibrium price is determined entirely by the supply curve while the equilibrium quantity is determined by the demand curve.

In these two special cases we have separated the determination of equilibrium price and quantity. But in the general case equilibrium price and equilibrium quantity are simultaneously determined by the demand and supply curves.

2.7 Summary

- Demand refers to the quantity of a good or service that the consumers are willing and able to purchase at various prices.
- Law of demand indicates only the direction of change in quantity demanded in response to change in price. Whereas, the elasticity of demand indicates the degree of change in quantity demanded in response to the change in price.

- Supply refers to the quantity of a good or service that the producers are willing to offer at various prices.
- Market equilibrium exists when quantity demanded of a good or service equals the quantity supplied.

2.8 Questions

- 1) Define the following
 - a) Demand,
 - b) Law of Demand
 - c) Demand Function
 - d) Elasticity of Demand,
 - e) Supply
 - f) Supply Function,
 - g) Law of Supply
 - h) Elasticity of Supply
- 2) Define and explain the law of demand.
- 3) Discuss the various determinants of demand.
- 4) State and explain the concept of price elasticity of demand.
- 5) State and explain the law of supply.
- 6) Explain the process of market equilibrium.
 - a) Demand determinants.
 - b) Factors affecting supply.
 - c) Income elasticity of demand.
 - d) Cross-price elasticity of demand.
 - e) Elasticity of Supply.



Chapter 3

Demand Forecasting

Unit Structure

- 3.0 Objectives
- 3.1 Introduction
- 3.2 Meaning of Demand Forecasting
- 3.3 Objectives of Demand Forecasting
- 3.4 Methods of Demand Forecasting
- 3.5 Demand Forecasting for New Products
- 3.6 Criteria or Conditions for Better Forecasting of Demand
- 3.7 Summary
- 3.8 Questions

3.0 Objectives

- To acquaint with the process of demand estimation.
- To familiar with the importance of demand for variety of products.
- To understand the need for & objectives of demand forecasting.
- To know various methods of demand forecasting.
- To prepare for making demand forecasting new products.
- To understand evaluation of forecast accuracy.

3.1 Introduction

Armed with a thorough knowledge of the concept of demand and its elasticity, we shall now proceed into the realm of demand forecasting or a kind of economic prediction of demand for goods in the market and in future. This analysis promises to be interesting. Various methods of Demand forecasting are explained in this chapter. At the end of the topic we will see criteria for better demand forecasting.

3.2 Meaning of Demand Forecasting

Forecasting is an estimation about a future event or situation, to know the trend or behavior in the future. This trend or behavior can be increasing or decreasing.

Demand forecasting hence, is a means of estimation of future demand conditions. In other words, it is an extension of the present demand.

Demand forecasting may be defined as the process of finding values for demand in future time periods Demand forecasting is also known as business forecasting .

Forecasting is really a difficult task because the future is uncertain.

Kotler remarked “Forecasting is like trying to drive a car blindfold and following directions given by a person who is looking out of the back window”. Demand forecasting is very popular in industrially advanced countries.

Demand forecasting is based on the past market behaviour of consumers. It is also based on mathematical laws of probability.

Demand forecasting has to be done at three levels as given below :

- (a) **At Micro Level** : This is the demand forecasting for individual firms. This helps the management for production decision to avoid wastage.
- (b) **At Industry Level** : This is done by trade associations. For e.g. the two wheelers manufacturing association may undertake the task of forecasting the demand for the different types of two wheelers and the probable total annual sale of two wheelers all over the country.
- (c) **At Macro Level** : This concept encompasses the whole economy. This forecasts the aggregate demand in the nation and helps determine the level of industrial production in the country.

Demand forecasting is useful for managerial decision making and effective and efficient planning. It is also helpful in better planning and allocation of national resources.

3.2.1 Types of Demand Forecasting :

There are two types of forecasting :

- (1) Short Term forecasting.
- (2) Long Term forecasting.

(1) Short Term forecasting : Short term demand estimation covers a period upto one year. Firms must know the present demand for its product so that it can avoid over production and underproduction. Such information about the current demand for a firm’s product is called demand estimation.

Demand estimation may be defined as the process of finding current values of demand for various values of price and other determining variables.

(2) Long Term Forecasting : Long term forecasting refers to demand forecasting beyond one year; Say 2 years, 5 years, etc. Generally, Firms are more interested in long term demand forecasting.

Forecasting can be classified into two broad categories :

(1) Passive Forecasting .

(2) Active Forecasting .

(1) Passive Forecasting is where prediction about the future is based on the assumption that the firm does not change the course of its actions.

(2) Active Forecasting is where forecasting is done under the condition of likely future changes in the action by the firm.

e.g. If Maruti Udyog is contemplating an improvement in the quality of its car and at the same time it is committed to go for a vigorous advertising campaign for its product, then passive forecasting would ignore the impact of these changes on demand, while the active forecasting would pay due recognition to these factors. Thus, it is clear that active forecasting is more meaningful than passive forecasting.

3.2.2 Significance or Importance of Demand Forecasting :

Accurate demand forecasting is essential for a firm to take decisions regarding quantities of production and to arrange factors of productions in advance. All business decisions are based on some forecast of the level of economic activity in general and the demand for the firm's product in particular.

Demand forecasts are attempted by several organizations and individuals. E.g. The Planning Commission undertakes forecasting for major goods and services in the economy for next five years. Researchers undertake forecasting of all kinds, including the worldwide forecasts, which are also carried out by international organizations like World Bank, IMF, UNO, Asian Development Bank.

Demand forecasting is needed to plan future production and thereby future needs for various resources, including raw materials, capital, man power etc. The Production of some goods and services take some time, this time lag is known as the gestation period, which is spread over decades. e.g. production of hydroelectric power, production of Maruti car etc. The case of production of services may be similar. e.g. If more doctors are to be turned out, it might take several years to achieve that target. New Medical colleges have to be started or more facilities in term of

buildings, furniture, faculty, staff, library etc. may have to be provided to increase seats in the existing institutions. Unless the future demand is well known in advance we cannot plan out production to meet that demand. If demand is not fulfilled then firms may not be able to attain their objectives. Hence, accurate forecasts are essential.

Check Your Progress :

1. What is meaning of Demand Forecasting ?
2. Explain different levels at which demand forecasting is done.
3. Elaborate the different types of Demand forecasting.
4. Explain the Significance of Demand forecasting.

3.3 Objectives of Demand Forecasting

(1) To Determine the Schedule of Production : With the help of demand forecasting, it is possible to estimate future demand. This in turn will help to plan the size of production in an optimum manner. Both over production and underproduction are bad. Maximum possible accuracy in demand forecasting will help to maintain the schedule of production to equal the expected sales.

(2) To plan for the Determination of the Requirement of Factors of Production : With the help of a scientifically done demand forecasting, the firms can determine the future needs of capital equipment, raw-materials, labour force and other requirements. This will help the firms meet changing needs and also avoid wastage.

(3) To determine a Suitable Price Policy : Demand forecasting studies will help the firm to fix proper price for the goods. By maintaining a proper schedule of production, the fluctuation in prices can be avoided. Stable price will bring goodwill from among the consumers and maintain profits.

(4) To Determine Sales Strategies : Demand forecasting will help to determine sales promotions and advertisement campaigns. If there is a fall in demand in the forecast, then aggressive sales promotion schemes and attractive advertisements will have to be planned. Thus demand can be manipulated. Sales targets can be determined regionwise and sales performance can be encouraged.

(5) To Arrange for the Financial Needs : Arrangement of finance is extremely important. Mobilizing adequate funds is a complex problem.

With the help of demand forecasts, the extent of financial requirement can be ascertained and the method of mobilization can be determined. Sometimes stocks and shares can be floated.

(6) To determine the Size and Capacity of Production: With an analysis of future demand, it will be possible to know the extent of demand elasticity. Accordingly the management can enlarge or shrink the plant.

(7) To maintain Regular Supply of Goods : The forecast study helps the producers to keep an adequate inventory of products. In case of more demand and less supply, goods can be released and gap between demand and supply filled.

(8) To Plan a New Unit : This requires long term demand forecasting. The gestation period of large industrial units tend to be long. But once the production plant is started, then there should be a periodic review to determine the viability of the unit.

(9) To Maintain Stability : Demand forecasting may also help in devising methods to avoid cyclical fluctuations and maintain employment and production.

(10) To Counteract the Uncertainty Conditions of Future Periods: It is not possible to counteract future uncertainties in full measure. However, periodic reviews based on demand forecasts will help the producers. They can be mentally and financially prepared to meet certain possibilities.

Thus, demand forecasting is of vital importance to production management.

3.4 Methods of Demand Forecasting

By definition, forecasting involves the future, which is uncertain. There is no easy method or formula, which enables the business of individual to predict the future with certainty. There are several methods of demand forecasting basically for three reasons :

- (i) No method is accurate and no method is useless.
- (ii) No method is best under all circumstances.
- (iii) The best method may not be available in a particular situation, due to constraints from data or resources (time and money)

Fundamentally there are two approaches to the problem of business forecasting :

- (i) To obtain information about the intentions of consumers by means of market research, survey, economic intelligence etc.
- (ii) To use past experience as a guide to estimate the level of future demand.

The first approach is often used for short term forecasting and the second approach for long term forecasting.

Demand forecasting methods are classified into :

- (A) Survey Method or Direct Method
- (B) Statistical Method or indirect Method.

The different methods of demand forecasting in nutshell are discussed below :

| | Survey Method | | Statistical Method |
|-----|---|-----|--|
| (1) | Consumers Survey (a) Complete enumeration method (b) Sample survey (c) End-use method | (1) | Trend projection(Least square Method). |
| (2) | Expert's option. | (2) | Barometric technique. |
| (3) | Simulated market situation. | (3) | Regression method |
| (4) | Controlled market - experiments. | (4) | Simultaneous equation - method. |

3.4.1 (A) Survey Methods or direct Methods

Demand forecasting is done both for established products and new products. Survey method is used to forecast demand for new products. Forecasting through this method is based on personal judgment and experience.

(1) Consumer's Survey :

This is the most sophisticated and direct method of demand forecasting. In this method consumers are directly asked about their future consumption plan. In this method questionnaires are prepared to find out the buyers' intentions. This is recorded through personal interview, mail or post surveys and telephone interviews. Questionnaires should not be difficult. Consumer survey method is of three types.

- (a) Complete enumeration survey.
- (b) Sample Survey.
- (c) End-use method

(a)Complete Enumeration Survey : In this method all potential buyers of the product are contacted. The survey covers all the probable demands of all the consumers in the market and their interviews are conducted to find out probable demand. In the complete enumeration survey once the individual demand for products are ascertained then these are added, together to find out the probable total demand for the firm's product, e.g. if there are "n" consumers and their probable

demands for commodity –x in the forecast period are $X_1 X_2 X_3 X_4 \dots X_n$.

The total demand estimation will be as below :

$$X_1 X_2 X_3 X_4 \dots X_n \quad \dots (3.1)$$

Advantages :

- (i) It gives unbiased information.
- (ii) If all buyers expect accurately, the demand forecasting will be accurate

Disadvantages :

- (i) This method is time consuming
- (ii) This method is expensive.
- (iii) It is difficult to contact a large number of consumers.
- (iv) This method is unrealistic because the consumers may misjudge or withheld data.

(b) Sample Survey : Sample survey method is more popular than complete enumeration method. In this method only a few consumers are selected from potential consumers, and they are interviewed. It is possible to calculate average demand on the basis of a sample survey method. The aggregate demand for the product is estimated by multiplying this average demand by the total number of consumers. e.g. suppose there are 10,000 potential consumers. Then 500 consumers are selected by some sampling method for interviews. The aggregate demand will be written as under :

$$D_x = C_x \cdot A_x \quad \dots (3.2)$$

Where D_x Total Demand.

C_x The number of potential consumers.

A_x The average demand in the sample interview.

This method is based on two principles :

- (i) Principle of statistical regularity.
- (ii) Principle of inertia of large numbers

Advantages :

- (i) This method is less expensive as compared to complete enumeration method.
- (ii) This method is less time consuming.
- (iii) This method is more reliable.

Disadvantages :

- (i) This method need more qualified and expert investigators. In developing countries there is a shortage of such qualified experts.
- (ii) This method need careful planning. In the absence of careful planning this method may give inaccurate and misleading results.

(c) End-use Method : The sale of a product is projected on the basis of demand survey of the industries using this product as an intermediate product. Demand for the final product is the end use demand of the intermediate product used on the production of this final product. Moreover an intermediate product has many uses e.g. steel can be used in the agricultural machinery, construction etc. The sum of final demand for any commodity can be obtained through input-output model.

This method is useful at macro level economic planning and not at micro level.

Advantages :

- (i) It provides use-wise and sector-wise demand forecasting.
- (ii) This method does not require any past data.
- (ii) This method will be convenient if the number of end users of a product is limited.

Disadvantages :

- (i) It is necessary for every industry to furnish its plan correctly.
- (ii) This method is not applicable to individual industries.
- (iii) This method forecasts only the part of total demand for a commodity.

(2) Expert's Opinion Survey Method :

Besides consumers survey method a firm can conduct opinion survey method. This method is also known as 'sales force polling'. There are a group of specialists who know the markets. These are salesmen, market consultants, professional, experts etc. These people have studied the market trend and consumers responses for years. They know the consumers reactions to new products, demand for rival products, future plans of the consumers etc.

Delphi method is an example for this group. In this method, panel members are asked by letters to give their predictions of the likelihood occurrence of specified events. Delphi method assumes that panelists must be rich in their expertise, posses wide knowledge and experience of the subject.

In this method help of marketing managers, managerial economists, production managers, sales managers and other top executives may be taken to conduct expert opinion survey. This methods is also known as

collective opinion method because its forecasts is based on the aggregate opinion on the experts in the field.

Advantages :

- (i) This method is simple because it requires minimum of statistical work.
- (ii) It is less expensive.
- (iii) This method is less time consuming.
- (iv) This method is more useful for new product.
- (v) This method is more accurate and reliable.

Disadvantages :

- (i) Opinion of the firm's own sales representative may be biased.
- (ii) The opinions are subjective and may not be fully reliable unless experts are well experienced.
- (iii) The opinion survey may be influenced by the narrow views of the market because this ignores the effects of changes in other independent variables such as income, advertising etc.

(3) Simulated Market Situation :

In this method an artificial market situation is created and participants are selected. These are called consumer clinic. These selected participants are given a sum of money and asked to spend in an artificial departmental store. Different promotional efforts are put up or different prices are set up for different group of participants. They are asked to spend money on competing products. The responses of the participants are observed. Accordingly necessary decisions about price and promotional efforts are undertaken.

Disadvantages :

- (i) This method is time consuming.
- (ii) It is difficult to select participants.
- (iii) Participants may buy those products whose prices are reduced.
- (iv) When a person buys with someone else's money he may behave differently from when he buys with his own money.
- (v) This method is expensive.

(4) Controlled Market Experiments :

In this method a firm may conduct the same experiments of simulated market situation in actual market. A firm may reduce the price of the commodity in the actual market and observe the consumers reactions and compare the sales with the price. A firm can fix up different prices in different market and observe the responses of the consumers. The firm may make an experiment in one of the markets regarding sales

promotional activities. If the responses of the consumers are positive then firm may take the risk of spending increased amount on such campaigns,

Advantages :

- (i) This method is applicable to large scale industries which supply their products throughout the country.
- (ii) In this method the firm knows the actual responses of the consumers to variation in controlled factors such as price, sales promotion campaign, etc.

Disadvantages :

- (i) This method is not reliable.
- (ii) Sometimes there are changes in sales in the controlled market may not be due to changes in the controlled variables. But there may be the result of changes in uncontrolled variables.
- (iii) This method is expensive
- (iv) If new promotion campaign fails in its experiment, it may do a long term damage to the firm's image and sales.
- (v) If a firm introduces an advertising campaign in its market experiment, it is quite likely that the rival firms will nullify such experiments. Then such experiments become wasteful.

3.4.2 (B) Statistical or Indirect Methods:

Demand forecasting also uses statistical methods. This method is useful for long run forecasting for the existing products. In this method some statistical and mathematical techniques are used to estimate future demand. We first write down the demand functions and then with the help of past data one can find out coefficient or elasticities of Independent variables.

(1) Trend Projection Method :

This method is based on the analysis of past sales pattern. This method is used in case of sales data of the firm under consideration and relates to different time periods. i.e. it is a time series data. The time series shows effective demand for the product during the period of past ten to fifteen years. There are five main techniques of trend projection or mechanical extrapolation method.

- (a) Fitting a trend line by observation.
- (b) Least square method.
- (c) Time series method.
- (d) Moving average method.
- (e) Exponential weighted moving average method.

(a) Fitting a Trend Line by Observation:

This method is elementary, easy and quick. This method involves merely plotting of actual sales data on a graph paper and estimating by observation where the trend line lies. This line can be extended towards a future period and corresponding sales can be forecasted from the graph.

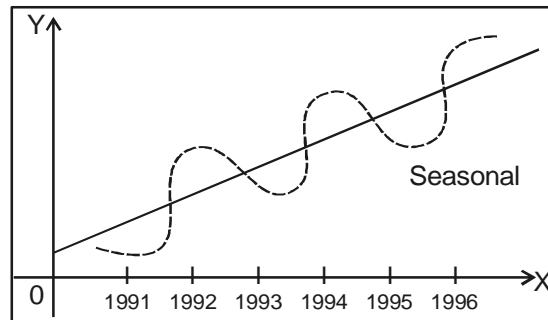


Figure 3.1

(b) Least Square Method :

These days the least square method is widely in use. It is a mathematical device which helps one to fit a trend line to the data. The trend line is the estimating equation which can be used for forecasting the demand.

The equation of sales : Sales = $a + b$ (year number)

$$\text{Or } S = a + bT \quad \dots (3.3)$$

Where, $a + b$ have been calculated from past data and T is the number for which forecasting is to be done.

Example : The sales record of company X reveals the following :

| Years | 2000 | 2001 | 2002 | 2003 | 2004 |
|-------------------|------|------|------|------|------|
| Sales (Rs.crores) | 40 | 50 | 48 | 52 | 60 |

Estimate sales for 2005 and 2006.

Solution: To find out the value of a and b in, $S = a + b$ we will have to solve normal equations.

$$\Sigma S = Na + b\Sigma T \quad \dots (3.4)$$

$$\Sigma ST = a \Sigma T + b\Sigma T^2 \quad \dots (3.5)$$

From the above observation we will prepare a following table :

Table 3.1 Least Square Method

| Year | Year No. (T) | Sales in Rs. Crores (S) | ST | T ² |
|-------|-----------------|-------------------------|-------------------|-------------------|
| 2000 | 1 | 40 | 40 | 1 |
| 2001 | 2 | 50 | 100 | 4 |
| 2002 | 3 | 48 | 144 | 9 |
| 2003 | 4 | 52 | 208 | 16 |
| 2004 | 5 | 60 | 300 | 25 |
| N = 5 | $\Sigma T = 15$ | $\Sigma S = 250$ | $\Sigma ST = 792$ | $\Sigma T^2 = 55$ |

Substitute the above values in equation no. (4.4) and (4.5) :

$$250 = 5a + 15b \quad \dots (3.6)$$

$$792 = 15a + 55b \quad \dots (3.7)$$

Solving both the equations simultaneously :

$$792 = 15a + 55b \quad \dots (3.8)$$

$$750 = 15a + 45b \text{ (multiply equation (4.6) by 3)} \quad \dots (3.9)$$

Now subtract equation (4.9) from equation (4,8) :

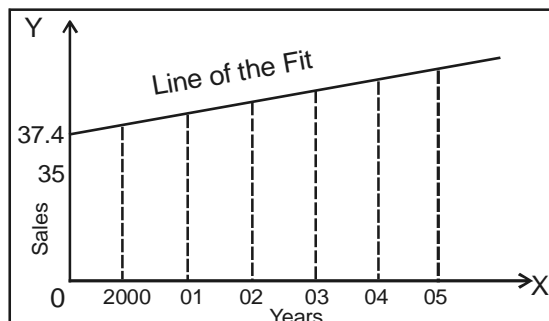
$$\begin{aligned} 792 &= 15a + 55b \\ - 750 &= -15a + -45b \\ \hline 42 &= 00 + 10b \end{aligned}$$

$$42 = 10b$$

$$b = \frac{42}{10} = 4.2$$

Now let us find out value of 'a'.

To get value of 'a' substitute value of b = 4.2 in equation (4.6).

**Fig 3.2**

$$250 = 5a + 15b \quad \dots (iv)$$

$$250 = 5a + 15(4.2)$$

$$250 = 5a + 63$$

$$250 - 63 = 5a$$

$$187 = 5a$$

$$a = \frac{187}{5} = 37.4$$

Solving these equations for a + b, we get,

$$A = 37.4 \text{ and } b = 4.2$$

Thus, trend equation becomes :

$$S = 37.4 + 4.2T \quad \text{.. (3.10)}$$

Now we first calculate the trend value for the past years and then we will repeat the above equation (3.10). The line drawn in fig. 3.2 is known as LINE OF BEST FIT.

Trend projections for the year 2005 and 2006.

Table 3.2 : computed S values for the past years and future years.

| | | | | | | |
|------|---|------|---|--------|---|------|
| 2000 | = | 37.4 | + | 4.2(1) | = | 41.6 |
| 2001 | = | 37.4 | + | 4.2(2) | = | 45.8 |
| 2002 | = | 37.4 | + | 4.2(3) | = | 50.0 |
| 2003 | = | 37.4 | + | 4.2(4) | = | 54.2 |
| 2004 | = | 37.4 | + | 4.2(5) | = | 58.4 |
| 2005 | = | 37.4 | + | 4.2(6) | = | 62.6 |
| 2006 | = | 37.4 | + | 4.2(7) | = | 66.8 |

Based on least squares method, illustrated above, the forecast sales for the year 2005, and 2006 is Rs. 62.6 crores and Rs. 66.8 crores respectively.

Advantages :

The trend method is popular because :

- (i) It is simple
- (ii) It yields good forecasts.
- (iii) It does not require knowledge of market and economic theory.

Disadvantages :

- (i) It assumes the past rate of change of variable under forecast will continue in future.
- (ii) This method is not appropriate in short run forecasts.
- (iii) This method cannot define the turning point of a business cycle.

(b) Time series : This method is an extension of linear regression, which attempt to build seasonal and cyclical variations into the estimating equations. 'Time series refers to the data over a period of time during which time fluctuation may occur'.

Thus the equation is as under :

| |
|--|
| $\text{Sales} = A (\text{trend}) + b (\text{season}) + c (\text{cycle}) + d$ |
|--|

Where a, b, c and d are constants calculated from past data. Sales forecast can again be obtained by substituting values of trend, season

and cycle. Trend value is the year number. The value of season is given by the normal percentage for the season being forecast. The value of cycle could be found with the help of barometric indicators for the period of forecast.

Box-Jenkins Method : G.E.P. Box and G. M. Jenkins have developed a highly sophisticated approach to time series forecasting. Box-Jenkins method of forecasting is used only for short term predictions. Besides, this method is suitable for forecasting demand with only stationary time-series sales data. A stationary time series is one that has a constant average value over time. For examples, the sale of new year Greeting Cards will be particularly very high in the last week of December every year. Similarly, sale of woolen clothes will show a hump during months of winter in all the years under reference. This is called seasonal variation. Box-Jenkins method is used for predicting demand where time series sales data reveal this kind of seasonal variation. The Box-Jenkins model is essentially an autoregressive-moving average model.

(c) Moving Average Method : This method is used to forecast future sales. A moving average of order N is obtained by adding yearly demands for successive years of N number of years and dividing by N. The moving average are calculated for 3 years, 5 years, 7 years or alternatively 4 years, 6 years, 8 years etc. the formulas to calculate 3 yearly moving average is :

$$\frac{a + b + c}{3} \quad \frac{a + b + c}{3} \quad \frac{a + b + c}{3} \quad \frac{a + b + c}{3} \quad \text{etc}$$

Illustration : The following are the annual sales of series during the period of 1994.- 2004, we are to find out the trend of the sales using 3 yearly moving average and forecasts the value for the year 2005.

| Years | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2004 | 2004 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|
| Sales in(Rs.Lakhs) | 10 | 12 | 13 | 11 | 14 | 18 | 22 | 20 | 24 | 23 | 25 |

Solution : **Table 3.2 : 3 yearly moving average**

| Years | Sales | 3 yearly moving Total | 3 yearly moving average trend values |
|-------|-------|--------------------------|---|
| 1994 | 10 | - | - |
| 1995 | 12 | 35 | $35/3 = 11.66$ |
| 1996 | 13 | 36 | $36/3 = 12.00$ |
| 1997 | 11 | 38 | $38/3 = 12.67$ |
| 1998 | 14 | 43 | $43/3 = 14.33$ |
| 1999 | 18 | 54 | $54/3 = 18.00$ |
| 2000 | 22 | 60 | $60/3 = 20.00$ |
| 2001 | 20 | 66 | $66/3 = 22.00$ |
| 2002 | 24 | 67 | $67/3 = 22.33$ |
| 2003 | 23 | 72 | $72/3 = 24.00$ |
| 2004 | 25 | - | - |

Examples : A'W' of 2/3 will produce following series of weight.

$$W = 0.667$$

$$W (1-W)^3 = 0.024$$

$$W (1-W) = 0.222$$

$$W (1-W)^4 = 0.0082$$

$$W (1-W) = 0.074$$

$$W (1-W)^5 = 0.00028$$

Thus higher weight is placed on recent observation and declining weights on other values.

(2) Barometric Method :

This method is based on the idea that the future can be predicted from certain events occurring in the present. The barometric method of forecasting follows the method meteorologists use in weather forecasting. Meteorologists use the barometer to forecast weather conditions on the basis of movements of mercury in the barometer. Following the logic of this method, many economists use economic indicators as a barometer to forecast trends in business activities. The Barometric technique involves statistical indicators usually the time series. The Barometric technique is an improvement over trend projection method. The basic approach of barometric technique is to construct an index of relevant economic indicators and to forecast future trends on the basis of movements in the index of economic indicators. The indicators used in this method are classified as :

- (a) Leading indicators :** There are leading indicators which tends to reflect future market changes. The sales of Geepla gripe water can be forecasted with the help of birth of children in the past five to seven years. There is a co-relation between demand for Geepla gripe water and birth rate of children.

- (b) **Co-indicators** : There are certain indicators which co-indicates with rise and fall of general economic activity or market trends. The example of co-inciding indicators are the GNP, retail sales, labour force in the economy, etc.
- (c) **Diffusion Indices** : These indices help the forecaster in relaying on the leading indicators used. These indices move up and down behind some other series.

| Example | Indicator | Demand for the product |
|---------|--|---------------------------------|
| (i) | Construction contracts. | Demand for building materials. |
| (ii) | Increased prices of agricultural commodities | Demand for agricultural inputs. |
| (iii) | A rise in disposable income | Demand for consumer goods |
| (iv) | Automobile registration | Demand for petrol. |

(3) Regression Method:

The regression method is the most popular method of demand forecasting among economists. It is a tool to estimate the unknown values of one variable from the known values of another variable. Regression analysis denotes methods by which the relationship between quantity demanded and one or more independent variable (income, price of a commodity, prices of related commodity, advertisement expenses etc.) can be estimated.

Simple regression is used when we consider relationship between two variables. One dependent variable (sales) and another independent variable (Price) Multiple regression is used to estimate demand as a function of two or more independent variables that vary simultaneously. Where the relationship is between the dependent variable and a number of independent variables, it is known as multiple regression.

In case the trend of the dependent variable is approximately linear, we can fit a linear regression equation, while if the trend is other than linear, we can fit a non linear regression equation to the data.

Simple Linear Regression :

Example : Suppose a company manufacturing tractors finds that a relationship exists between its sale of tractors and the farm income index. The following table shows the number of tractors sold and the corresponding farm income index over the year 1998 to 2004. Forecast the demand for transport for 2005.

| Years (n) | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|------------------------------------|------|------|------|------|------|------|------|
| Farm Income Index (in Rs.Lakhs) | 10 | 12 | 15 | 20 | 25 | 30 | 40 |
| Sales of Tractor (Units) | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Table : 3.3

| Years (n) | Farm income (X) (in Rs. Lakhs) | Sales of Tractors(Y)Units | X^2 | XY |
|--------------|-----------------------------------|------------------------------|---------------------|---------------------|
| 1998 | 10 | 40 | 100 | 400 |
| 1999 | 12 | 50 | 144 | 600 |
| 2000 | 15 | 60 | 225 | 900 |
| 2001 | 20 | 70 | 400 | 1400 |
| 2002 | 25 | 80 | 625 | 2000 |
| 2003 | 30 | 90 | 900 | 2700 |
| 2004 | 40 | 100 | 1600 | 4000 |
| N = 7 | $\Sigma X = 152$ | $\Sigma Y = 490$ | $\Sigma X^2 = 3994$ | $\Sigma XY = 12000$ |

Check Your Progress :

1. What are the objectives of Demand Forecasting ?
2. Explain different methods of demand forecasting.
3. Elaborate the different types Survey methods of Demand forecasting.
4. Elaborate the different types Statistical methods of Demand forecasting.

3.6 Demand Forecasting for New Products

Demand forecasting for new products are quite different from those for established products. The main difficulty is that there is no past data. For new products which are new to the economy and new to the company an intensive study of their qualitative and competitive features of products provide a guide to projection of demand.

The following approaches are recommended by T. J. Hailstones and J. C. Rothwell of Xavier University, America. Joel Dean has also contributed a great deal on this problem.

(1) Evolutionary Approach (2) Substitution Approach (3) Growth Curve Approach (4) Sales Experience Approach (5) Opinion Sampling Approach (6) Vicarious Approach.

(1) Evolutionary Approach : In this approach the new product is an improvement of the old product. So it is an out growth of the existing demand function. In such cases one can rely upon the past data of the existing product to predict the demand for the improved product. For e.g. the demand for the newly introduced colour T. V. can be based on the data of past demand for black and white T.V. sets so it is an evolution of the demand for the existing product.

Limitations : This method is applicable only if the new product is an improvement of the existing product and is very close to it in features.

(2) Substitution Approach : Under this approach, the new product should be a substitute for the existing product. This approach assumes that the sales (at least in part) of the existing product can be diverted to the new product. For e.g. Polythene bags as substituted for cloth bags or ball pens as substitutes for fountain pens. Probable sales of the new product is estimated from the total sales of the product.

Limitations : The new product must be a close substitute for the existing product. Still it is possible to commit errors in the estimation of the potential demand for the new product.

(3) Growth Curve Approach : This approach studies the pattern of growth and the ultimate sales of the existing established products. Based on that, it determines the probable sales for the new product. For e.g. the growth curve for of the new design household furniture is estimated on the growth curve of the furniture of old designs. This approach helps to derive an empirical law of market growth for new products.

Limitations : This approach is useful only in the later stages of demand.

(4) Sales Experience Approach : Sales Experience Approach : A sample market is identified and the new product is offered for sale. Studying the sales in the sample market, the sales are estimated for a fully developed market. In the selected sample market, the product samples can be directly sent to the consumers and their reactions can be ascertained. Major shops can also give away samples and get a feed back from the consumers. Based on all these future sales can be estimated.

Limitations :

- (a) The salesmen who give away the samples must select proper and suitable consumers for the product. E.g. lip stick samples should not be given away to very young girls or very old ladies.
- (b) The selected sample market may not have all the features of the fully developed market.
- (5) **Opinion Sampling Approach**.: The ultimate of the final consumers are approached and their opinion about new products can be asked for. This research is done through questionnaires, direct interview and postal mail survey. For the introduction of a new product, trained representatives can be sent to give demonstrations and then seek opinions.

Limitations :

- (a) In case of questionnaires, the consumers may not be able to select the proper features from the multiple alternatives given.
- (b) The real opinions of consumers may not come forth without hesitation.
- (c) It is difficult to select those consumers who really know the nature and use of the product.
- (6) **Vicarious Approach** : Under the approach, reactions to new products are collected through dealers, salesmen, market consultants and professional experts. These people are assumed to be experts in finding out the consumers likes and dislikes. This is an indirect method. On the basis of the analysis, the potential demand for the new product is estimated.

Limitations :

- (a) This method is easy to implement but difficult to quantify.
- (b) It is a subjective method and hence may not have accuracy.
- (c) It is also subject to the prejudices of the experts. So results may be unrealistic.

Conclusion : All these different methods are not independent of one another. At the same time they are not substitutes. They can be considered to be complementary to one another.

Since demand forecasting is essential, it is advisable to use more than one approach. A single method cannot provide the needed information.

However, over and above the use of these different methods, the personal judgment of the researcher also is important and plays an important role in decision making.

3.6 Criteria or Conditions for Better Forecasting of Demand

- (1) **Accuracy** : This is the most important requirement. In predication total accuracy may not be possible. But accuracy in studying the data of past and present demand may help to have a fairly accurate forecast of the future demand. This will help to project the potential demand of the product after isolating many unimportant factors.
- (2) **Durability** : The techniques used for demand forecasting must be durable or valid even in the long run or the years to come. The demand function must explain the relationship between sales and the demand determinants for many years.
- (3) **Simplicity** : The estimates of demand must be worded in as simple a manner as possible. The management must be able to interpret the data easily.
- (4) **Flexibility** : The functional relationship of the demand function must be flexible to permit changes suited to the existing conditions. The variables of demand function should be adjustable. This will separate the uncontrolled variables from the controlled ones and provide proper estimation.
- (5) **Availability**: The techniques used for forecasting must give immediate results and the data must become available at once the demand function can be worked out on the basis of data available with the government agencies and news papers.
- (6) **Economy** : The cost of the methods of forecasting must balance with the better results obtained from proper forecasting. In simple words the methods must not be too expensive or the purpose of forecasting fails.
- (7) **Reliability** : The estimating experts must be able to provide the reliable information to the managers. The experts must be careful to select profit methods collect and study the data accurately and give really useful information.

Check Your Progress :-

1. What are the different approaches for Demand Forecasting of a New Product ?
2. Explain different conditions for Better demand forecasting.

7. Case Study :

Demand forecasting using Trend projection method :

This method is based upon past sales patterns. The data of past sales is used to fix current trend and then the current trend is used for exploring future trend.

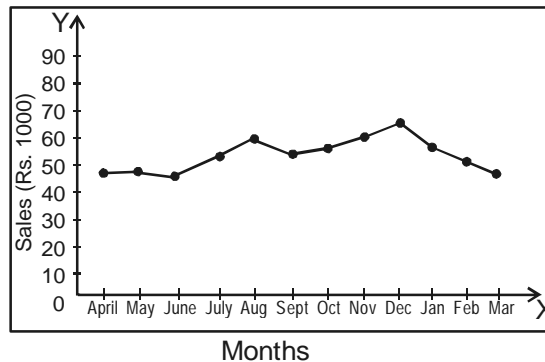
An established firm possess considerable data on past sales. If it is arranged in a chronological way then it becomes a Time Series data. On the basis of such a time series a graph can be drawn. This graph can show fluctuations occurred in the demand over a longer period of time. If the fluctuations are within the range then forecasting becomes easy. However, at any turning point the projection breaks down. If the turning points are few and spaced at long intervals, accurate forecasting becomes possible.

M/s. Shruti Interiors, is an enterprise located at Vasai, which is rapidly coming up. Due to increased urbanization the demand for furniture and other interior is at 600m.

Following table shows monthly sales for the year ended March 2005.

| Month | Sales (Rs.) |
|-----------|-------------|
| April | 48,000 |
| May | 50,000 |
| June | 48,000 |
| July | 62,000 |
| August | 66,000 |
| September | 55,000 |
| October | 56,000 |
| November | 64,000 |
| December | 75,000 |
| January | 60,000 |
| February | 52,000 |
| March | 47,000 |

Monthly sale for the year Ended March – 2005



It is observed that in the month of Dec., there is sharp increase in the sale. This increase in a sale was realized on account of the New Year and the festive season of Christmas.

3.4 Yearly Sales of M/s Shruti Interiors since the year 2000-01.

We can forecast the demand for the future years e.g. 2005-06 graphically. The forecast indicates a sale of Rs. 6,34,000/- for the year 2005-06

$$\Sigma Y = na + b\Sigma x \quad \dots (1)$$

$$\Sigma XY = a\Sigma x + b\Sigma x^2 \quad \dots (2)$$

From the following table we find a magnitude of required quantities from the original data.

3.4 Yearly sales of M/s Shruti Interiors since the year 2000-01

Table: 3.5

| Years | Sales (Rs.000) | X | X ² | XY |
|---------|-------------------|-----------------|-------------------|--------------------|
| 2000-01 | 544 | 1 | 1 | 544 |
| 2001-02 | 612 | 2 | 4 | 1224 |
| 2002-03 | 578 | 3 | 9 | 1734 |
| 2003-04 | 701 | 4 | 16 | 2804 |
| 2004-05 | 683 | 5 | 25 | 3415 |
| N = 5 | $\Sigma Y = 3118$ | $\Sigma X = 15$ | $\Sigma X^2 = 55$ | $\Sigma XY = 9721$ |

Substituting above values in equation (1) and (2) we get

$$3118 = 5a + 15b \quad \dots (3)$$

$$9721 = 15a + 55b \quad \dots (4)$$

Solving equation (3) & (4), we get, $b = 3.7$ so,

$$3118 = 5a + 15(3.7)$$

$$A = 612.5$$

Therefore the equation for the line of best fit is equal to $Y = 612.5 + 3.7 X$
Using this equation we find the trend values for the previous years and estimate the sales for 2005-06.

| | | | | | | |
|---------|---|-------|---|---------|---|-------|
| 2000-01 | = | 612.1 | + | 3.7 (1) | = | 615.8 |
| 2001-02 | = | 612.1 | + | 3.7 (2) | = | 619.5 |
| | = | 612.1 | + | 3.7 (3) | = | 623.2 |
| | = | 612.1 | + | 3.7 (4) | = | 626.9 |
| | = | 612.1 | + | 3.7 (5) | = | 630,6 |
| | = | 612.1 | + | 3.7 (6) | = | 634.3 |

Based on the trend projection equation, the forecast sales amounting to Rs. 6,34,300 is made for the year 2005-06.

3.7 SUMMARY

1. Demand forecasting hence, is a means of estimation of future demand conditions. In other words, it is an extension of the present demand.
2. Demand forecasting is based on the past market behaviour of consumers. It is also based on mathematical laws of probability.
3. Demand forecasting has to be done at three levels as given below:
 - (a) **At Micro Level** : for individual firms. This helps the management for production decision to avoid wastage.
 - (b) **At Industry Level** : This is done by trade associations.
 - (c) **At Macro Level** : This concept encompasses the whole economy. This forecasts the aggregate demand in the nation and helps determine the level of industrial production in the country.

4. Types of Demand Forecasting :

There are two types of forecasting :

- (1) Short Term forecasting.
- (2) Long Term forecasting.

5. The different methods of demand forecasting in nutshell are discussed below :

| Survey Method | Statistical Method |
|---|------------------------------------|
| (1) Consumers Survey (a) Complete square enumeration method (b) Sample survey (c) End-use method | (1) Trend projection(Least method) |
| (2) Expert's option. | (2) Barometric technique |
| (3) Simulated market situation. | (3) Regression method |
| (4) Controlled market experiments. | (4) Simultaneous equation method. |

6. Demand Forecasting for New Products :

For new products which are new to the economy and new to the company an intensive study of their qualitative and competitive features of products provide a guide to projection of demand.

The following approaches are recommended by T. J. Hailstones and J. C. Rothwell of Xavier University, America. Joel Dean has also contributed a great deal on this problem.

(1) Evolutionary Approach (2) Substitution Approach (3) Growth Curve Approach (4) Sales Experience Approach (5) Opinion Sampling Approach (6) Vicarious Approach.

7. Criteria or Conditions for Better Forecasting of Demand :

- (1) Accuracy
- (2) Durability
- (3) Simplicity
- (4) Flexibility
- (5) Availability
- (6) Economy
- (7) Reliability

3.8 Questions

1. What is demand forecasting ? What are the levels at which demand forecasting is done?
2. Explain the types of demand forecasting.
3. Discuss the importance of demand forecasting.
4. Write the objectives of demand forecasting.

5. Explain the various methods of demand forecasting. What are their advantages and disadvantages ?
 6. Enlist the different approaches of demand forecasting for new products with illustrations.
 7. What are the conditions needed for good demand forecasting ?
- (1) Project the trend of sales for the next two years.

| Year | 2000 | 2001 | 2002 | 2003 | 2004 |
|---------------------|------|------|------|------|------|
| Sales in (Rs. Lakh) | 83 | 92 | 71 | 90 | 169 |

Using the method of least squares, find the trend values for each of the 5 years. Also project the trend value of sales for the years.



Production and Cost Analysis

Unit Structure

- 4.0 Objectives
- 4.1 Introduction of Production and Cost Analysis
- 4.2 Production Function
- 4.3 Short Run Production Process
- 4.4 Long Run Production Process
- 4.5 Properties of isoquants
- 4.6 Returns to Scale
- 4.7 Optimum Choice of Firms
- 4.8 Optimum Factor Combination
- 4.9 Introduction of Cost Function
- 4.10 Short Run Cost
- 4.11 Determinants of Cost Function
- 4.12 Concepts of Costs
- 4.13 Relationship between Average Cost and marginal Cost
- 4.14 Short - Run Cost-Output Relationship
- 4.15 Long-Run Cost-Output Relationship
- 4.16 Economies and Diseconomies of Scale
- 4.17 Diseconomies of Scale
- 4.18 Economies of Scope
- 4.19 Measurement of economies of scope
- 4.20 Producer's Surplus
- 4.21 Cost Control & Cost Reduction

4.22 Introduction of Break-Even Analysis

4.23 Summary

4.24 Questions

4.0 Objectives

- To acquaint the students with concepts of Production and Production function
- To study the meaning Short run and Long run Production function
- To study the concept of Iso-quant and its properties.
- To explain the least cost factor combination.
- To understand the laws to return to scale.
- To study the different concepts of costs and its determinants.
- To understand the short run and long run Cost output relationship
- To familiar with the concept of economies and diseconomies of scale.
- To know the difference between cost control and cost reduction.
- To understand the concept of break even Analysis and its uses.

4.1 Introduction of Production and Cost Analysis

Production is a process of converting an input into a more valuable output. The analysis of demand is mainly used for planning the production processes and determining the level of production. For equilibrium, supply should be equal to demand. Production is an aspect of the supply side of the market.



The production theory stresses the efficient use of inputs for producing the desired output. This can be achieved either by using the minimum input to produce a defined level of output or producing maximum output for a given input. Moreover, production does not refer to just the physical transformation of resources. It also covers services. Thus, a production process also includes acquisition of capital resources, efficient employment of these resources, recruitment and training of employees, besides the normal mechanical process of converting raw material into finished goods.

Inputs can normally be combined in more than one way to produce output. Production analysis aims at determining this optimal combination of inputs so as to minimize the costs and hence maximize profits for a

given level of revenue. It also studies the inter- relationship between the various factors employed by a firm and their relationship with the output produced.

Production is the process of converting an input into a more valuable output. An input is anything that the firm buys for use in its production process. The goods produced for sale through such a process are known as output. The term processing includes transportation and storage in addition to its normal meaning of manufacturing activity.

4.2 Production Function

A production function is the technological relationship between the output and inputs. These inputs are also known as the factors of production. For any production process, the factors of production determine the output. Land, labour, capital, management and technology are the five major Determinants of any output. The dependent variable, output Q is a positive function of the independent variables, i.e. the factors of production. This can be demonstrated by an equation. That is,

$$Q = f (L_d, L, K, M, T) \dots\dots\dots (4.1)$$

Where,

Q = Output

L_d = Land employed in production

L = Labour employed in production

K = Capital employed in production

M = Management employed in production

T = Technology employed in production.

In economics, land does not only mean soil. It comprises of all the natural resources that have exchange value and can be used for producing goods. Such resources include air, light, heat and water, besides the soil surface. These resources can be renewable or non-renewable. Similarly, in economic theory, capital goes beyond money. It is that part of man's wealth, other than land, which yields income. It is not an original factor of production but a man-made instrument of production. It includes a whole stock of wealth consisting of machines, tools, raw material, fuel and consumables. Capital can be fixed or working. While the former capital can be used for production more than once till it finally wears out, the latter capital is a single-use producers' good. Labour denotes all kinds of work done by man for monetary reward. Management consists of bringing all these three factors of production together, putting them to work and seeking returns while bearing the associated risks.

The concept of production function can be better understood by considering two inputs for an output. Although any two inputs can be considered, we take labour and capital since they are the most important variables of all.

Thus,

$$Q = f(L, K)$$

Different combinations of the two inputs will produce different quantities of output. More inputs should logically produce more output. Say one unit of labour and one unit of capital produce one unit of output. Then more than one unit of labour and one unit of capital or one unit of labour and more than one unit of capital or more than one unit of both labour and capital will definitely produce more than one unit of output. This example can be generalized for X units of labour and Y units of capital producing Z units of output.

Table 4.1 illustrates this reasoning for say, a garment exporting company. The table gives the output matrix for cotton t-shirts for different combinations of inputs. For example, for 2 units of labour and 4 units of capital, the output is 15 t-shirts.

Table : 4.1, Two Input- One Output Production System

| L \ K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-------|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 5 | 8 | 12 | 18 | 22 | 25 | 28 | 30 |
| 2 | 3 | 4 | 7 | 10 | 14 | 20 | 25 | 27 | 30 | 31 |
| 3 | 7 | 8 | 10 | 13 | 17 | 23 | 29 | 31 | 32 | 33 |
| 4 | 11 | 12 | 14 | 16 | 21 | 27 | 33 | 35 | 36 | 37 |
| 5 | 16 | 17 | 19 | 21 | 26 | 32 | 36 | 40 | 41 | 43 |
| 6 | 22 | 24 | 26 | 29 | 34 | 39 | 43 | 46 | 48 | 49 |
| 7 | 26 | 28 | 31 | 34 | 39 | 44 | 49 | 51 | 53 | 54 |
| 8 | 29 | 31 | 33 | 38 | 43 | 49 | 53 | 55 | 57 | 58 |
| 9 | 30 | 32 | 35 | 41 | 47 | 52 | 55 | 58 | 60 | 61 |
| 10 | 31 | 33 | 37 | 43 | 49 | 53 | 57 | 59 | 61 | 62 |

This can also be explained the other way round. A given output of any commodity can be produced employing different quantities of labour and capital. Both the inputs are essential for producing the output and can be substitutes for each other. Different combinations of inputs can be used to produce a particular output. If one input is increased, then the

other will have to be decreased in order to maintain the output and vice versa.

From Table 4.1, for an output level of 20 t-shirts, a number of combination of inputs are possible. 1 unit of labour and 10 units of capital, 2 units of labour and 6 units of capital, 3 units of labour and 4 units of capital, 4 units of labour and 2 units of capital and 5 units of labour and 1 unit of capital all produce the same output of 20 t-shirts. Similarly for the output of 44, 75, 100 and 110 t-shirts there are several possible combinations of inputs. For the same quantum of capital ($K = 10$), the labour increases from 1 to 5 units when the output increases from 20 to 110 t-shirts.

The production process can be defined over 2 periods - **short run and long run**. In the short run, there are some factors which cannot be varied instantly. These factors are known as fixed factors. For example, labour supply depends on the population of the country which need several years to grow. Long run refers to that duration of time during which all the factors of production are variable factors.

A production function expresses the maximum level of output a firm can produce using a given level of inputs. Suppose that a firm requires two inputs-capital (K) and labour (L).

Its long run production function will be written as $q = f(K, L)$.

The short run production function will be $q = f(L, K')$

where K' is the fixed input.

4.3 Short Run Production Process

Average product (AP) is the total output divided by the amount of the input used to produce this output. Mathematically, AP for labour = $f(L, K') / L$.

Marginal product (MP) is the change in output produced by an additional unit of an input. Mathematically, MP for labor = $\Delta f(L, K') / \Delta L$.

Graphically, the MP is the slope of the total product curve or the production function. It indicates the rate of change in output as the input changes.

Law of Diminishing Marginal Product:

This law states that given the fixed **factor of production**, as the amount of the variable factor is increased, a certain stage is reached beyond which the MP declines. That is, the output produced increases but at a diminishing rate. On further increasing the variable factor, the output produced starts declining.

4.4 Long Run Production Process

Marginal Rate of Technical Substitution (MRTS):

The MRTS of K for L is the maximum amount of L that can be replaced by one unit of K such that the level of output produced remains unchanged. It is the slope of the isoquant. The slope of an isoquant is a measure of the marginal rate of technical substitution. The marginal rate of technical substitution is defined as the amount of one input factor that must be substituted for one unit of another input factor in order to maintain a constant output.

MRTS = Slope of an isoquant

$$\text{MRTS} = \Delta Y / \Delta X$$

The Marginal rate of technical substitution usually diminishes as the amount of substitution increases. Thus, the slope of an isoquant is also equal to the ratio of the marginal physical product of the inputs. Different points on an isoquant denote different combinations of inputs. As we move along an isoquant, from one combination of inputs to another, input is substituted for another.

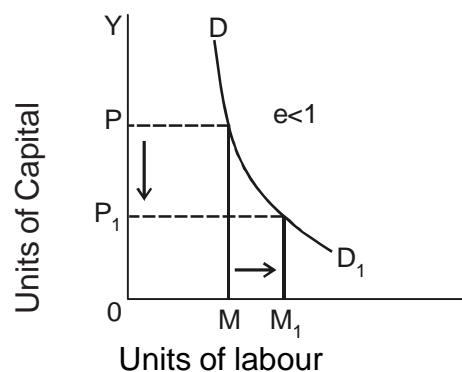


FIGURE 4.1 Substitutability of Inputs

$$\text{MRTS} = \frac{\Delta f(K, L) / \Delta K}{\Delta f(K, L) / \Delta L} \text{ which is equivalent to MP of K / MP of L.}$$

4.5 Properties of isoquants

1. Isoquants are negatively sloped because if the quantity of factor 1 used in production is decreased then the quantity of the other factor must be increased to produce the same amount of output.
2. Isoquants are convex to the origin. This is because of the principle of diminishing MRTS which states that as the more and more L is substituted by K, the MRTS decreases. Note that this principle is an extension of the law of diminishing MP.

3. Isoquant, which is farther from the origin, represents higher output.
4. Isoquants do not intersect each other.
5. Isoquants do not intersect either axes. However, in none of these combinations is an input equal to zero because labour and capital are necessary for producing any output. For similar reasons, isoquants also cannot cut the x- or the y-axis (depicting labour or the capital).

Elasticity of Substitution

This measures the relative change in the input ratios in response to the change in the MRTS. It is calculated by dividing the percentage change in L/K by the percentage change in the MRTS of K for L .

4.6 Returns to Scale

The law of diminishing marginal product applies in the short run when labour is the only variable input. In the long run, a firm can change the scale of production by varying all its input. How does the output change in that case? At the beginning of the period, there occurs increasing returns to scale followed by constant returns to scale. If the inputs are increased further then there is decreasing returns observed also.

Increasing returns to scale (IRS):

This implies that if all the inputs of the firm are increased Δ times then more than Δ times output will be produced. Mathematically, $f(\Delta K, \Delta L) > \Delta f(K, L)$. The IRS can be used in defence of mergers because one logical extension of this condition is that two identical small firms would produce more output if they were to combine their resources and become one large firm.

Constant returns to scale (CRS) : - If a firm increases the amount of all of its inputs Δ times and output also increases Δ times then the production function exhibits constant returns to scale, i.e., $f(\Delta K, \Delta L) = \Delta f(K, L)$.

Decreasing returns to scale (DRS) :- When a firm increases its inputs Δ times but the output produced is less than Δ times then the firm is said to exhibit decreasing returns to scale. $f(\Delta K, \Delta L) < \Delta f(K, L)$

4.7 Optimum Choice of Firms

The most important decision to be taken by a firm is about the amount of output to be produced. The objective of all firms is to maximize profit. Profit is the total revenue earned by the firm minus the costs incurred during production. Given the price of the product, the revenue of the firm

depends on the amount of the product produced. In order to maximize profit, a firm must minimize the costs of production given a level of output or it must maximize the output produced given the total expenditure. Therefore, the optimal choice of factor combinations depends on the technological possibilities of production.

Prices of factors used:

The cost of capital is called rent in economics while labourers need to be paid wages. Suppose that the rent is \$ r and wage is \$ w per day. The total cost to the firm will be

$$C = rK + wL$$

Where K and L are the quantities of capital and labour employed in the process.

For any given value of C , the equation can be plotted on a graph as a straight line with absolute slope equal to w/r . This line is called an isocost line.

Iso-cost line is the locus of factor combinations which can be purchased for a particular total cost.

The first graph shows how the isocost line will shift with changes in the total cost outlay. The isocost line will tilt inward or outward depending on the increase or decrease in the factor costs as illustrated in graph 2.

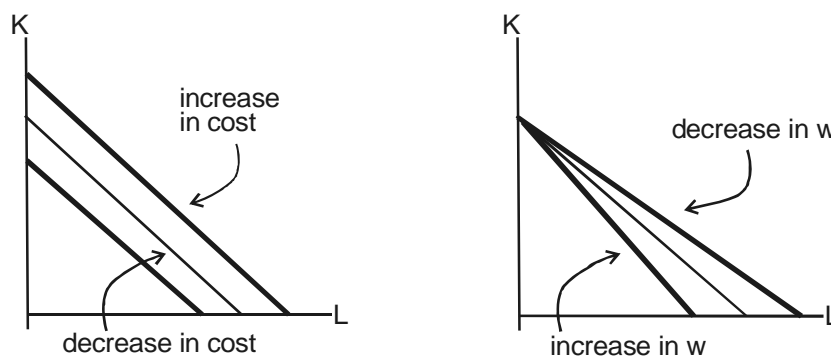


Figure 4.2

4.8 Optimum Factor Combination

To locate the point on the graph at which production should take place so as to maximize profit, the following condition must be satisfied.

At the optimal point (E), slope of the isoquant = slope of the isocost line which is equivalent to $MRTS = MP_K / MP_L = w / r$.

This will hold whether the firm attempts to maximize output subject to the cost constraint or minimize costs given the output level.

Careful notice the diagram below to understand how to solve the firm's problem graphically. At R and S, the input combinations required either do not produce the maximum possible output or are too costly for the firm. The solution, therefore, is

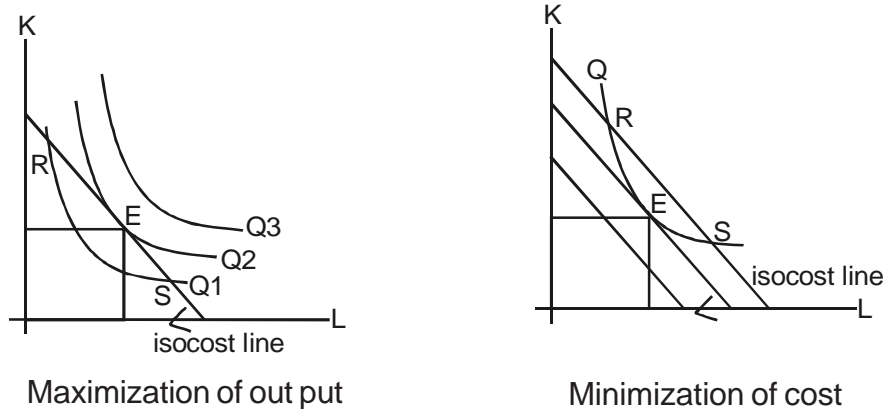


Figure 4.3

Finding the optimal factor combination graphically can be tiresome and not effective if there are more than 2 inputs involved. It then becomes necessary to use mathematics. The firm has to solve the constrained output maximization problem or the constrained cost minimization problem. Using the Lagrangian method we can also arrive at the solution mathematically. The solution will give us the amounts of input demanded by the firm to produce the optimal amount of output. The input combinations that solve the maximization problem are known as the demand function. The input amounts will be functions of the input and the product prices. On the other hand, the solution to the minimization problem are called the derived or conditional factor demand function and are dependent on the factor prices as well as the specified output level.

In the short run, output produced depends on the amounts variable factor employed. Then the condition for profit maximization becomes: $MP_L = w/p$, assuming labor is the variable factor and p is the price of the product.

Check Your Progress:

1. What is production ?
2. Explain production function. What Short run & long run production function?
3. Define Iso-quant. Describe its properties.
4. Explain the laws to Returns to scale.
5. What is Iso-cost line? Explain Optimum factor combination.

4.9 Introduction of Cost Function

A cost function expresses the relation between total cost and the cost minimizing level of output. Mathematically, $C = C(y)$ where y is the optimal output level.

A Cost Function expresses the relationship between cost and its determinants. Several factors influence cost. When their relationship to cost is expressed in a functional or mathematical form, it is called cost function. Symbolically,

$$C = f(S, O, P, T, \dots) \quad \dots 4.1$$

Where C is cost, S is size of plant, O is level of output, p is prices of input, and T is technology.

Cost function can be formulated for the short-run and the long-run depending upon the requirements of the firm. However, the short-run and Long-run function are interrelated. Cost function can be linear or non-linear depending upon the nature and behavior of cost.

4.10 Short Run Cost

In the short run there are two kinds of costs - fixed costs and variable costs. Fixed costs are the costs of the fixed factors and do not change with the changes in the level of output produced. Variable costs, which are the cost of the variable factors, change with the change in the production level.

$C(y) = TC = TFC + TVC$, where TC is total cost, TFC is total fixed cost and TVC is total variable cost.

If K and L are the fixed and variable factors respectively, whose prices are r and w then

$$TC = wL + rK.$$

Since L depends on the output produced,

$$TC = wL(y) + F \text{ where } F \text{ is a constant.}$$

4.11 Determinants of Cost Function

1. **Size of plant** : Size of plant or the scale of operation is inversely related to cost. As the size of plant increases costs decline, and vice versa.
2. **Output Level** : Total output and total cost are positively related to each other. As the level of total output increases, total cost also rises. This, however, does not apply to average cost and marginal cost. As the level of output increases, marginal cost and average cost decline initially, and rise thereafter.

3. **Prices of Inputs** : Input prices are again positively related to cost. Increase in the input prices brings a simultaneous rise in the cost. Change in cost depends upon the relative usage of the input and relative changes in their prices. For example, prices of wage-goods in India have a large bearing on the cost of final products.
4. **State Of Technology** : State and the nature of technology also influences cost. Modern technology is cost- efficient and cost- saving. The impact of technology on cost is generally expressed in terms of capital- output ratio.
5. **Managerial and Administrative Efficiency** : Managers are the controllers and monitors of the firms. Through efficient supervision, control and administration, they can improve the efficiency and productivity of factor-inputs, and thus economise the cost.

4.12 Concepts of Costs

a). Money Cost :

The normal Concept of cost which is most widely used is the money cost of production. It relates to the money expenditure of a firm by wages and salaries paid to labour, payment incurred on machinery and equipment, payment for materials, power, fuel, transportation etc. Payment for rent and insurance and payments to the government by way of taxes. Money costs, therefore relate to money outlays by a firm on factors of production which enables, the firm to produce and sell a product.

However, there are certain additional items which should be included in money cost of production. These are wages for the work performed by the owner, the normal return on money capital invested by him and rent of land building owned and used in production. Money Cost is further classified as i) Explicit cost and ii) Implicit cost.

i) Explicit Cost :

Explicit costs are direct contractual monetary payments incurred through market transaction.

Explicit costs refer to the actual money outlay or out of pocket expenditure of the firm to buy or hire the productive resources it needs in the process of production.

The following items of a firm's expenditure are explicit money costs:

1. Costs of raw materials,
2. Wages and salaries,
3. Power charges;
4. Rent of business or factory premises;

5. Interest payments of capital invested;
6. Insurance premiums;
7. Taxes like property tax, duties, license , fees etc.
8. Miscellaneous business expenses like marketing and advertising expenses (selling costs), transport cost, etc.

ii) Implicit Cost :

Implicit costs are the opportunity cost of the use of factors which a firm does not buy or hire, but already owns.

Implicit money costs are imputed payments which are not directly or actually paid out by the firms as no contractual disbursement is fixed for them. Such implicit money costs arises when the firm or entrepreneur supplies certain factors owned by himself. For instance, the entrepreneur may have his own land in production, for which no rent is to be paid in the actual sense. But this however, is to be reckoned as a cost, assuming that if the entrepreneur had rented this land to somebody, he would have definitely earned some rent. Hence, such rent is to be imputed and regarded as implicit money cost. Thus, implicit money costs are as follows:

1. Wages of labour rendered by the entrepreneur himself.
2. Interest on capital supplied by him.
3. Rent of land and premises belonging to the entrepreneur himself and used in his production.
4. Normal returns (profits) of entrepreneur, a compensation needed for his management and organizational activity.

b) Opportunity Cost :

Opportunity cost of producing a certain commodity is the value of the other commodity that the resources used in its production could have produced instead.

The concept of opportunity cost is the most important concept in economic theory. The concept is highly useful to each and every economic unit, may be a household, or a firm, or the government. Every action that we take involves an opportunity cost. For example, if you decide to buy the book of economics by paying Rs. 55, then you may have to forgo the purchase of a fountain pen, or a ticket of the cricket match, or snacks in a restaurant. The opportunity cost of the economics book is the next best alternative (say, a ticket of cricket match) that you had to sacrifice. If there is no sacrifice involved, then the opportunity cost is zero.

c) Fixed Costs & Variable Costs:

- Fixed costs are the costs of the fixed factors and do not change with the changes in the level of output produced. E.g. The rent of building

& factory, interest on borrowed capital, cost of plant & machinery, etc. are all fixed costs.

- Variable costs, which are the cost of the variable factors, change with the change in the production level. E.g. costs of raw materials, wages etc. are variable costs.

d) Real Cost :

Real costs refer to those payments which are made to factors of production to compensate for the toil and effort in rendering their services. According to Marshall, "The exertions of all the different kinds of labour that are directly or indirectly involved in making it, together with the abstinences or rather the waiting required. For saving the capital used in making it; all these sacrifices together will be called the real cost of production of the commodity." Real cost is computed in terms of the pain and the discomfort involved for labour when it is engaged in production, and also the abstinence and sacrifice involved in saving and capital accumulation. The concept of real cost, however, does not carry any significance in the cost of production because it is a subjective concept and lacks precision.

e) Incremental Cost and Sunk Cost :

The difference in cost as a result of a change in the level or the nature of business activity is called incremental cost or differential cost. It represents a change in costs resulting from a change in business activity arising out of, say, the introduction of new machinery or development of a new market. The concept is very useful in taking a decision on alternative opportunities.

Sunk costs are costs that are not altered by a change in quantity and cannot be recovered. Most business decisions require cost estimates that are essentially incremental. Those which are not affected by the contemplated change are called sunk or irrelevant cost. A clear example of sunk cost is depreciation without use, obsolescence etc.

f) Shutdown and Abandonment Cost :

Shutdown costs may be those which would be incurred in the event of a temporary cessation of business activities and which could be saved if operations were allowed to continue. Shut-down costs, besides fixed costs, cover the additional expenses in looking after the property not disposed of.

Abandonment costs are the costs of retiring a fixed asset from use. For example, a second hand plant installed in war time may not be useful during peace time. Abandonment thus involves permanent cessation of activity and raises the problem of the disposal of assets.

g) Economic Costs :

In the short run, at least one factor of production is fixed. Under such conditions, when output is increased, marginal product first goes on increasing, reaches a maximum and ultimately decreases. This happens due to change in proportion of factors. If marginal product does not diminish, it must either be constant or increasing. In either case a small amount of fixed factor and additions to the variable factor would enable a firm to produce any amount of commodity.

The nature of cost thus becomes clear from the above analysis, when viewed from economic point of view. According to 'Economic Cost Theory', the average and marginal cost, first declines, reaches a minimum and ultimately starts rising.

h) Total cost of production (TC) :

Total cost of production is the amount of money spent by the producer for producing a given output. As analysed, it includes the cost of labour, raw materials, rent of land and buildings, fuel and power, transport expenditure, advertisement etc. In short, the total amount of money spent by the producer would include the payments such as rent, wage, interest and normal profit. Normal profit is treated as the minimum remuneration to the entrepreneur. Hence it is included in the total cost of production.

There is direct relationship between total cost of production and the volume of output. However, they do not increase in the same proportion. Total cost increases at a diminishing rate in the initial stage and later increases at a faster rate as the total output increases.

Average Cost of production (AC) :

It is the cost per unit of output. In other words, it is a ratio between total cost and total output (TO). Hence, $AC = TO/TC$. The behavior of AC is that, in the initial stage, it keeps falling as the output increases at a faster rate. It reaches the minimum level beyond which the cost per unit rises. It happens because the total output increases at a diminishing rate.

Marginal Cost of production : (MC) :

It is the addition to total cost caused by producing one more unit of output.

Thus, $MC = \Delta TC / \Delta TO$, WHERE ΔTC IS ADDITION TO TOTAL COST AND ΔTO refer to additional output. Marginal cost also falls at first as output increases at a faster rate and then it slopes upward as further additions to total rate then it slopes upward as further additions to total output diminishes. The additional units of output will cost more.

Marginal Cost (MC):

MC is the addition to the total cost generated by increasing production by one unit. It is the slope of the TC curve. Mathematically, $MC = \Delta TC / \Delta y$.

The behaviour of the marginal product curve determines the MC curve, which is the inverse of the former.

Average Fixed Cost (AFC) :

It is the fixed cost per unit of output. It is ratio between total fixed cost and total output as $AFC = TFC/TO$. The nature of AFC is such that it falls continuously as output increases. As more and more units of output are sharing the same amount of cost. AFC will keep on falling. It reaches nearer to zero but will never be equal to zero. Further, AFC will remain constant if output also remains constant. Thus, AFC curves slopes downwards throughout its length.

Average Fixed Cost (AFC):

AFC is the fixed cost per unit of output.

$$AFC = TFC/y$$

Since the TFC is constant throughout the short run, as y increases AFC will decline. Therefore, the AFC curve is downward sloping.

Average Variable Cost (AVC) :

It is the variable cost per unit of output. It can be found out as $AVC = TVC/TO$. The behavior of total output when variable factors are employed will determine the nature of AVC. It falls initially because output increases at a faster rate. When more units of output are sharing comparatively less variable costs, AVC starts falling. In this way, it will reach the minimum point. Finally, AVC starts rising because the output increases at a diminishing rate. Thus, AVC curves unlike AFC curves, reaches a minimum after falling, and later rises at a faster rate.

Average Variable Cost (AVC):

AVC is the variable cost per unit of output.

$$AVC = TVC/y.$$

AVC will generally decrease as the output increases. But because of the operation of the law of diminishing marginal product, the AVC will rise after a certain point. Notice that it is a mirror image of the average product curve. Manipulating the formulae of both will prove that AVC is inversely related to AP.

Average Total Cost (ATC):

It is called short-run average cost. It is the total cost per unit of output. By adding AFC and AVC at each level of output, we can get ATC. On the

other hand, ATC can be obtained by dividing the TC (i.e. SC+VC) by the total output. Thus, $ATC = AFC + AVC$ or $ATC = TC/TO$. The behavior of ATC depends on the nature of AFC and AVC. As long as AVC falls with AFC, the ATC curves continues to fall. Though AVC after reaching the minimum, rise slightly, ATC keeps on falling. It happens because the fall in AFC is more than AVC which tends to reduce ATC. Further, at one level of output, ATC reaches its minimum points when the fall in AFC and the rise in AVC are equal. Finally, ATC curves rises when AVC rises at a faster rate which outweighs, the fall in AFC. Thus, ATC, like AVC, first, reaches a minimum and then rises. But, both the curves have different minimum points.

Average Total Cost (ATC):

ATC is the total cost per unit of output.

$$ATC = TC/y = (TFC + TVC)/y = AFC + AVC$$

ATC falls sharply at the beginning of the production process because both AVC and AFC are declining. When AVC begins rising but AFC is falling steeply, then the ATC continues to fall. Then the AVC rises sharply and offsets the fall in AFC causing the ATC to fall. The shape of the ATC curve is almost u-shaped.

1. **Total Fixed Cost (TFC)** : It is the costs pertaining to all fixed inputs like machinery, etc. at any given level of output.
2. **Total Variable Cost (TVC)**: It is the costs pertaining to all variable inputs like raw materials, etc. at any given level of output.
3. **Total Cost (TC)** It is the costs pertaining to the entire factor inputs at any given level of output. It is the total cost of production derived by aggregating total fixed and variable costs together.

Thus, $TC = TFC + TVC$.

4.13 Relationship between Average Cost and marginal Cost

Both average cost and marginal cost are derived from the total costs. Average cost is obtained by dividing total costs by the units of output. Marginal cost is the change in total costs resulting from a unit increase in output.

The relationship between marginal cost and average cost is exactly of the similar nature, and would be illustrated with the help of fig. based on cost schedule shown in fig. the various points of relationship between average cost and marginal cost can be summed up as follows :

- (i) When average cost falls with an increase in output, marginal cost is less than the average cost.
- (ii) Marginal cost begins to rise earlier than the average cost. Marginal cost curve cuts the average cost curve at its minimum point, (remember minimum point on the average cost curve is also the point of optimum capacity), i.e. at the point of optimum capacity, $MC = AC$.
- (iii) With increase in average cost, marginal cost rises at a faster rate.

This relationship between marginal cost and average cost will be found useful in the study of price-output trends.

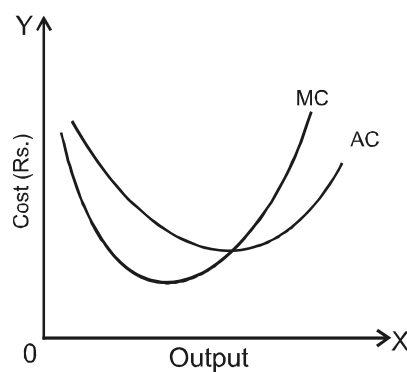


Figure 4.4 Relationship between AC & MC

Before to attempt to plot the cost curves, it is important to know the rules of averages and marginal quantities. According to these mathematical rules,

When $MC < AC$ then AC decreases.

When $MC > AC$ then AC rises.

When $MC = AC$ then average costs are at the minimum.

4.14 SHORT- RUN COST-OUTPUT RELATIONSHIP

The short-run cost-output relationship explains the behaviour of costs with varying levels of output in the short-run, i.e. for a particular plant size. It helps to determine the costs for different output levels for a given scale of operations. Since in the short run we have both fixed costs and variable costs, so the total cost is equal to the of both, the fixed costs and variable costs. Plants of varying sizes will display different cost-output behaviour.

The total cost (TC) for the short.run is given by

$$TC = TFC + TVC$$

$$\text{Average cost } AC = TC / Q$$

Average cost, $AC = AFC + AVC$

Marginal Cost $MC = \Delta TC / \Delta Q$

As the fixed costs and variable costs vary differently with the changes in output, we shall first discuss them individually and later together to understand the behavior of total cost. The relationship between the two is explained in the following Table 4.2

Table 4.2

| Q | TFC | TVC | TC | MC | AFC | AVC | ATC |
|----|-----|-----|-----|-----|-----|-----|-----|
| 0 | 240 | 0 | 240 | - | - | - | - |
| 1 | 240 | 70 | 310 | 70 | 240 | 70 | 310 |
| 2 | 240 | 130 | 370 | 60 | 120 | 65 | 185 |
| 3 | 240 | 180 | 420 | 50 | 80 | 60 | 140 |
| Q | TFC | TVC | TC | MC | AFC | AVC | ATC |
| 4 | 240 | 220 | 460 | 40 | 60 | 55 | 115 |
| 5 | 240 | 250 | 490 | 30 | 48 | 50 | 98 |
| 6 | 240 | 270 | 510 | 20 | 40 | 45 | 85 |
| 7 | 240 | 294 | 534 | 24 | 34 | 42 | 76 |
| 8 | 240 | 360 | 600 | 66 | 30 | 45 | 75 |
| 9 | 240 | 495 | 735 | 135 | 27 | 55 | 82 |
| 10 | 240 | 700 | 940 | 205 | 24 | 70 | 94 |

The total fixed cost remains constant with an increase in output. Accordingly, the average fixed cost decreases. But this decrease is not linear. The rate of fall of average fixed cost goes on decreasing as the output increases. The total variable cost increases with the increase in output. It increases in variable proportions, first at a diminishing rate for a certain range of output and then at an increasing rate. The law of diminishing returns forms the basis of this behaviour.

A practical example will better illustrate the behaviour of total variable costs. Consider the case of a shirt manufacturing company. Let the fixed cost comprise the cost of land, building and machines for cutting, stitching and packing. Initially, even a producing one shirt, one person each will have to be employed for cutting, stitching and packing. Assume that raw material like cloth, thread, etc. are available in the least divisible quantities. The labour will be underutilized in the beginning. Each labour can complete at least ten jobs per day. In that case, the firm doesn't need any additional

labour for producing two shirts. However, the requirement for raw material would accordingly double.

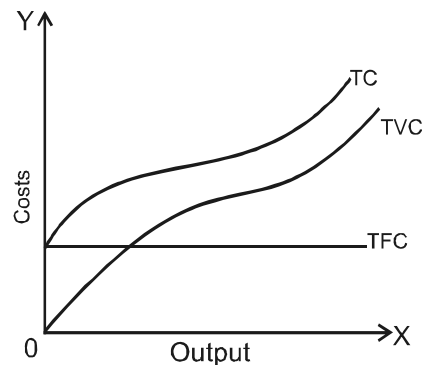


Figure 4.5 Short run Total cost- output relationship

The other variable costs such as water, power, etc. will also increase. In all, the total variable cost increases for producing two shirts as compared to one shirt but it does not double. Thus, up to a certain level of output, the total variable cost increases, but at a decreasing rate. Beyond ten shirts per day, the firm will require more labour and raw material. This will lead to a spurt in the total variable cost. It will thereafter increase at an increasing rate. Taking the behavior of total fixed cost and total variable cost as given in Table and Figure, average fixed cost, average variable cost, total cost, average total cost and marginal cost easily be calculated using simple mathematics.

The resultant curves for all these costs have been plotted in above Figure. The average total cost decreases with an increase in the output, although at a diminishing rate. The average variable and average total costs first fall, form a bottom and then rise beyond a certain output level. The average variable cost remains below the average total cost. The marginal cost also behaves in a similar fashion with the only difference being that its rate of fall and rise is greater than the average variable and average total costs. Thus, the marginal cost attains a lower bottom than the average variable cost and the average total cost. It also becomes minimum at a lower output level compared to the average variable cost which in turn achieves its lowest point before the average total cost. The marginal cost curve cuts the average variable curve and average total cost curve from below at their minimum points and rises above them.

In other words, if MC, AVC and ATC attain their lowest values at output levels of Q_1 , Q_2 and Q_3 , respectively, then $Q_1 < Q_2 < Q_3$ and MC cuts AVC from below at Q_2 and ATC from below at Q_3 output level.

It may be noted that the shape of the total cost curve in the short-run is a function of the productivity of the variable input factors. The productivity of variable factors increases up to a certain output beyond which it decreases. When the productivity of variable inputs increases, each additional unit of output will require less of the variable input factors. Keeping all the other factors constant, this would mean less cost. Thus the total cost will change by a smaller amount for every additional unit of output. In other words, the marginal cost will decrease. For similar reasons, when the productivity of the variable input factors decreases after a particular level, the marginal cost increases.

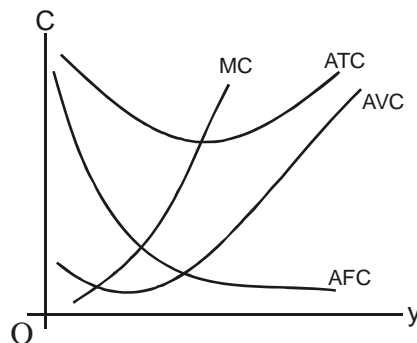


Figure 4.6 Short run behavior of costs curves.

4.15 LONG-RUN COST-OUTPUT RELATIONSHIP

Long Run:

In the short run, the size of the plant is fixed whereas in the long run a firm can adjust its plant size. One of the choices in the long run will be the short run plant size. That is, a particular level of output will be the optimum choice in both periods. So, short run average cost curves must be tangent to the long run average cost curve. A long run involves several short runs. Consequently, the long run average cost curve will be the lower envelope of the short run cost curves.

Long-run cost-output relationship explores the behaviour of cost to the changes in output when even the plant size is varying, i.e. all the factors inputs are variable. There is no cost that remains fixed in the long-run. Thus, the long-run cost curve will be a composite for several short-run cost curves, one each for a different plant size. In each of the short-run average total cost curves shown in Figure. The lowest point of the curve denotes the optimal combination of inputs for a particular plant size or scale of operations. If such points when joined will again give a curve of similar nature but of course flatter than the individual short-run curves. This is termed as the long-run average cost curve. It can be observed that

the long-run average cost curve is an envelope of the family of short run average cost curves.

Long run Cost –Output relationship : average cost curve or envelope shaped LAC

The firm chooses that amount of fixed factors to minimize the average costs. In the long run marginal cost curves will consist of different parts of the short run marginal cost curves for each level of the fixed factor. The long run MC will be u-shaped and will intersect the long run average curve at the minimum.

While Q1, Q2, Q3 are the least cost-input combinations for different plant sizes 1, 2, & 3 and Q2 is the least cost plant size for a given technology. As is evident Figure . Q2 is the minimum point of the long-run average cost curve. As against a limited number of operating options available with the firm in the short run, when it is constrained to operate with a given plant size; in the long-run since even the plant size is variable, the firm has a wide range of output levels on which it can operate.

The U-shaped long-run average cost curve shows that the production system first witnesses an increase and then a decrease as it returns to scale. The long-run total cost also has a varying relationship with output.

Check Your Progress:

1. What is Cost & Cost function ?
2. Explain the different concepts of costs.
3. Explain the determinants of cost function.
4. Explain Short run cost-output relationship.
5. Long run cost-output relationship.

4.16 ECONOMIES AND DISECONOMIES OF SCALE

(A) Economies of Scale :

An economy of scale exists when large scale production is associated with lower per unit cost. Large scale production requires large scale input.

Large scale production or output is economical if the cost of production is low. It is a result of economies of scale.

The concept of economies of scale may be defined in two sense :

- (a) Broad sense and (b) Narrow Sense.

Definition :

- (a) In a broad sense, “anything which serves to minimize average cost of production in the long run, as scale of output increases is referred as economies of scale. It is measured in terms of money”.
- (b) In a narrow sense, “economies of scale, means increasing the scale of production leads to lower cost per unit of output. Real economies are measured in physical terms”.

The concept of returns to scale is closely linked to that of economies of scale.

The neo-classical economist Dr. Alfred Marshall has classified economies of scale into:

- (1) Internal Economies of scale.
- (2) External Economies of scale.

(1) Internal Economies of scale :

Internal economies are those economies which are open to an individual firm, when its scale of operation changes.

Internal economies in the long run is due to :

- (a) Expansion of size of a firm.
- (b) Benefit enjoyed exclusively by expanding firms only.
- (c) Costs are borne by the expanding firm only.

Types or Forms of Internal Economies : The important types of internal economies are as follows :

- (i) **Labour Economies :** Adam Smith has explained this concept. Division of labour or specialization of labour is always more productive. Every specialized labourer is extremely good in his share of work. This will reduce the cost per unit in any large firm. If the firm offers vertical mobility (promotion chances) to the specialized labourer, then more workers will be willing to join the firm. By increasing labour specialization, the productivity increases in an efficient manner.
- (ii) **Technical Economies :** Technical economies are associated with all types of machines and equipments used by a large firm. A large firm can use a superior technique of production and reduce its average cost by increasing its output. Technical economies are classified as follow:
 - (a) **Economies of Indivisibility :** When a firm's output is small, many fixed factors are under utilized. Mrs. Joan Robinson refers to economies of factor indivisibility. If a firm's output is expanded, the fixed factor can be fully utilized to reduce average cost of the firm. Prof. Cairn Cross classifies technical economies into five types.

- (b) **Economies of Superior Technique** : As a firm expands, it can afford to pay for costly machines and install them. A small firm cannot afford costly high quality machine.

The high cost of such machines can be spread over a larger output which they help to produce.

- (c) **Economies of Increased Dimension** : The installation of large machines itself gives many advantages to the firm. The construction and operating cost of a large machine is relatively lower than a small one. e.g. the cost of manufacturing a double decker bus is lower than two single decker buses.

- (d) **Economies of Linked Process** : A large firm enjoys the advantage by linking the various processes of production, e.g. A large sugar industry can own its sugarcane farms, produce sugar, pack it in bags, transport and distribute it through its own transport. Thus, by linking various process of production, a firm is able to reduce its cost of production per unit.

- (e) **Economies of By-Products** : A large firm can make more use of its raw material and is able to utilize waste material as a by-product. e.g. the molasses left over after manufacturing sugar from the sugarcane can be used for producing spirit by installing a plant for the purpose.

- (f) **Economies in Power Consumption** : A large firm which operates large machines and runs them continuously are often more economical in their power consumption as compared to small machines.

- (iii) **Managerial Economies** : Managerial economies is related to efficient management. Managerial resources can be fully utilized, in the long run when a firm expands its scale of operation. Managerial economies also reduces the per unit cost because of two types of specialization.

(a) Delegations of details to subordinates.

(b) Functional specialization.

Routine work can be delegated to subordinates.

Functional specialization leads to decentralization such as production management, sales management, accounts department etc.

- (iv) **Marketing Economies** : Marketing economies are also described as commercial economies. Marketing economies refers to the benefits that a firm derives from buying and selling. A large firm enjoys two fold benefits.

- (a) A firm can buy its bulk raw material at lower price.
- (b) A firm sell its large output more profitably.

Thus a large firm is able to reap the economies of marketing through its superior bargaining power and efficient packing and sales organization.

- (v) **Financial Economies:** A large firm has several benefits. Due to its reputation, it can easily raise its share capital and other types of capital such as loans and debentures. A large firm has better borrowing capacity from banks and other financial institutions, From the investors point of view big firms are regarded as less risky due to their reputations in money market and capital markets.
- (vi) **Risk Bearing Economies :** A big firm is in a better position than a small firm in reducing its risk. A big firm is able to spread its risk over into a number of operations such as :
 - (a) **by large scale operation :** Because of large scale operation, the percentage of risk involved is greatly reduced. e.g, Suppose a firm incurs loss of Rs. 6 lakh in its business, if its capital investment is Rs. 60 lakh, then loss is 10%. But for a firm with an investment of Rs. 60 crores the loss is 0.01%. Hence, it is negligible.
 - (b) **by diversification of output :** If a big firm is engaged in number of various products, then loss in one can be compensated by gain in other, e.g. Hindustan Lever Ltd. Is producing soap, detergent, tooth paste, talcum powder etc. thereby spreading their risks.
 - (c) **by diversification of process and suppliers :** A big firm can spread its risk by using more than one process of production. It can avoid risks by ordering raw materials and inputs from more than one suppliers.
 - (d) **by diversification of markets :** A big firm can reduce its risk by supplying its products to more than one market. So that the danger of demand function can be reduced. It can counter balance the fall in demand in one market by the increased demand in other markets.

(B) External Economies of scale:

According to Prof. Viner, external economies occur to a firm in an industry due to technological influences on its output which reduces its cost of production.

Definition : A firm's cost per unit of output decreases, as the size of the whole industry grows :

External economies, in the long run is due to :

- (a) Expansion of industry i.e. increase in number of firms.
- (b) Benefit enjoyed by all firms in common.

- (c) Costs are shared in common by all firms.

Types or Forms of External Economies :

- (i) **Economies of Localization:** When a number of firms are located in one place, it brings several benefits to all firms. The benefits are in the form of common training institutes and development of infrastructural facilities, such as, roads, railways, financial institutions, marketing services, availability of skilled labourers etc. E.g. Sugar industry in Eastern U.P., Maharashtra, Bihar etc. Jute industry in West Bengal, cotton Textile industry in Maharashtra and Gujarat.
- (ii) **Economies of Information:** A large and growing industry can derive benefits in the form of common journals, bulletins, and other research publications, which provides important information regarding modern technology, market conditions etc. In a large industry research work can be done jointly or there can be a research laboratory.
- (iii) **Economies of Disintegration:** In a big industry it is possible to split production and establish subsidiary and ancillary firms, as an industry grows, which supplies spare parts to firms in the industry. e. g. Automobile industry, there are separate firms which manufactures radiators, carburetors, chassis, electrical equipments etc. These ancillary firms meet the aggregate demand of the automobile industry.
- (iv) **Economies of By-products :** A big industry can make use of waste material for manufacturing by-products. e. g. Molasses in sugar industry, iron scrap in steel industry. All the firm in an industry are able to reduce per unit cost in two ways :
 - (a) They do not incur expenses in disposing off the waste materials.
 - (b) They earn some amount by selling them to manufacturers of by products.

4.17 Diseconomies of Scale

Diseconomies of scale exist, if the scale of production is continuously expanded. It is possible that after a certain point increase in production, leads to higher per unit cost. Many economists believe that such a stage can and does arise, if the production is pushed beyond the optimum scale.

Definition : “Diseconomies of Scale refers to a stage where cost per unit output increases as the scale of production increases”.

This is a disadvantage of large scale production. It results from the firm's own internal organization. As the industry increases its production, then in the long run the Average Total Cost (ATC) also increases.

The diseconomies of scale are classified as :

- (1) Internal Diseconomies of scale.
- (2) External diseconomies of scale.

(1) Internal Diseconomies of scale :

The following factors bring about internal diseconomies :

- (i) **Co-ordination and Administration** : As the production increases, it may go beyond the level of efficient administration. It becomes difficult to run the plant coordinating various factors like labour, advertisement, marketing etc.
- (ii) **Supervision and Management** : When production increases to more than optimum level, supervising every step of production and managing all the problems that arise continuously become really impossible.
- (iii) **Labour Problems** : The concept of division of labour will make it necessary to employ more number of laborers. (because, each worker can do only one job). When the number of workers increases, it becomes difficult to have personal contact with them. This results in dissatisfaction among workers, resulting in disputes and inefficiency.
- (iv) **Financial Problems** : As production increases, the expenses mount up. Wage bill becomes enormous. Raw materials cost more. With more supply, advertisement becomes necessary. This is expensive. Marketing strategies cost more money. Capital has to be continuously increased. Getting adequate finance may become a challenge.
- (v) **Increased risk** : As the scale of production increases, the extent of risk also becomes more. There is huge capital investment. Hence any problem which stops production or sale of the products will result in excessive losses to the producer.

(2) External diseconomies of scale :

The following factors cause external diseconomies.

- (i) **Pressure on Infrastructure** : When production increases, there are other demands on the economic overheads of a nation (infrastructure). The transportation system must expand to shift the raw materials and goods. The communication system must be effective. Roads and highways have to increase. Water and electricity must be adequate. If production and infrastructure do not expand simultaneously, then problems will arise.
- (ii) **Competition** : The competition among the various firms of an industry will increase the overall cost. The cost of labour, raw

materials advertising, marketing etc. will increase. These will be a lot of wasteful expenditure will reduce the profit.

- (iii) **Over Crowding** : Increase in production will require more machines, more labourers, more storage and vast space. Lack of such space will result in overcrowding. Work will become inefficient.
- (iv) **Demand for Markets** : With increase in production, supply will be large. Goods will have to find a market. The problems in finding a market are as follows:
 - (a) **Location of Consumers** : The consumers may be scattered all over the nation. It becomes difficult to transport good to far off places without increasing the price of the product.
 - (b) **Psychology of the Consumers** : The same commodity may be manufactured by different firms. Each of them may have slight variations. It becomes necessary to advertise these variations for the knowledge of the consumer (increasing the advertisement cost). The consumers may get attracted to the product of one firm and prefer it to that of another firm. The marketing war between Coca Cola and Pepsi is a good example.
 - (c) **Impossibility in Catering to Individual Tastes** : When goods are mass produced, there cannot be any variations to suit individual tastes. Goods become standardized and not custom made.
 - (d) **Fall in Profits** : When production increases, the supply becomes large. If demand does not rise equally, then there is a glut of products, in the market. They cannot be stored permanently. They have to be sold. So the price falls and profits often reduces.

Due to these diseconomies of scale, there are limitations for over expansion of industries.

4.18 Economies of Scope

The concept of economies of scope is of recent development and is different from the concept of economies of scale.

A firm enjoys some advantages if it produces more than one product. These advantages could result from the joint use of inputs, joint marketing or possibly the cost saving of a common administration. The cost efficiency in production is brought out by variety rather than volume, e.g. product diversification. A firm can add new and newer products if the size of plant and type of technology make it possible. The production of one product gives an automatic and unavoidable by-product that is valuable to the firm. These advantages are known as economies of scope.

As a matter of fact, many firms produce two or more products. Maruti Udyog Ltd. Is a multi product producer. Coke India is a multi product producer.

If a firm has to suffer some disadvantages if it produces more than one product, these are known as diseconomies of scope.

Economies & Diseconomies of scope is defined as :

Economies of scope are present when a firm's joint output of a single firm is greater than the output that could be achieved by two different firms each producing a single product.

Diseconomies of scope occur when a firm's joint output is less than that which could be achieved by separate firms.

Economies of scale and Economies of Scope : There is no direct relationship between economies of scale and economies of scope. A two commodity producing firm can enjoy economies of scope even if its production process involves diseconomies of scale.

Table 4.3 Distinction between Economies of Scope & Economies of Scale :

| Economies of scope | Economies of scale |
|---|---------------------------------|
| 1. Cost advantages from variety | 1. Cost advantages from volume. |
| 2. Product diversification within same scale of plant | 2. Standardization |
| 3. Same plant or equipments produce multiple products | 3. Larger Plant |

4.19 Measurement of economies of scope

Economies of scope can be measured in terms of saving in cost of production when two or more products are produced jointly rather than individually. Saving in cost of production can be measured with the help of following equation.

$$SC = \frac{TC(Q_A) + TC(Q_A + Q_B)}{TC(Q_A + Q_B)} \quad \text{..... (6.17)}$$

Where

SC Economies of scope
 TC (Q_A) Total cost of producing Q_A units of commodity – A
 TC (Q_B) → Total cost of producing Q_B units of commodity – B
 TC (Q_A + Q_B) → Total cost of producing Q_A units of commodity – A &

Q_B B units of commodity – B jointly.

Illustration :

Consider a firm that can produce both stationary and notebook paper. The total cost of producing 1000 reams of stationary is Rs. 40,000 and the cost of producing 1000 reams of notebook paper is RS. 30,000. If the firm produces only one of these products. However 1000 reams of each type of paper can be produced for a total of Rs. 60,000 if both are produced jointly by a single firm. The economies of scope can be measured as

$$\begin{aligned} SC &= \frac{(40,000 + 30,000) - 60,000}{60,000} \\ &= \frac{70,000 - 60,000}{60,000} = \frac{10,000}{60,000} \\ &= 0.17 \text{ or } 17\% \end{aligned}$$

In this case 17% reduction in total costs associated with producing both products instead of just one.

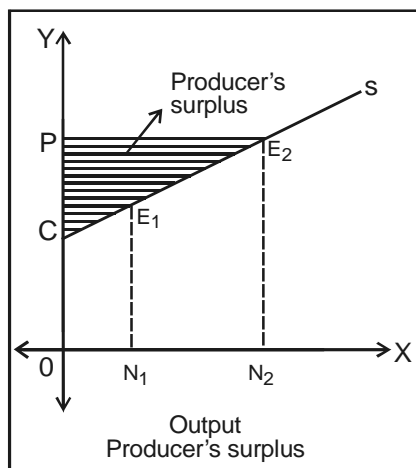
Economies of scope If SC is greater than zero (i.e. + ve)

Diseconomies of scope If Sc is lesser than zero (i.e. – ve)

4.20 Producer's Surplus

Producers' surplus can be defined as the excess money receipts of a producer over his minimum supply price.

$$\text{Producer's surplus} = \text{Receipts of producer} - \text{Minimum Supply price}$$



In diagram, the output is measured on X-axis and price of a product is measured on Y-axis. The minimum supply price is shown by upward sloping 'CS'. At the market price OP the producer is willing to supply ON₁ units. One can indicate different units of output that can be supplied by the producer at the price range between OC and OP. e.g. ON₁ units would be supplied by the producer at OP price per unit. Thus the producer earns a surplus equal to the difference between E₂ N₂ and E₁ N₁. Likewise, we can indicate such difference for all the output levels between O to N₂.

The area PCE, represents the producers surplus as per formula ;

$$\begin{aligned}
 \text{Producers Surplus} &= \text{Total receipts} - \text{minimum supply price} \\
 &= OPE_2 N_2 - OCE_2 N_2 \\
 &= \text{PCE, (SHADED AREA IN THE DIG.)}
 \end{aligned}$$

4.21 Cost Control & Cost Reduction

Cost control and reduction refers to the efforts business managers make to monitor, evaluate, and trim expenditures. These efforts might be part of a formal, company-wide program or might be informal in nature and limited to a single individual or department. In either case, however, cost control is a particularly important area of focus for small businesses, which often have limited amounts of time and money. Even seemingly insignificant expenditures—for such items as office supplies, telephone bills, or overnight delivery services—can add up for small businesses. On the plus side, these minor expenditures can often provide sources of cost savings.

4. 21. 1 Planning and Control:

Cost control refers to management's effort to influence the actions of individuals who are responsible for performing tasks, incurring costs, and generating revenues. First managers plan the way they want people to perform, then they implement procedures to determine whether actual performance complies with these plans. Cost control is a continuous process that begins with the annual budget. As the fiscal year progresses, management compares actual results to those projected in the budget and incorporates into the new plan the lessons learned from its evaluation of current operations. Through the budget process and accounting controls, management establishes overall company objectives, defines the centers of responsibility, determines specific objectives for each responsibility center, and designs procedures and standards for reporting and evaluation.

A budget segments the business into its components, or centers, where the responsible party initiates and controls action. Responsibility centers represent applicable organizational units, functions, departments,

and divisions. Generally a single individual heads the responsibility center exercising substantial, if not complete, control over the activities of people or processes within the center, as well as the results of their activity. Cost centers are accountable only for expenses. Revenue centers primarily generate revenues. Profit centers accept responsibility for both revenues and expenses. The use of responsibility centers allows management to design control reports and pinpoint accountability. A budget also sets standards to indicate the level of activity expected from each responsible person or decision unit, and the amount of resources that a responsible party should use in achieving that level of activity.

The planning process, then, provides for two types of control mechanisms: feed forward, which provides a basis for control at the point of action (the decision point); and feedback, which provides a basis for measuring the effectiveness of control after implementation. Management's role is to feed forward a futuristic vision of where the company is going and how it is to get there, and to make clear decisions coordinating and directing employee activities. Management also oversees the development of procedures to collect, record, and evaluate feedback.

4.21.2 Control Reports:

Control reports are informational reports that tell management about a company's activities. Control reports are only for internal use, and therefore management directs the accounting department to develop tailor-made reporting formats. Accounting provides management with a format designed to detect variations that need investigating. In addition, management also refers to conventional reports such as the income statement and balance sheet, and to external reports on the general economy and the specific industry.

Control reports need to provide an adequate amount of information so that management may determine the reasons for any cost variances from the original budget. A good control report highlights significant information by focusing management's attention on those items in which actual performance significantly differs from the standard.

Managers perform effectively when they attain the goals and objectives set by the budget. With respect to profits, managers succeed by the degree to which revenues continually exceed expenses. In applying the following simple formula, $\text{Net Profit} = \text{Revenue} - \text{Expenses}$, managers realize that they exercise more control over expenses than they do over revenues. While they cannot predict the timing and volume of actual sales, they can determine the utilization rate of most of their resources; that is,

they can influence the cost side. Hence, the evaluation of management's performance and the company's operations is cost control.

4.21.3 Standards:

For cost control purposes, a budget provides standard costs. As management constructs budgets, it lays out a road map to guide its efforts. It states a number of assumptions about the relationships and interaction among the economy, market dynamics, the abilities of its sales force, and its capacity to provide the proper quantity and quality of products demanded. An examination of the details of the budget calculations and assumptions reveals that management expects operations to produce the required amount of units within a certain cost range. Management bases its expectations and projections on the best historical and current information, as well as its best business judgment.

For example, when calculating budget expenses, management's review of the historic and current data might strongly suggest that the production of 1,000 units of a certain luxury item will cost Rs.100,000, or Rs.100 per unit. In addition, management might determine that the sales force will expend about Rs.80,000 to sell the 1,000 units. This is a sales expenditure of Rs.80 per unit. With total expenditures of Rs.180, management sets the selling price of Rs.500 for this luxury item. At the close of a month, management compares the actual results of that month to the standard costs to determine the degree and direction of any variance. The purpose for analyzing variances is to identify areas where costs need containment.

In the above illustration, accounting indicates to management that the sales force sold 100 units for a gross revenue of Rs.50,000. Accounting's data also shows that the sales force spent Rs.7,000 that month, and that production incurred Rs.12,000 in expenses. While revenue was on target, actual sales expense came in less than the projected, with a per unit cost of Rs.70. This is a favorable variance. But production expenses registered an unfavorable variance since actual expenditures exceeded the projected. The company produced units at Rs.120 per item, Rs.20 more than projected. This variance of 20 percent significantly differs from the standard costs of Rs.100 and would likely cause management to take corrective action. As part of the control function, management compares actual performance to predetermined standards and makes changes when necessary to correct variances from the standards. The preparation of budgets and control reports, and the resulting analysis of variances from performance standards, give managers an idea of where to focus their attention to achieve cost reductions.

4.21.4 Cost Cutting for Small Businesses:

A variety of techniques can be employed to help a small business cut its costs. One method of cost reduction available to small businesses is hiring an outside analyst or consultant. These individuals may be independent consultants or accountants who analyze costs as a special service to their clients. They generally undertake an in-depth, objective review of a company's expenditures and make recommendations about where costs can be better controlled or reduced. Some expense-reduction analysts charge a basic, up-front fee, while others collect a percentage of the savings that accrue to the company as a result of their work. Still others contract with specific vendors and then pool the orders of their client companies to obtain a discount. Some of the potential benefits of using a consultant include saving time for the small business owner, raising awareness of costs in the company, and negotiating more favorable contracts with vendors and suppliers.

It may be helpful to compare the prices in office-supply catalogs to those offered by local stores, and to purchase supplies in bulk at a discount if possible. Some small businesses are able to form purchasing cooperatives with other small businesses in order to buy in larger quantities and negotiate better prices. After comparing the various options available and finding the lowest prices, The small business owners take those numbers back to their original vendors and ask them to meet the lowest price. Many vendors are willing to do so in order to avoid losing business.

Despite the importance of cost control to small businesses, and the potential for cost savings, It is warning for small business owners that cost reduction alone cannot guarantee success. To improve profits, you also need more sales and adequate margins.

In fact, overzealous cost cutting can sometimes reduce a company's potential for growth. Instead of blindly trying to cut costs in the face of crisis, it is recommended that managers embrace cost cutting as a strategic issue and approach the task from a marketing perspective.

4.21.5 The Difference between Cost Control & Cost Reduction:

Cost Control - a method whereby costs are managed and monitored to ensure they do not grow beyond the projected amount.

Cost Reduction - a method whereby costs are reduced from the projected amount.

Cost Control:-

When overseeing the construction of a large building, the cost for various components of the building will vary. At the initial phase of construction (during the concept & budgeting phases), it may have been

projected that the glass for all the windows would cost a total of \$35,000. A large project like this can take time, though, so by the time the building is far enough along in the construction phase to need the glass, the cost for the glass may have risen to \$42,000 (rising fuel prices, natural disasters, shortage of raw materials, etc). Therefore the cost will increase for this one component of the building, which impacts the overall cost of the building itself. But, to compensate, you can control the overall cost of the building by buying less expensive materials for the remainder of the project, such as carpeting, door hardware, and even plumbing fixtures and outdoor landscaping. This adjustment could be considered Cost Control, in that you are controlling the overall costs of the project and making compensations and adjustment to ensure the final price tag for the building does not grow beyond the projected amount.

Cost Reduction:-

When producing a particular product, the manufacturing of that product (say, a tennis shoe) is comprised of many individual components. Over time, the market can not pay you more for the product you manufacture (consumer spending is down), so you can apply some methods to reduce the costs you pay to make that product. The price to the consumer does not change, but your expense-to-income ratio gap is increased, which leaves you with more profit. As an example, one of the materials you use to make the tennis shoes is shipped from a supplier three states away. You learn that you can buy more of this material from the supplier and have it shipped by rail rather than the smaller shipments that were trucked in each week. Since the cost for fuel has risen, the trucking company is charging you more for each shipment. To reduce the overall cost of obtaining this material, you use a bulk-buy-ship method. The supplier sells this material to you at a cheaper rate since you are buying so much more at one time, and the cost of shipping it by rail is cheaper because that larger load is better handled by the rail company than by individual trucks. This cost reduction will widen the gap between how much it costs you to make the tennis shoe, and how much you are paid by the consumer.

4.22 Introduction of Break-Even Analysis

Break-even analysis, which is also known as cost-volume-profit analysis is used to study the relationship between the total cost, total revenue and total profits and losses over the whole range of output. It helps to determine the levels of sales that is required to meet operating costs. Further, it helps to determine the profitability or non-profitability at various levels of sales before and after break-even points.

(A) CONCEPT OF BREAK-EVEN POINT:

The break-even point for a business firm shows the volume of sales at which the firm just break-even, with total revenues equal to total costs. In other words, break-even point shows the price at which the firm makes zero profits, with revenues just covering costs. On other hands the shut-down point shows the price at which revenue just equals variable cost (or equivalently at which losses exactly equal fixed costs). In other words, the break-even point comes where price is equal to average cost, while the shut down point comes where prices is equal to average variable cost.

The break-even sales level can be determined either algebraically or graphically. The break-even sales volume sales volume can be measured by the following formula.

$$S = \frac{F}{(P - V)}$$

If we multiply the sales volume in units (S) with the price per unit we will get the sales revenue in amount. The break-even sales in amount can also be measured by dividing fixed cost by contribution margin ratio, i.e.

$$S^* = \frac{F}{C}$$

Where

- S = break-even sales in units
- S* = break-even sales in amount
- F = fixed cost per period
- P = price per unit
- V = variable cost per unit
- C = contribution margin ratio

The contribution margin ratio shows the contribution towards the recovery of fixed operating cost. It is the difference between price and variable cost per unit. It is given by:

$$C = \frac{P - V}{P} * 100$$

The computation of break-even sales in units and amount is explained by the following example. Let us suppose that the firm A has fixed operating cost of Rs. 3000, the price per unit of its product is Rs.12 and the variable per unit is Rs. 6. Its break-even sales in units are:

$$S = \frac{F}{P - V}$$

$$= \frac{\text{Rs. 3,000}}{(\text{Rs. 12} - \text{Rs. 6})} = \frac{3,000}{\text{Rs. 6}} = 500 \text{ units}$$

Thus, for the above firm, 500 units is break-even output. The break-even amount in Rs. can be found out by multiplying the break-even amount by the price of the output i.e. $500 * 12 = \text{Rs. 6000}$. The break-even amount can also be found out by the formula :

$$S = \frac{F}{C}$$

$$\text{Where } C = \frac{P - V}{P} * 100$$

$$= \frac{\text{Rs. 12} - \text{Rs. 6}}{\text{Rs. 12}} * 100$$

$$= \frac{6 * 100}{\text{Rs. 12}} = 50\%$$

Substituting the value of C in the equation for S^* , we get

$$S^* = \frac{3,000}{50\%} = \text{Rs. 6,000}$$

It shows that the firm will start earning profit for the sales above 500 units and the firm will have losses for the sales than 500 units.

The firm A's break-even point can also be explained through a break-even chart in the following fig. 4.7

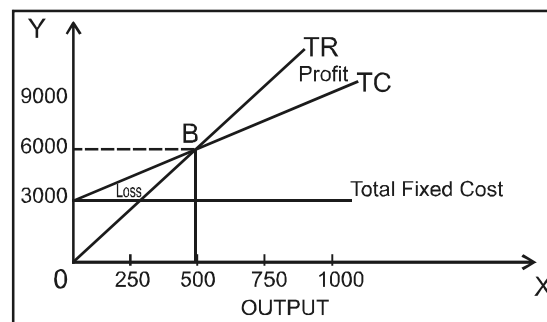


Figure 4.7

In the figure the point B is the break-even point at which total revenue equals total cost. At this point the firm ceases to make loss and starts making profit. Thus, for sales less than Rs. 6000 (i.e. 500 units) total revenue is less than its operating cost and the firm incurs a loss. The absolute amount of loss increases as the sales falls below break-even point. Conversely, for sales greater than Rs. 6000 (above 500 units) total revenue exceeds the operating cost and therefore the firm starts earning profit.

The above analysis is based on the assumption that cost and revenue functions are linear. Thus, the total cost and total revenue lines are drawn as straight lines and they intersect each other only at the point B. This gives a wrong impression that the whole output beyond the break-even point is profitable. This may not be true due to changing price and cost conditions. Further, price and cost may not be linear, but may vary with the output due to diminishing returns and imperfect factor and product markets. Thus, cost and Revenue Functions may not be linear, but non linear. Hence, there may be two break-even points instead of one. This is explained in this Fig 4.8

Diagram

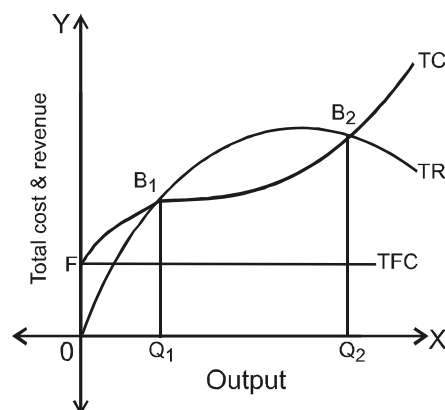


Figure 4.8

In the above Fig ,4.8 the points B_1 and B_2 are break-even points corresponding to lower and upper levels of output. For outputs lower than Q_1 and larger than Q_2 the firm incurs losses. For the whole range of output Q_1 Q_2 the total revenue exceeds total cost and therefore the firm will make profits. This shows that the firms' profitable range of output lies within Q_1 and Q_2 levels of output.

(B) Variables Influencing the Break Even Point:

It can be observed from the above analysis that changes in the following variables will influence the break-even point in different ways. This is explained below with the help of examples of and Figures.

1. Changes in price:

Changes in price will affect the total sales revenue and hence will influence the break-even points. An increasing price will decrease the break-even point, while a decrease in price will increase the break-even point. For example, let us assume that the price per unit rises to Rs.14. Then the break-even sale is;

$$S = \frac{F}{P - V}$$

$$= \frac{\text{Rs. 3,000}}{(\text{Rs. 14} - \text{Rs. 6})} = \frac{3,000}{\text{Rs. 8}} = 375 \text{ units of Rs. 5,250}$$

On the other hand, if the price falls to Rs.10 the break-even sale is:

$$S = \frac{\text{Rs. 3,000}}{\text{Rs. 10} - \text{Rs. 6}} = 750 \text{ unit or Rs. 7500}$$

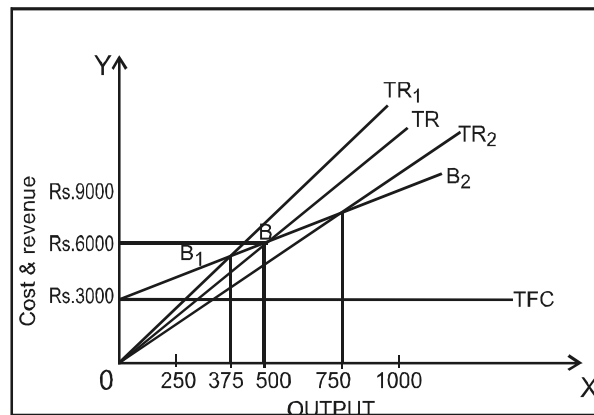


Figure 4.9

The effect of changes in price on the break even point is explained in the fig. An increase in price will raise the total revenue curve upwards to TR₁ and will bring down the break-even point to B₁, while a decrease in price will shift the total revenue curve downwards to TR₂ and therefore will shift the break-even point to B₂.

2. Changes in fixed cost:

An increase in fixed cost will increase the break-even point while a decrease in fixed cost will decrease the break-even point. For example, if the fixed cost increases to Rs. 4500 the break-even sales will be

$$S = \frac{\text{Rs. 4,500}}{\text{Rs. 12} - \text{Rs. 6}} = 750 \text{ units or Rs. 9,000}$$

On the other hand, if the fixed cost falls to Rs. 2400, the break-even sales will fall to:

$$S = \frac{\text{Rs. } 2,400}{\text{Rs. } 12 - \text{Rs. } 6} = 400 \text{ units or Rs. } 4,800$$

The effect of changes in fixed cost is explained by the fig.

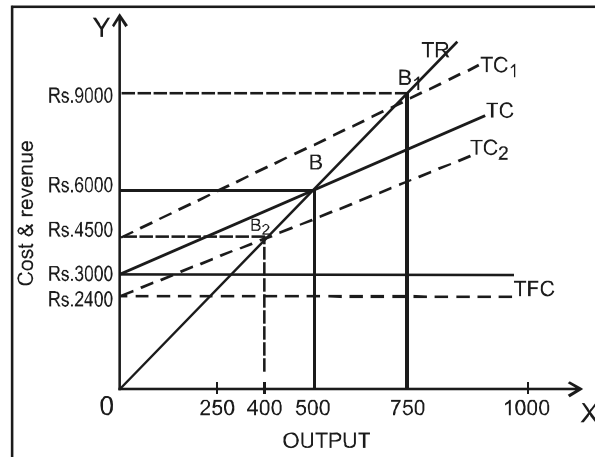


Figure 4.10

A rise in fixed cost to Rs. 4,500 shifts the FC curve to TFC_1 and TC curve to TC_1 , parallel to TC. This increases the break-even point to B_1 corresponding to 750 units or Rs. 9,000. On the other hand, a fall in fixed cost to Rs. 2,400 shifts the fixed cost curve to TFC_2 and total cost curve to TC_2 . This reduces the break-even point to B_2 corresponding to 400 units or Rs. 4,800.

3. Changes in variable cost per unit:

An increase in variable cost will increase the break-even sales. While a decrease in variable cost will decrease the break-even point. For example, a rise in variable cost to Rs. 8 per unit will increase break-even sales to:

$$S = \frac{\text{Rs. } 3,000}{\text{Rs. } 12 - \text{Rs. } 8} = 750 \text{ units or Rs. } 9,000$$

On the other hand, a fall in variable cost per unit to Rs. 4 will decrease break-even sales to:

$$S = \frac{\text{Rs. } 3,000}{\text{Rs. } 12 - \text{Rs. } 4} = 375 \text{ units or Rs. } 4,500$$

The above effects of changes in variable cost on break-even point is explained in Fig..

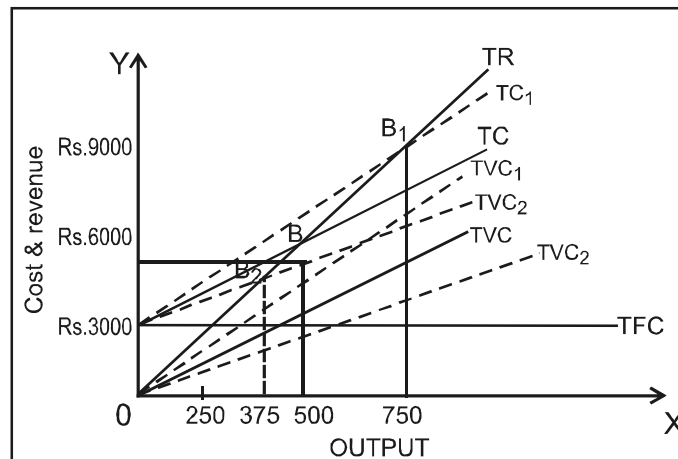


Figure 4.11

An increase in variable cost to Rs. 8 shifts the TVC curve to TVC_1 which shift the TC to TC_1 , parallel to TVC_1 . It raises the break-even point to B_1 , corresponding to 750 units or Rs. 9000. A fall in variable cost shift down the TVC curve to TVC_2 which shift the TC curve to TC_2 parallel to TVC_2 . It decrease the break-even point to B_2 corresponding to 375 units Rs. 4500.

The above analysis is summarized in the following Table

Table 4.4 : Effect of Different Variables on Break-even point

| Change in variables | Effect on Break-even point |
|---------------------------------|----------------------------|
| 1. An increase in price | Decrease |
| 2. An decrease in price | Increase |
| 3. An increase in fixed cost | Increase |
| 4. A decrease in fixed cost | Decrease |
| 5. An increase in variable cost | Increase |
| 6. A decrease in variable cost | Decrease |

(C) Uses of Break Even Analysis:

1. It enables us to determine the levels sale which is necessary to cover all fixed operating costs.
2. It can help us to forecast profits if we have the estimates of revenue and costs.
3. It enables us to appraise the effects of changes in sale price, sales volume, fixed and variable costs.
4. It can help to compare the profitability of various firms.
5. It can bring out the importance of capacity utilization for achieving economy and to reduce the variable cost of production.

6. Break-even analysis helps to determine the sales volume to earn a given amount of return on capital.

(D) Limitations of Break Even Analysis:

Some of the limitations of break-even analysis on account of its linear assumptions have been discussed earlier. In addition to these, the break-even analysis has other limitation

1. Break-even analysis can be used only if the costs can be clearly classified into fixed and variable costs. However, sometimes some costs cannot be clearly categorized into fixed and variable costs.
2. Break-even analysis can be applied to only to single product system. When there are multiple product and joint product operations it is difficult to apply break-even analysis unless the cost can be ascertained to each product.
3. The information used for break-even analysis is based on historical relationships of cost. Price and volume. If the historical data are not relevant for estimating future costs and prices, the break-even analysis cannot be applied usefully.

In spite of these limitations the break-even analysis may be useful in production planning if relevant data can be obtained.

Check Your Progress:

1. Define Economies & Diseconomies of scale.
2. Explain the factors causing internal economies of scale.
3. Explain the factors causing external economies of scale.
4. What is Producer's surplus?
5. What is Break Even Analysis ? Explain its uses & Limitations.

4.23 Summary

1. Production is a Process of converting an input into a more valuable output. A Production function is the technological relationship between the output and inputs. $Q = f(L, K)$
2. On the basis of time period of production function is divided into Short run production and Long run production function.
3. In the Shortrun, there are some factors which cannot be varied instantly. These factors are known as fixed factors. Long run refers to that duration of time during which all the factors of production are variable factors.

4. The most important decision to be taken by a firm is to decide the output. In order to maximize profit, a firm must minimize cost of production given a level of output or it must maximize the output produced given the total expenditure. The optimal choice of factor combinations depends on the technological possibilities of production.
5. A cost function expresses the relationship between cost and its determinants.

$$C = f (S, O, P, T, \dots)$$

Cost function can be for the short run and the longrun depending upon the requirements of the firm . There are various types of costs.

6. An economy of scale exists when large scale production is associated with lower per unit cost. Large scale production or output is economical if the cost of production is low . There are several internal and external economies of scale.
7. External economics occur to a firm in an industry due to technological influences on its output which reduces its cost of production .
8. Diseconomies of scale refers to a stage where cost per unit of output increases as the scale of production increases. There are several internal and external diseconomies of scale.
9. Economies of scope are present where a firm's joint-output of a single firm is greater than the output that could be achieved by two different firms each producing a single product. Diseconomies of scope occur when a firm's joint output is less than that which could be achieved separate firms.
10. Producers surplus can be defined as the excess money receipts of a producer over his minimum supply price.

$$\text{Producers surplus} = \text{Receipts of producer} - \text{minimum supply price}$$

12. Cost control and reduction refers to the efforts business managers make to monitor , evaluate and trim expenditures.
13. Break even analysis, which is also known as cost -volume- profit analysis, is used to study the relationship between the total cost, total revenue and total profits and losses over the whole range of output . It help to determine the levels of sales that is required to meet operating cost.

4.24 Questions

1. What is production ?
2. Explain production function. What Short run and long run production function ?
3. Define Iso-quant. Describe its properties.
4. Explain the laws to Returns to scale.
5. What is Cost and Cost function?
6. Explain the different Concepts of Costs.
7. Explain the determinants of cost function .
8. Explain Short run cost-output relationship.
9. Explain Long run cost-output relationship.
10. Define Economies & Diseconomies of scale.
11. Explain the factors causing internal economies of scale.
12. Explain the factors causing external economies of scale.
13. What is Producer's surplus?
14. What is Break Even Analysis ? Explain its uses & Limitations.
15. Explain the concept of Cost Control & Cost Reduction .



Chapter 4

Market Structure and Perfect Competition

Unit Structure

- 5.0 Objectives
- 5.1 Introduction
- 5.2 Meaning of Market
- 5.3 Classification of Market Forms
 - 5.3.1 Perfect Competition
 - 5.3.2 Imperfect Competition
- 5.4 Concept of Average and Marginal Revenues
 - 5.4.1 Average and Marginal Revenue under Perfect competition
- 5.5 Necessary and Sufficient Conditions for the equilibrium of the firm
- 5.6 Pricing Under Perfect Competition
 - 5.6.1 Characteristics of Perfect Competition
 - 5.6.2 Short – Run Price and Output Determination by a perfectly competitive firm
 - 5.6.3 Long run Equilibrium of perfectly competitive Firm
- 5.5.4 Equilibrium of Industry and Firm
- 5.7 Summary
- 5.8 Questions

5.0 Objectives

After going through this unit you will be able to-

- Define market, perfect competition
- Classify markets
- Give features of perfect competition
- Explain the short run equilibrium of a perfectly competitive firm
- Discuss the equilibrium of a perfectly competitive firm in the Long-Run
- Give equilibrium of industry and firm

5.1 Introduction

The determination of prices and output of various products depends upon the type of market structure in which they are produced, sold and purchased. In this connection economists have classified the various markets prevailing in a capitalist economy into (a) perfect competition or pure competition, (b) monopolistic competition, (c) Oligopoly and (d) monopoly. Oligopoly and monopoly, are generally group under the general heading of imperfect competition, since these three forms of market differ with respect to the degree of imperfection in the market. Monopolistic competition is highly imperfect and monopoly is the most imperfect form of market structure.

But before explaining the salient features of various market forms, it will be useful to explain what is meant by market in economics.

5.2 Meaning of Market

Market is generally understood to mean a particular place or locality where goods are sold and purchased. However, in economics, by the term market we do not mean any particular place or locality in which goods are bought and sold. What is required for the market to exist is the contact between the sellers and buyers so that transaction, at an agreed price can take place between them. Further, it is not worthy that because in a market, there is close and free communication between various buyers and sellers price of a homogeneous commodity settled between different sellers and buyers tends to be the same.

Thus, the essentials of a market are: (a) commodity which is dealt with; (b) the existence of buyers and sellers; (c) a place, be it a certain region, a country or the entire world; and (d) such communication between buyers and sellers that only one price should prevail for the same commodity at the same time.

5.3 CLASSIFICATION OF MARKETFORMS

The popular basis of classifying market structures rests on three crucial elements, (1) The number of firms producing a product (2) the nature of product produced by the Firms, that is, whether it is homogenous or differentiated, and (3) the ease with which new firms can enter the industry. The price elasticity of demand for a firm's product depends upon the number of competitive firms, producing the same or similar product as well as on the degree of substitution which is possible between the products of a firm and other products produced by rival firms. Therefore, a distinguishing feature of different market categories is the degree of price elasticity of demand face by an individual firm.

We present in the table given below the classification of market forms based on the number of firms, the nature of product produced by them and price elasticity of demand.

5.3.1 Perfect Competition:

As is evident from table 5.1 perfect competition is said to prevail where there is a large number of producers (firms) producing a homogeneous product. The maximum output which an individual firm can produce is very small relatively to the total demand of the industry product so that a firm cannot affect the price by varying its supply output.

There are following four important features of perfect competition:

- 1) There is a larger number of firms (producers and sellers) and buyers of a product,
- 2) Products of all firms are homogeneous,
- 3) There is freedom of new firms to enter the industry and old ones to leave it,
- 4) All firms and buyers have perfect information about the prevailing market price of the product. With many firms and homogeneous product under perfect competition, no individual firm in it is in a position to influence the price of the product and therefore the demand curve facing it will be horizontal straight line at the level of the prevailing price of the product in the market, that is, price elasticity of demand for a single firm will be infinite.

Table 5.1

| Forms of market structure | Number of firms | Nature of Product | Price Elasticity of demand for an Individual Firm | Degree of control over price |
|------------------------------|-------------------------|--|---|------------------------------|
| (a) Perfect competition | A large number of firms | Homogeneous product | Infinite | None |
| (b) imperfect competition | | | | |
| (i) Monopolistic competition | A large number of firms | Differentiated products (but they are close substitutes of each other) | Large | some |

| | | | | |
|--|-----------|--|------------|-------------|
| (ii) pure oligopoly (i.e.) Oligopoly without product Differentiation | Few Firms | Homogeneous Product | Small | some |
| (iii) Differentiated Oligopoly (i.e.) Oligopoly with Product Differentiation | Few Firms | Differentiated Products (Which are close substitutes of each other) | Small | Large |
| (c) Monopoly | One | Unique Product without close substitutes | Very Small | Very large. |

5.3.2 Imperfect Competition:

Imperfect competition is an important market category where individual firms exercise control over the price to a smaller or larger degree depending upon the degree of imperfection present in a case. Control over price of a product by a firm and therefore the existence of imperfect competition can be caused either by the 'fewness' of the firms or by the product differentiation. Therefore imperfect competition has several sub-categories. The first important sub-category of imperfect competition is monopolistic competition. Monopolistic competition, is characterized by a large number of firms and product differentiation. That is in monopolistic competition a large number of firms produce somewhat different products which are close substitutes of each other. As a result, demand curve facing a firm under monopolistic competition is highly elastic and this indicates that a firm working in it enjoy some control over the price. Besides, there is freedom of entry and exit under monopolistic competition.

The second sub-category of imperfect competition is oligopoly without product differentiation which is also known as pure oligopoly. Under it there is competition among the few firms producing homogeneous or identical product. The fewness of the firms ensures that each of them will have some control over the price of the product and the demand curve facing each firm will be downward sloping which indicates that the price elasticity of demand for each firm will not be infinite.

The third sub-category of imperfect competition is oligopoly with product differentiation which is also called differentiated oligopoly. As its name shows, it is characterized by competition among the few firms producing differentiated products which are close substitutes of each other.

The demand curve facing individual firms under oligopoly with product differentiation is downward sloping and the firms would have fairly large control over the price of their individual products.

Monopoly, as is now generally understood, means the existence of a single producer or seller which is producing or selling a product which has no close substitutes. Since a monopoly firm has a sole control over the supply of a product, which can have only remote substitutes, it has a very large control over the price of its product.

Check your Progress:

1. What do you understand by market ?
2. Differentiate between Perfect and Imperfect competition.

5.4 Concepts of Average and Marginal Revenues

(1) Average Revenue:

Price paid by the consumer for the product forms the revenue or income of the seller. The whole income received by the seller from selling a given amount of the product is called total revenue. Total revenue can be obtained from multiplying the quantity of output sold by the market price of the product (P.Q). On the other hand, average revenue is revenue earned per unit of output. Average revenue can be obtained by dividing the total revenue by the number of units sold. Thus

$$\text{Average revenue} = \frac{\text{total revenue}}{\text{total output sold}}$$

$$AR = \frac{TR}{Q}$$

Where AR stands for average revenue, TR for total revenue and Q for total output produced and sold.

(2) Marginal Revenue:

On the other hand, marginal revenue is the net revenue earned by selling an additional unit of the product. In other words, marginal revenue is the addition made to the total revenue by selling one more unit of a commodity. Putting it in algebraic expression, marginal revenue is the addition made to total revenue by selling n units of a product instead of n-1 where n is any given number.

Therefore, marginal revenue = difference in total revenue in increasing sales from n-1 units to n units.

$$\text{i.e.} \quad MR_{nth} = TR_n - TR_{n-1}$$

If TR stands for total revenue and Q stand for output, then marginal revenue (MR) can also be expressed as follows:

$$MR = \frac{\Delta TR}{\Delta Q}$$

$\frac{\Delta TR}{\Delta Q}$ indicates the slope of the total revenue curve

Thus, if the total revenue curve is given to us, we can find out marginal revenue at various levels of output by measuring the slopes at the corresponding points on the total revenue curve.

5.4.1 Average and Marginal Revenue under Perfect Competition

When there prevails perfect competition in the market for a product, demand curve facing an individual firm is perfectly elastic and average revenue remains constant. If the price or average revenue remains the same when more units of a product are sold, the marginal revenue will be equal to average revenue.

Consider the following table.

Table 5.2

Average and Marginal Revenue Under Perfect Competition

| No. of units sold | Price (Or AR) (Rupees) | Total Revenue (Price x output) (Rupees) | Marginal Revenue (MR) (Rupees) |
|--------------------------|--------------------------------|---|---------------------------------------|
| I | II | III | IV |
| 1 | 16 | 16 | 16 |
| 2 | 16 | 32 | 16 |
| 3 | 16 | 48 | 16 |
| 4 | 16 | 64 | 16 |
| 5 | 16 | 80 | 16 |

In the above table, price remains constant at the level of Rs. 16 when more units of the product are sold. Col.III shows the total revenue when various quantities of the product are sold. Total revenue has been found out by multiplying the quantity sold by the price.

It will be found from taking out the difference between two successive total revenues that marginal revenue in this case is equal to the price i.e. Rs.16.



Fig 5.1 Average and Marginal Revenue curves under perfect competition

The case of perfect competition when for an individual firm average revenue (or price) remains constant and marginal revenue is equal to average revenue is graphically shown in figure 5.1. Average revenue curve in this case is a horizontal straight line (i.e. parallel to the x-axis) Horizontal-Straight-line average revenue curve (AR) indicates that price remains the same at OP level when quantity sold is increased. Marginal revenue (MR) curve coincides with average revenue (AR) curve since marginal revenue is equal to average revenue.

5.5 Necessary and Sufficient Conditions for the equilibrium of the firm

The first condition for the equilibrium of the firm is that its marginal cost should be equal to its marginal revenue. However, this condition is a necessary condition but not a sufficient condition of firm's equilibrium because even if it is fulfilled the firm may not be in equilibrium. In fig.5.2 we can observe that the condition $MC=MR$ is satisfied at point F, but the firm is not maximum at the OM_1 output. It is profitable for the firm to expand output beyond OM_1 .

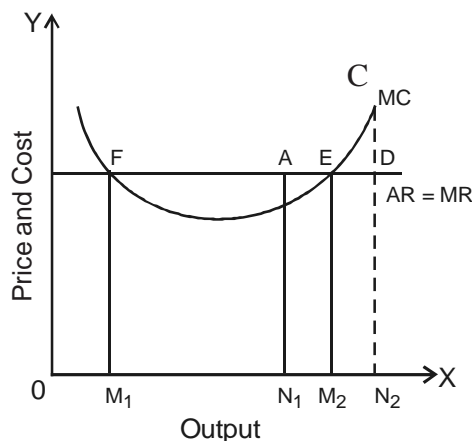


Fig 5.2 Perfect Competition

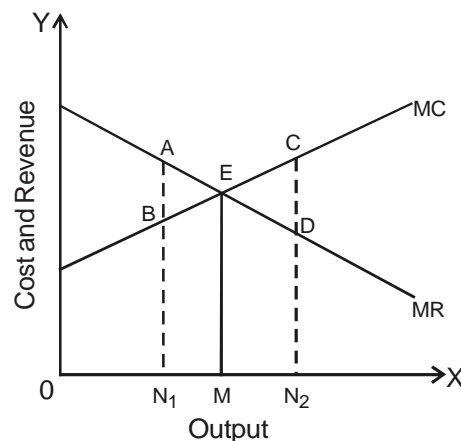


Fig 5.2 Monopoly

The second condition for the equilibrium requires that the MC curve must be rising at the point of its intersection with the MR curve. This means that at the point of equilibrium the MC curve must cut the MR curve from below, that is, the slope of the MC curve must be steeper than the slope of the MR curve. Thus at point E in Fig 5.2 and 5.3 both the conditions for equilibrium are satisfied, that is, (i) $MC=MR$ and (ii) the slope of MC curve is greater than the slope of MR curve. However, at point F the slope of MR curve, which is zero, is greater than the slope of MC curve which is negative (or less than zero). The second (or sufficient) condition of equilibrium is stated explicitly in fig 5.4 and 5.5

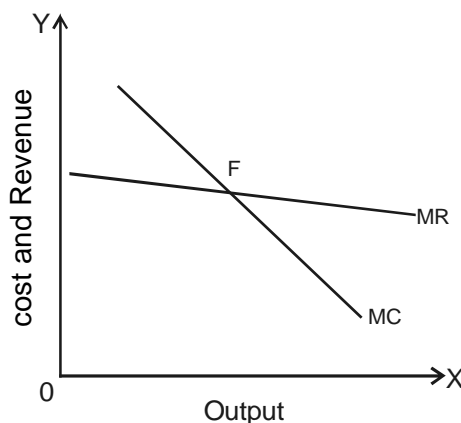


Fig 5.4

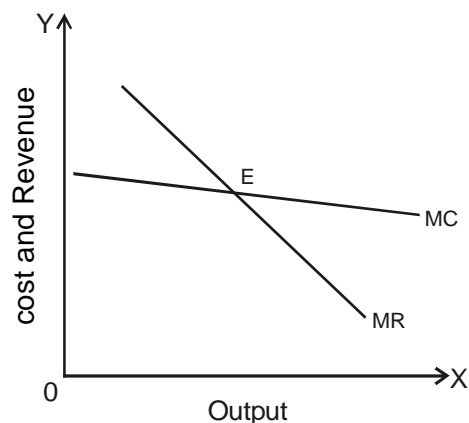


Fig 5.5

In fig 5.4 the point F cannot be the point of equilibrium because at F marginal cost curve is cutting marginal revenue curve from above, and therefore, marginal cost is lower than marginal revenue after the point F. Thus it is profitable to produce more output beyond the point F. However, in fig 5.5 the point E denotes the position of equilibrium because marginal cost curve is cutting marginal revenue curve from below or from left at point E, so that marginal cost is higher than marginal revenue after the point E. Therefore, it is not profitable to produce more output beyond the point E.

The profit maximization goal has been subjected to severe criticism. Firstly, it is argued that firms cannot attain the goal of profit maximization because they do not have the necessary knowledge, information or ability to know with certainty their demand and cost curves. Hence, they cannot apply the principle of $MC=MR$.

Second, it is also argued that, even if they could pursue profit maximization, they do not want to pursue a single goal. They try to achieve a multiple of goals and profit is only one of them. Some of the other objectives of the firms are security (or survival), maximization of sales,

maximization of utility or satisfaction and so on, which we have discussed above.

To sum up, for a firm to be in equilibrium, the following two conditions must be satisfied.

(1) $MR = MC$

(2) MC curve must cut MR curve from below at the point of intersection between MC and MR.

Check your Progress:

1. Explain AR and MR under perfect competition.
2. State the necessary and sufficient conditions for the equilibrium of the firm.

5.6 PRICING UNDER PERFECT COMPETITION

5.6.1 Characteristics of Perfect Competition

The term perfect competition refers to a set of conditions prevailing in the market. A perfectly competitive market is one which has the following characteristics.

1) A large number of sellers and buyers :

Under perfect competition, the number of sellers and buyers is very large. The Number of sellers and buyers is so large that the share of each seller in total supply and the share of each buyer in total demand is so small that no single seller can affect the market price by changing his supply, nor can a single buyer influence the market price by changing his demand.

2) Homogeneous products :

Products supplies by all firms are approximately homogeneous. Homogeneity of products means that products supplied by various firms are so identical in appearance and use that buyers do not distinguish between them nor do they prefer the product of one firm to that of another. Product of each firm is regarded as a perfect substitute for the product of other firms. Hence, no firm can gain any competitive advantage over other firms. Nor do the firms distinguish between the buyers. For examples wheat and vegetables produced by all treated as homogenous.

3) Perfect mobility of factors of production:

For a market to be perfectly competitive, there should be perfect mobility of resources. This means that the factors of production must be

in a position to move freely into or out of an industry and from one firm to another.

4) Free entry and free exit of firms:

There is no restriction, legal or otherwise, on the firm's entry into or exit from the industry.

5) Perfect Knowledge :

There is perfect dissemination of the information about the market conditions. Both buyers and sellers are fully aware of the nature of the product, its availability or sale ability and of the price prevailing in the market.

6) No Transport Cost:

Factors of production and goods are transported from the place of production to the market without any cost. Transport cost does not arise if we take small geographical areas where production and sale takes place within that area. Agricultural products can be sold in the same village or town without incurring much transport cost. This condition is assumed to avoid any possibility of charging a higher price on the pretext of transport cost.

5.6.2 Short run Price and Output determination by a perfectly competitive firm

In the short run we may have firms in the perfect competition which are making super-normal profits, normal profits or even losses.

Let us discuss all such possibilities –

(1) Equilibrium of the firm with Supernormal Profits:

A firm is believed to be making super normal profits when its average revenue is greater than the average cost ($AR > AC$) or we may say that on account cost efficiency, the average cost curve of the firm is positioned below the average revenue curve which is determined by the industry. Such a situation is depicted in **fig 5.6 below**.

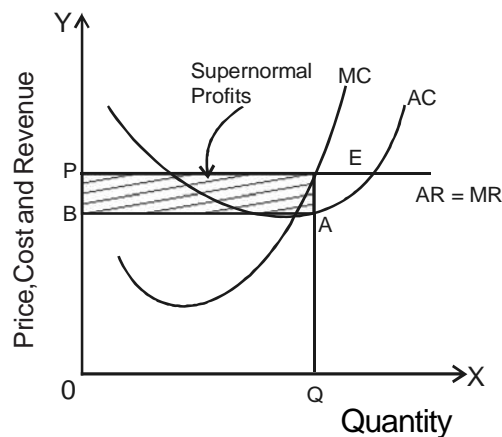


Fig 5.6 Equilibrium of a firm with supernormal profits.

You will notice in figure 5.6 that the equilibrium of the firm is established at point 'E' where the short run marginal cost curve intersects the marginal revenue curve from below and the equilibrium output 'OQ' and the equilibrium price 'OP' is determined. At price 'OP', the total revenue of the firm is 'OPEQ' ($OP \times OQ$). The area below the short run average cost curve SAC measures the total cost of the firm 'OBAQ' ($OB \times OQ$) and the difference between total revenue and total cost measures the pure business profits or super-normal profits made by the firm. In this case, the super-normal profit is shown by the shaded rectangular area 'PEAB' which is the difference between TR and TC i.e. $OPEQ - OBAQ = PEAB$. You will recall that when $TR = TC$, the firm makes only normal profit. The average profit or the per unit profit of the firm is 'AE' which is the difference between AR and AC i.e. $AR - AC$. ($QE - QA = AE$)

(2) Equilibrium of a firm with Normal Profits:

A Competitive firm will be making only normal profits when its average cost curve is tangent to the $AR = MR$ curve. Tangency between the SAC and SAR indicates equality between the firm's average cost of production and the average revenue or price. It also means that the total revenue of the firm for the given level of output is equal. When $TR = TC$ or $AR = AC$, the firm would be making only normal profits. The condition of normal profit is depicted in fig 5.7 below

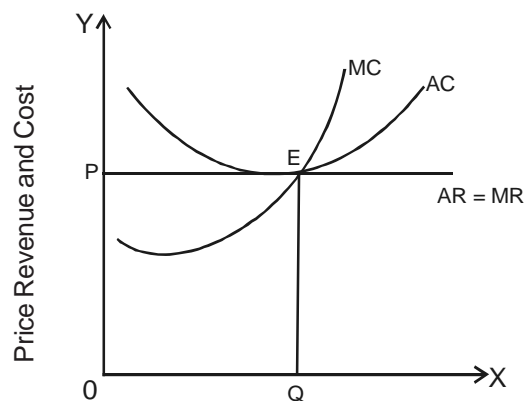


Fig 5.7 Equilibrium of a firm with normal profits.

You will notice that the firm's average cost curve is tangent to the average revenue curve at the equilibrium point "E" at which $SMC = SMR$. Accordingly, price 'OP' and equilibrium output 'OQ' is determined. The total revenue of the firm is OPEQ (OPXOQ) and the total cost is also OPEQ (EQXOQ). Thus when $TR = TC$ or when $AR = AC$, the firm would be making only normal profits.

(3) Equilibrium of a firm with losses :

When the total revenue of the firm is less than total cost, the firm would be making losses. A firm incurs losses when its short run average cost curve is way above the average revenue wave. A loss making firm has to make an important decision i.e. whether it should continue to operate even while it is incurring losses or it should exit from the industry. The decision to stay or exit depends on the extent of losses. In this case, the average variable cost assumes significance. As long as the firm is able to recover its operating costs i.e. when the average variable cost curve is positioned above the average revenue curve, the firm will decide to call off and leave the industry in search of green pastures. These situations are discussed below.

a) The Decision to Remain in the industry and continue to operate even while losing on the fixed costs.

When the average revenue curve or the demand curve is tangential to the average variable cost curve or is tangential to the average variable cost curve or is lying in between the average total cost curve (SAC) and the average variable cost curve (SAVC), it will be considered to be making losses. However, the firm may continue to operate as long as it is able to recover its operating costs in the short run. This situation is depicted in figure 5.8 below.

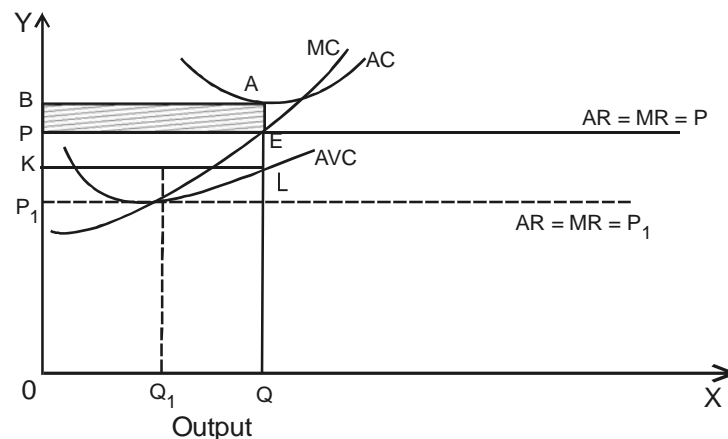


Fig 5.8 Equilibrium with losses but the firm should continue

You will notice in fig 5.8 above that the initial equilibrium of the firm is determined at point 'E' Where the demand curve ($AR=MR$) intersects the marginal cost (SMC) curve and equilibrium output 'OQ' and price 'OP' is determined. Since the demand curve is positioned below the SAC curve and the above the SAVC curve, the firm is not only able to recover its operating costs but also a part of the fixed cost. The part of the fixed cost that the firm has been able to recover in addition to the operating cost OKLQ is denoted by PELK. As a result, the losses incurred are reduced to the shaded area PEAB. Under these conditions the firm will definitely continue to operate. However, the firm's willingness to stay afloat will depend on the position of the average revenue curve. The firm will continue to operate as long as the average revenue curve or the demand curve is either positioned above the tangency between the demand curve and SAVC curve. The loss bearing limit of the firm. You will notice that when the $AR=MR$ curve shifts downwards and becomes tangent to the SAVC curve and where the SMC curve intersects the SAVC curve at point E1, the firm is able to cover only its operating cost. Thus at price OP_1 , the total revenue of the firm is equal to $OP_1 E_1 Q_1$ ($OP_1 \times OQ_1$). At price OP_1 , the total revenue is equal to the total viable cost ($TR=TVC$). The equality between TR and TVC is the loss bearing limit of the firm. In this situation the firm is losing on its entire fixed cost. Nonetheless the firm will decide to continue to operate with hopes to recover the fixed cost and make profits in the long run.

(b) The Decision to shut down and Exit from the Industry:

The competitive firm will shut down its operations and exit from the industry if the demand or the average revenue curve is positioned below the short run average variable cost curve. Such a situation indicates that the firm is not only losing on its fixed costs but also eating into its operating costs. The price at which the firm decides to shut down its operation is

called the shut down price and its location is definitely below the average variable cost curve. Such a situation is depicted in fig.5.9

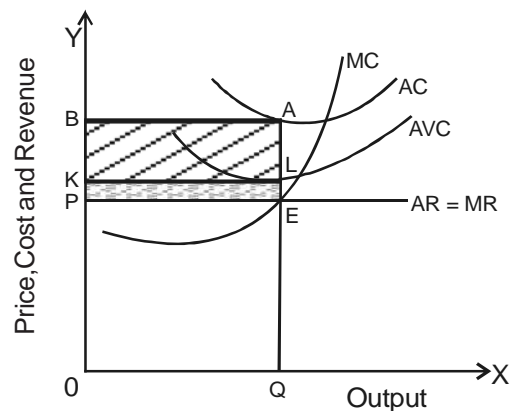


Fig 5.9 Shut down point, firm should exist

You will notice in fig 5.9 that the firm is in equilibrium at point 'E' where the SMC intersects the $SAR=SMR$ curve. The total fixed cost is measured by the area $KLAB$ which is entirely lost by the firm. In addition the firm also loses a part of the operating cost measured by the area $PELK$ which is lying below the $SAVC$ curve and above the SAR or the demand curves. In this situations, the total revenue earned by the firm from the sale of output OQ is less than total variable cost. The total revenue generated by the firm is $OPEQ$ and the total variable cost is incurred by the firm is $OKLQ$. The operating losses are equal to $OKLQ$. The operating losses are equal to $OKLQ - OPEQ = PELK$. Thus when $TR < TVC$, the firm will decide to shut down its operations and make an exit from the industry. In this case, price 'OP' is shut down price.

Check your Progress:

1. Write notes on:
 - a. Equilibrium of the firm with normal profits.
 - b. Equilibrium of the firm with Supernormal profits.

5.6.3 Long Run Equilibrium: Price and Output of a Firm under Perfect Competition:

Long –Run is a time period where all the costs are variable. The firm can expand or contract its capacity as required. New firms may enter the market if the existing firms earn excess profit. Those firms who cannot cover the total cost would leave the market. Thus in the long run there is entry to and exit from the market. The firm which remains in the market will

earn only normal profit. Figure 5.10 shows the long – run equilibrium of the firm.

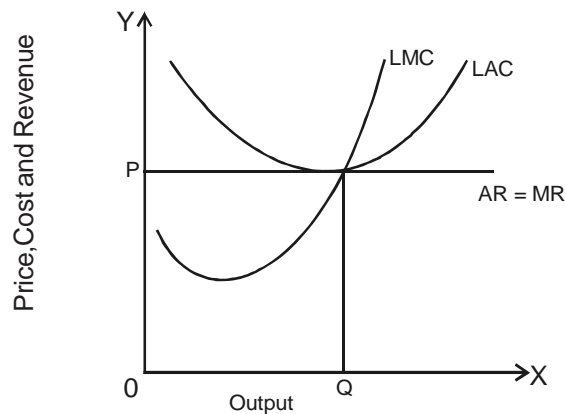


Figure 5.10

The long-run position of the firm is

$$\begin{aligned} \text{Output} &= OQ, & \text{TC} &= \text{AC} \times Q = OQ \times QS = OQSP \\ \text{Price} &= OP, & \text{TR} &= OQSP \\ & & \therefore \text{TR} &= \text{TC} \end{aligned}$$

The firm earns normal profit at a technical point where

$$P = AR = MR = AC = MC$$

In figure 5.10 at point S the firm is at the technical point mentioned above. At this point, the firm's $TR = TC$ giving the firm only the normal profit.

5.6.4 Equilibrium of Industry and Firm:

Industry is usually in equilibrium only in the long-run. New firms are attracted to the industry due to excess profit earned by the existing firms. Those who incur loss leave the industry. Entry of new firms will wipe out the excess profits. Similarly, the exit of loss incurring firms, will enable the remaining firms earning normal profits. Thus, the firms earning normal profits alone will remain in the long run as shown in diagram A and B.

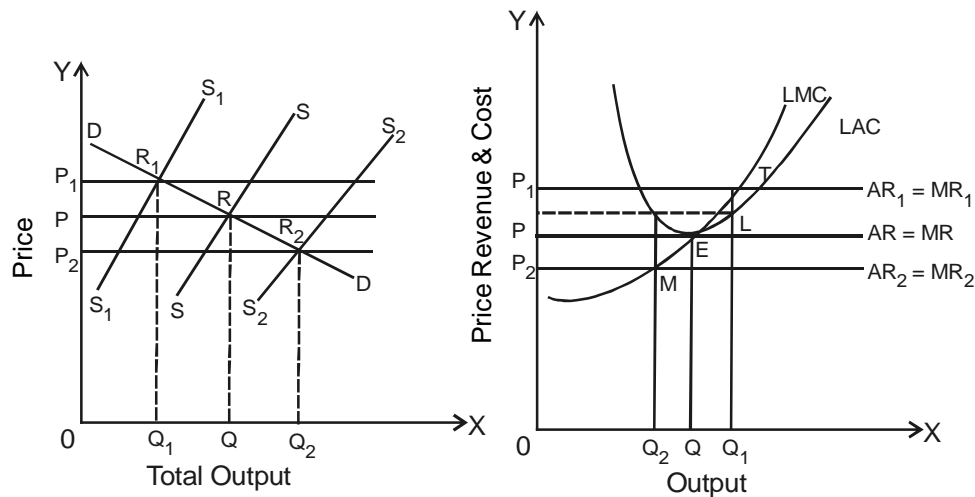


Figure 5.11

Figure 5.11 A depicts the industry where aggregate demand and supply determine the price. Figure 5.11 B shows the equilibrium position of a firm. At OP_1 price in the market, the firm produces OQ_1 output and earns excess profit = $NLTP_2$. Attracted by this supernormal profits, more firms enter the market and supply curve shifts to the right. The increased supply shown by SS supply curve brings down the price to OP . At OP which is a lower price the firm produces less and earns only normal profit and is in equilibrium at E. Its TR ($OQEP$) is equal to its TC ($OQEP$).

If the market price is at OP_2 due to excess supply in the market, the firm is in loss with OQ_2 output. Its TR (OQ_2MP_2) is less than its TC (OQ_2SN). The loss is equal to p_2 MSN. Since it's the long run the firms which incur loss quit the industry, leaving behind only those firms earning normal profit. Under the identical cost conditions, we have all the firms earning only normal profit and therefore the industry is in equilibrium with normal profit.

5.7 Summary

- Market is a medium through which sellers and buyers can contact each other to sell and to purchase various goods and services.
- Markets are broadly classified into, perfect market and imperfect market.
- Imperfect market is further classified into (a) monopoly (b) monopolistic competition, and (c) oligopoly.
- Perfect competition is characterized by large number of sellers and buyers dealing in a homogeneous commodity.
- In short-run perfectly competitive firm can earn super-normal profits, or normal profits or even may incur losses.
- In the long-run it can earn only normal profits.

5.8 Questions

- 1) Define the following:
 - a) Market
 - b) Average Revenue
 - c) Marginal Revenue
 - d) Perfect competition
 - e) imperfect competition
- 2) State and explain necessary and sufficient conditions of firms equilibrium
- 3) Explain, how are markets classified.
- 4) What are the features of perfect competition?
- 5) Explain the short-run equilibrium of a firm with excess profits, normal profits and losses.
- 6) Explain the determination of equilibrium of a competitive firm in the long run.



Monopoly and Price Discriminating Monopoly

Unit Structure

- 6.0 Objectives
- 6.1 Introduction
- 6.2 Features of Monopoly
- 6.3 Sources of Monopoly Power
- 6.4 Monopolist's Revenue Curves
- 6.5 Monopoly Equilibrium and price Elasticity of Demand
- 6.6 Profit Maximization in a Monopolized Market: Equilibrium of a Monopoly Firm
 - 6.6.1 Short-Run Equilibrium
 - 6.6.2 Long Run Equilibrium
- 6.7 Discriminating Monopoly
 - 6.7.1 Degree of Price Discrimination
 - 6.7.2 When is Price Discrimination Possible?
 - 6.7.3 When is price Discrimination Profitable?
 - 6.7.4 Equilibrium of Price Discriminating Monopolist.
 - 6.7.5 Dumping – A Case of International Price Discrimination
- 6.8 Summary
- 6.9 Questions

6.0 Objectives

After going through this unit you will be about to

- Define monopoly and explain features of monopoly and sources of monopoly power
- Describe the short-Run and Long Run equilibrium of a Monopoly firm
- Define and explain discriminating Monopoly
- Explain, when price discrimination is possible and profitable
- Explain the concept of dumping

6.1 Introduction

Monopoly is said to exist when one firm is the sole producer or seller of a produce which has no close substitutes. Three points are worth noting in this definition. First, there must be a single producer or seller of a produce if there is to be monopoly. This single producer may be in the form of an individual owner or a single partnership or a joint stock company. If there are many producers producing a produce either perfect competition or monopolistic competition will prevail depending upon whether the product is homogeneous or differentiated. On the other hand, when there are few producers or sellers of a product, oligopoly is said to exist. If then there is to be monopoly, there must be one firm in the field. Even literally monopoly means one seller. 'Mono' means one and 'poly' means seller. Thus monopoly means one seller or one producer.

But to say that monopoly means one seller or producer is not enough means one seller or producer is not enough. A second condition which is essential for a firm to be called monopolist is that no close substitutes for the product of that firm should be available. If there are some other firms which are producing close substitutes for the product in questions there will be competition between them.

The fact that there is one firm under monopoly means that other firms for one reason or another are prohibited to enter the monopolist's industry. In other words, strong barriers to the entry of firms exist wherever there is one firm having a sole control over the production of a commodity. The barriers which prevent the firm to enter the industry may be economic in nature or else of institutional and artificial nature. In case of monopoly, barriers are so strong that they prevent entry of all firms except the one which is already in the field.

From above it follows that for the monopoly to exist, three conditions are necessary.

- 1) There is a single producer or seller of a product
- 2) There are no close substitutes for the product
- 3) Strong barriers to the entry into the industry exist

6.2 FEATURES OF MONOPOLY

- (i) **Single Seller** : There are no competitors. He is the sole seller. A Monopolist is not threatened by any competitor.
- (ii) **No close substitutes** : The commodity sold by the monopolist has no close substitutes.
- (iii) **No entry** : In perfect competition as discussed earlier, there is free entry and exit. In other forms of markets like Monopolistic Competition

or oligopoly there is no restriction on entry and exit. To a monopoly market entry is completely restricted. If entry is allowed or anybody succeeds to enter the market and produce a close substitute the monopolist will be no more a monopolist.

- (iv) **Downward sloping and less elastic demand curve:** A Monopolist as pointed out earlier can increase his sales by lowering the price. If he controls the price then quantity sold depends on the market i.e. the demand. The demand is also less elastic due to the absence of close substitutes which makes the cross elasticity of demand almost zero. Fig 6.1 explain the nature of demand curve. The steeper demand curve explains that a change in price affects the sale only marginally. It indicates low elasticity of demand.

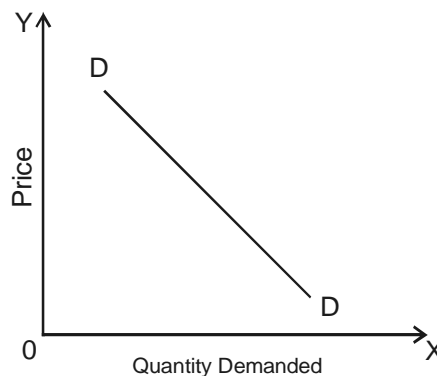


Fig 6.1

- (v) **No distinction between firm and industry:-** A monopolist being the sole seller constitutes the firm as well as the industry. Therefore there is no need for a separate discussion of equilibrium of industry.

6.3 SOURCES OF MONOPOLY POWER

There are numerous factors which give rise to monopoly power. Important give rise to monopoly power. Important of them are:-

- (1) **Natural Resources :** Some monopolies are due to nature. Supply of natural resources like gold or crude oil being limited, is either controlled by the government or by a private monopolist. Some countries acquire monopoly over the supply of natural resources as these resources are available only in those countries and no where else.
- (2) **Technology :** Technology developed by the business firms or nations give them a monopoly right over such a good or service As long as the technology to others the original firm retains the monopoly. Technology may be such that it may require only a single

plant to have a substantial economies of such for example in transport , communication ,electricity etc. only a very large scale production.

- (3) **legal protection** : Legal protection granted by the government in the form of patent rights ,trade marks, copy rights , license etc .gives monopoly power to the persons and firms who have introduced such commodities .
- (4) **Cartel formation** :If a product is produced by few producers and the market is an oligopoly one it is possible for these few producers to come together and form a cartel to establish a monopoly. Organization of Petroleum Exporting Countries (OPEC) , is a good example of cartel formation .OPEC could increase the price and earn a larger amount of revenue.
- (5) **Barriers to new competition** : A firm may follow a limiting price policy that is price which does not attract the new firms. This may be combined with aggressive or heavy advertising and or a continuous product differentiation. Such practices prevent new entries and give a monopoly power to the existing firm.

6.4 Monopolist's Revenue Curves

Since the monopolist firm is assumed to be the only producer of a particular product, its demand curve is identical with the market demand curve for the product. The market demand curve, which exhibits the total quantity of a product that buyers will offer to buy at each price, also shows the quantity that the monopolist will be able to sell at every price that he sets. If we assume that the monopolist sets a single price and supplies all buyers who wish to purchase at that price, we can easily find his average revenue and marginal revenue curves.

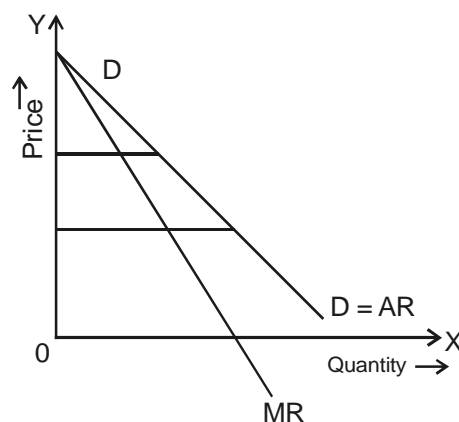


Fig 6.2 AR and MR Curves under Monopoly

Suppose the straight line in fig 6.2 is the market demand curve for a particular product 'A'. Suppose Mr.X and Co. is the single producer of the product A so that it faces the entire market demand and hence the downward sloping demand curve.

We have tabulated selected values of price and quantity from this demand curve in Table 5 and computed the amounts of average, total and marginal revenue corresponding to these levels.

Table- 6.1

Average revenue, Total revenue and Marginal revenue for a monopolist

| Quantity Sold | Average Revenue (AR =P) | TotalRevenue (TR) | Marginal Revenue (MR) |
|---------------|----------------------------|----------------------|--------------------------|
| 0 | 10.0 | 0 | - |
| 1 | 9.50 | 9.50 | 9.50 |
| 2 | 9.00 | 18.00 | 8.50 |
| 3 | 8.50 | 25.50 | 7.50 |
| 4 | 8.00 | 32.00 | 6.50 |
| 5 | 7.50 | 37.50 | 5.50 |
| 6 | 7.00 | 42.00 | 4.50 |
| 7 | 6.50 | 45.50 | 3.50 |
| 8 | 6.00 | 48.00 | 2.50 |
| 9 | 5.50 | 49.50 | 1.50 |
| 10 | 5.00 | 50.00 | .50 |
| 11 | 4.50 | 49.50 | (-).50 |

If the seller wishes to charge Rs.10, he cannot sell any unit, alternatively, if he wishes to sell 10 units, his price cannot be higher than Rs.5. Because the seller charges a single price for all units he sells, average revenue per unit is identical with price, and thus the market demand curve is the average revenue for the monopolist.

In perfect competition , average and marginal revenue are identical ,but this is not the core in a monopoly since the monopolist knows that if he wishes to increase his sale he will have to reduce the price of the product .Consider the example given . If the seller wishes to sell 3 units ,he will have to reduce the price from Rs. 9 to Rs. 8.50. The third unit is sold for Rs 8.50 only the price of all 3units This adds rest 8.50 tothe firms revenue. But in order to sell the 3rd unit the firm had to lower its price from Rs 9 to Rs .8.50. It thus receives Rs.50 less on each of 2 units it could have sold for Rs.9. The marginal revenue over the interval from 2 to 3

units is thus Rs. 7.50 only. Again if he wishes to sell 4 units, he will again reduce the price from Rs. 8.50 to 8. The marginal revenue here will be Rs. 6.50 only. Marginal revenue is less than the price, because the firm had to lower the price in order to sell an extra unit. The relationship between AR and MR of a monopoly firm can be stated as follows:-

- (i) AR and MR are both negative sloped (downward sloping) curves.
- (ii) MR curve lies half –way between the AR curve and the Y axis i.e it cuts the horizontal line between Y axis and AR into two equal parts
- (iii) AR cannot be zero, but MR can be zero or even negative.

Check your Progress:

1. What do you understand by monopoly ?
2. Discuss the features of monopoly.
3. Discuss the factors which gives rise to monopoly power.
4. Explain AR and MR curves under monopoly.

6.5 Monopoly Equilibrium and Price Elasticity of Demand

Another important feature of monopoly equilibrium is that the monopolist will never be in equilibrium at a point on the demand curve or average revenue curve at which elasticity of demand is less than one. In other words, the monopolist will never fix his level of output at which elasticity of the demand on average revenue curve is less than one, provided the marginal cost is positive which is most usually the case. Since marginal cost can never be negative, equality of marginal revenue and marginal cost cannot be achieved where price elasticity of demand is less than one end marginal revenue is therefore negative. We know from the relationship between elasticity and marginal revenue that whenever elasticity is less than one, marginal revenue is negative. Therefore, no sensible monopolist will produce on that portion of the demand or average revenue curve which gives him negative marginal revenue, that is, which reduces his total revenue, while the production of additional marginal units adds to his total cost.

That the equilibrium of the monopolist will never be at the level of output at which the elasticity of demand curve or average revenue curve is less than one is illustrated in figure 6.3

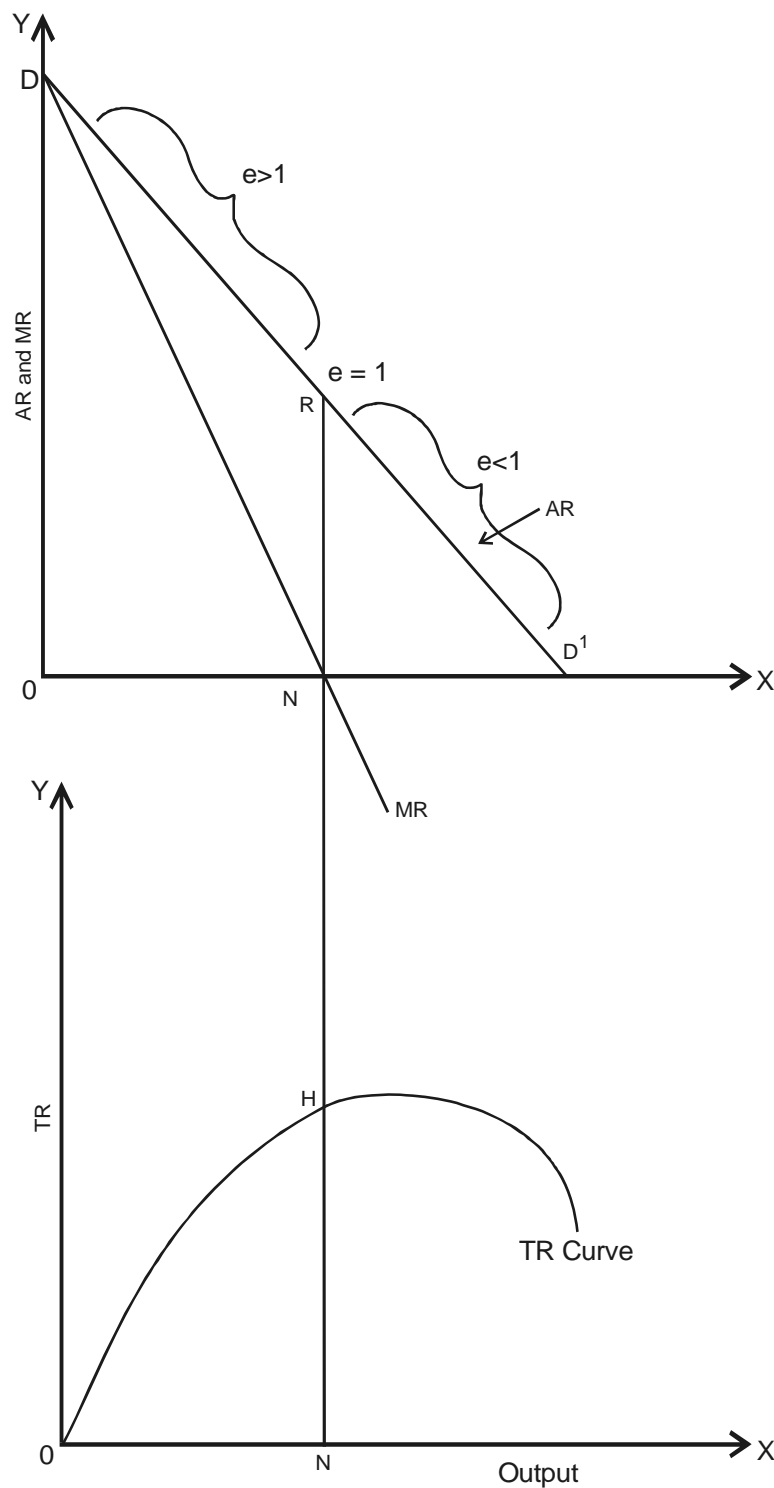


Figure 6.3

It will be seen from figure 6.3 (upper panel) that upto ON level of output, MR is positive and total revenue is increasing as upto this output level, price elasticity of demand on the demand or average revenue curve is greater than one. Equilibrium will always lie where elasticity is greater than one. We know that at the middle point R of the straight line demand

or AR curve, elasticity is equal to one and corresponding to this unit elasticity point, marginal revenue is equal to zero. Below the middle point R on the average revenue curve, elasticity is less than one and marginal revenue is negative.

The equilibrium of the monopolist will never lie below the middle point of the average revenue curve AR as over this range, marginal revenue becomes negative and total revenue (TR) decreases as it evident from the falling TR curve beyond ON output. Thus given that MC is positive, TR equilibrium cannot lie below the middle point of the average revenue curve where elasticity is less than one. It will always lie above the middle point of the average revenue curve where elasticity is greater than one. The precise point on which equilibrium point lies depends, as already explained, upon the position of marginal cost curve and its intersection point with the marginal revenue curve.

6.6 Profit maximization in a monopolized market

Equilibrium of the monopoly firm

Firms in a perfectly competitive market are price –takers so that they are only concerned about determination of output. But this is not the case with a monopolist. A monopolist has to determine not only output but also price for his product. Since, he faces a downward sloping demand curve, if he raises price of his product his sales will go down. On the other hand, if he wants to improve his sales volume he will have to be content with lesser price. He will try to reach that level of output at which profits are maximum i.e. he will try to attain the equilibrium level of output. How he attains this level can be found out as is shown below.

6.6.1 Short run Equilibrium

Conditions for the equilibrium: The twin conditions for equilibrium in a monopoly market are same as discussed earlier (i) $MC=MR$ (ii) MC

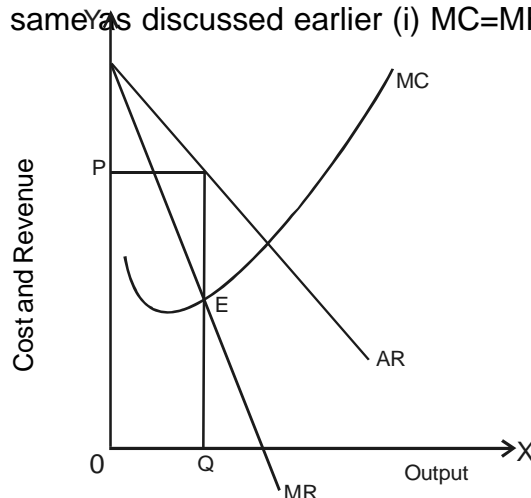
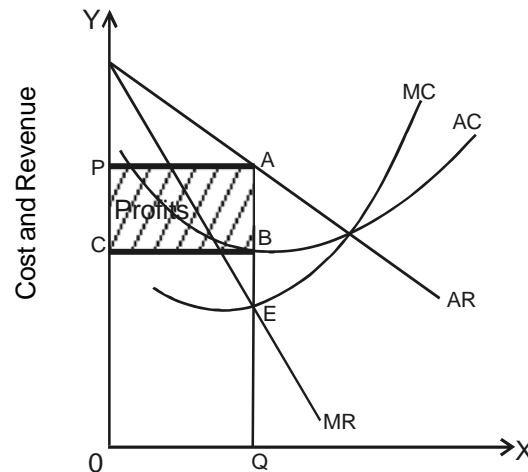


Fig 6.4 Equilibrium position of Monopolist

curve must cut MR curve from below. Graphically, we can depict these conditions in fig.6.4

The figure shows that MC curve cuts MR curve at E. That means at E, equilibrium price is OP and equilibrium is OQ.

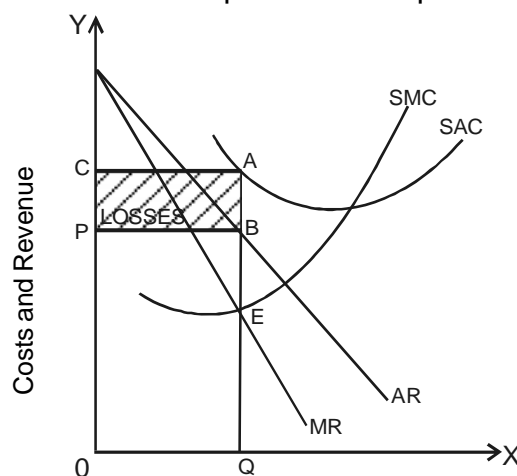
In order to know whether the monopolist is making profits or losses in the short run, we need to introduce average total cost curve. The following figure shows how the firm makes profits in the short run.



**Fig 6.5 Equilibrium of the monopolist :
super -normal profit in the short term**

Figure 6.5 shows that MC cuts MR at E to give equilibrium output as OQ. At OQ, price charged is OP (we find this by extending line EQ till it touches AR or demand curve.) Also at OQ, the cost per unit is BQ. Therefore, profit per unit is AB or total profit is ABCP.

Can a monopolist incur losses? One of the misconception about a monopolist is that he always makes profits. It is to be noted that nothing guarantees that a monopolist makes profits. It all depends upon his



**Fig 6.4 Equilibrium of the monopolist: Super-normal Profit in the
shortterm**

demand and cost conditions. If he faces a very low demand for his product and his cost conditions are such that $ATC > AR$, he will not be making profits but incur losses. Figure 6.6 depicts this position.

In the above figure MC cuts MR at E. Here, E is the point of loss minimization. At E, equilibrium output is OQ and equilibrium price is OP. Cost corresponding to OQ is QA. Cost per unit of output i.e QA is greater than revenue per unit which is BQ. Thus the monopolist incurs losses to the extent of AB per unit or total loss is ABPC. Whether the monopolist stays in business in the short run depends upon whether he meets his average variable cost or not. If he covers average variable cost and at least a part of fixed cost, he will not shut down because he contributes something towards fixed costs which are already incurred. If he is unable to meet his average variable cost even, he will shut down.

6.6.2 Long – Run Equilibrium under Monopoly:

In the long run monopolist would make adjustment in the size of his plant. The long-run average cost curve and its corresponding long-run marginal cost curve portray the alternative plants, i.e., various plant sizes from which the firm has to choose for operation in the long run. The monopolist would choose that plant size which is most appropriate for a particular level of demand. In the short run the monopolist adjusts the level of output while working with a given existing plant. His profit maximizing output in the short run will be where only the short-run marginal cost curve (i.e., marginal cost curve with the existing plant) is equal to marginal revenue. But in the long run he can further increase his profits by adjusting the size of the plant. So in the long run he will be in equilibrium at the level of output where given marginal revenue curve cuts the long-run marginal cost curve. Fixing output level at which marginal revenue is equal to long-run marginal cost shows that the size of the plant has also been adjusted. That plant size has been chosen which is most optimal for a given demand for the product. It should be carefully noted that, in the long run marginal revenue is also equal to short-run marginal cost curve. But this short-run marginal cost curve is of the plant which has been selected in the long run keeping in view the given demand for the product. Thus while, in the short run, marginal revenue is equal only to the short –run marginal cost of a given existing plant, in the long run marginal revenue is equal to the long run marginal cost as well as to the short run marginal cost of that plant which is appropriate for a given demand for the product in the long run. In the long run equilibrium therefore, both the long run marginal cost curve of the relevant plant intersect the marginal revenue curve at the same point.

Further, it is important to note that, in the long run, the firm will operate at a point on the long-run average cost curve (LAC) at which the

short-run average cost is tangent to it. This is because it is only at the tangency point that short-run marginal cost (SMC) of the optimal plant equals the long-run marginal cost (LMC). Figure 6.7 portrays the long-run equilibrium of the monopolist.

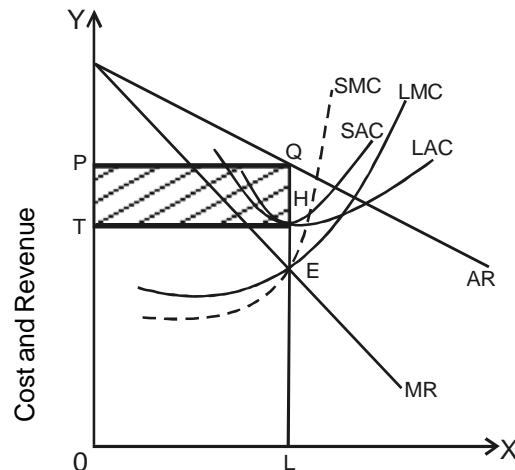


Fig 6.7 Long Run Equilibrium under monopoly

He is in equilibrium at OL output at which long-run marginal cost curve LMC intersects marginal revenue curve MR. Given the level of demand as indicated by position of AR and MR curves he would choose the plant size whose short-run average and marginal cost curves are SAC and SMC. He will be charging price equal to LQ or OP and will be making profits equal to the area of rectangle THOP.

It therefore follows that for the monopolist to maximize profits in the long –run, the following conditions must be fulfilled.

$$MR = LMC = SMC$$

$$SAC = LAC$$

$$P > LAC$$

The last condition implies in long-run monopoly equilibrium price of the product should be either greater than long-run average cost or at least equal to it. The price cannot fall below long-run average cost because in the long run the monopolist will quit the industry if it is not. Even able to make normal profits.

Check your Progress:

1. Explain short run equilibrium under monopoly.
2. Explain long run Equilibrium under monopoly.

6.7 Discriminating Monopoly (Price Discrimination)

Price discrimination means charging different prices to different consumers or groups of consumers for a similar product or service. In perfect competition, price discrimination cannot exist. It is possible only when the manufacture of a product or the availability of a service is in the hands of a monopolist, who can fix his own price. This power enables him to charge different prices to different consumers or groups of consumers or in different markets. This price discrimination policy of a monopolist is also known as Discriminating Monopoly.

6.7.1 Degree of Price Discrimination:

However, a monopolist's price discrimination is possible only under certain condition. But before we discuss these conditions, we shall acquaint ourselves with the different degrees of price discrimination, which have been dealt with by Prof. A.C. Pigou, an English economist, in his book Economics of Welfare. He deals with three degrees of price discrimination.

First degree unit wise price discrimination: - in the first degree price discrimination, a monopolist would charge different prices for different units sold to consumers and completely takes away the consumer's surplus. The monopolist finds out the maximum prices a consumer is prepared to pay for different units (see fig 6.8). By charging different prices for different units, the monopolist takes away the entire consumer's surplus. In the words of Mrs. Joan Robinson, this is perfect discrimination. In reality however, such discrimination is rarely possible.

Second degree lot wise price discrimination : In the second degree price discrimination, a monopolist takes away only a part and not the whole of the consumer's surplus. He would charge different prices for different lots of his products. He would charge the lowest demand price for each lot (see fig e.g) .For OM lot of the product, the monopolist charges OP_1 price, which is the lowest demand price for that lot. For the next MM_1 lot, the price charged is Op_2 which is the lowest demand price. For that lot price is OP_3 which is the lowest demand price for it.

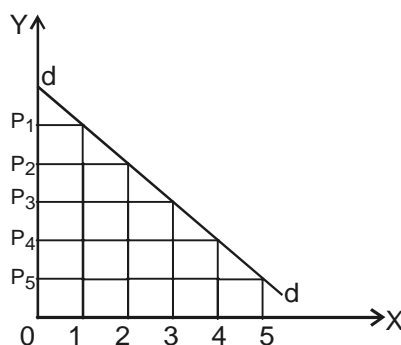


Fig 6.8 First degree Price Discrimination

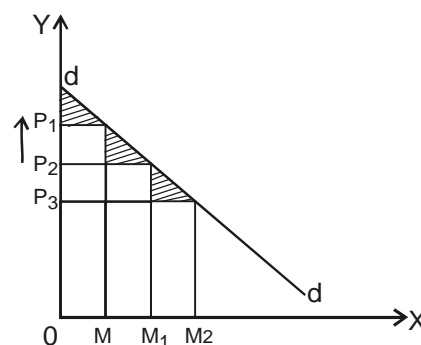


Fig 6.9 Second degree Price Discrimination

The best example of second degree price discrimination is that of an electricity company which may charge a higher price for the first few units of electricity consumed, a lower price for the next few units of electricity consumed, and a still lower price for the next few units. In this way, the company is able to take away part of the consumer's surplus.

Third degree (marketwise) price discrimination: A monopolist may be successful in dividing his consumers into separate groups or markets and charges different prices for his product sold to different groups or in different markets. This kind of price discrimination is described as the third degree price discrimination. We shall discuss this type of discrimination in detail. In real life, the third degree price discrimination is common.

6.7.2 When is Price Discrimination Possible?

Price discrimination is possible under the following conditions:

- (1) **No possibility of resale** : When there is no possibility of resale by one consumer to another. If the same product is sold to Mr. Bajaj at Rs.15/- and to MR. Ranganathan exchange goods without any difficulty, the price discrimination policy will fail, because Mr. Ranganathan will purchase the product for both himself and Mr. Bajaj.
- (2) **No knowledge to the consumer**: When the consumers are ignorant about price discrimination, they are not aware that in one part of the market prices are lower than in another part.
- (3) **Illusion for consumers**: Consumers paying a higher price generally feel that they are buying a better commodity. Shops in a posh locality charge a higher price than the price charged by shops in ugly or congested areas. Higher prices are charged for railway passengers travelling by first class and lower prices for those travelling by second class. Higher prices are paid by rich cinegoers for balcony tickets and lower prices are paid by poor cinegoers for lower stalls. Preferences and prejudices, thus, make price discrimination possible. Prof. Joan Robinson observes in her book Economics of Imperfect Competition, that various brands of a certain article, which in fact are almost exactly alike, may be sold as commodities of different qualities under different names and labels which induce rich buyers to distinguish themselves from poor buyers. In this way, the market is split up and the monopolist can sell what is substantially the same thing at different prices.
- (4) **Small Price** : differences ignored: Price difference may be so small that consumers do not mind them.
- (5) **Where services are personal** : Price discrimination may be based on the nature of the commodity. In the case of direct personal services like those of a surgeon or lawyer, higher charges may be collected

from certain rich consumers and lower charges from others (low income groups.) A very common example is that of doctors, who charge high fees to rich patients and lower fees to poor patients.

(6) Markets separately by distance: Price discrimination is often noticed where markets are separated by distance. A monopolist may sell the same product at a higher price in Bombay and at a lower price in Kerala or Bengal. This may be noticed, where markets are separated by national frontiers. A monopolist may sell his product at a higher price in the home market where there is no competition for his product and at a lower price in a foreign market, where he has to face stiff competition. This kind of price discrimination is known as dumping and such price discrimination is often noticed when a market is protected by tariffs on imports.

(7) Legal sanction : There may be legal sanction for price discrimination, for example, the BEST undertaking in Greater Bombay charges a lower price to industrial users and higher price to domestic users of electricity. Different railway freights are charged for transporting different types of goods by the Indian Railways.

6.7.3 When is Price Discrimination Profitable?

Price discrimination is profitable only when price elasticity of demand is different in the two markets where the monopolist intends to sell his products. If the price elasticity of demand in both the markets is same or equally elastic then price discrimination will not be profitable because marginal revenues in both the markets at various prices will be the same. However, if price elasticity of demand is different in different markets, it will make sense for the monopolist to indulge in price discrimination and maximize his combined marginal revenue.

For a given price, if price elasticities are different in the two given markets, the marginal revenues in the two markets will be different. Let us assume that monopoly price fixed by the monopolist is Rs.60 and elasticity of demand in markets I and II are two and four respectively, Now (Equation)

$$\begin{aligned}
 \text{MR in Market I} &= AR_I \frac{e_I - 1}{e_I} \\
 &= 60 \frac{2-1}{2} = 60 \times \frac{1}{2} = 30 \\
 \text{MR in Market II} &= AR_{II} \frac{e_{II} - 1}{e_{II}} \\
 &= 60 \frac{4-1}{4} = 60 \times \frac{3}{4} = 45
 \end{aligned}$$

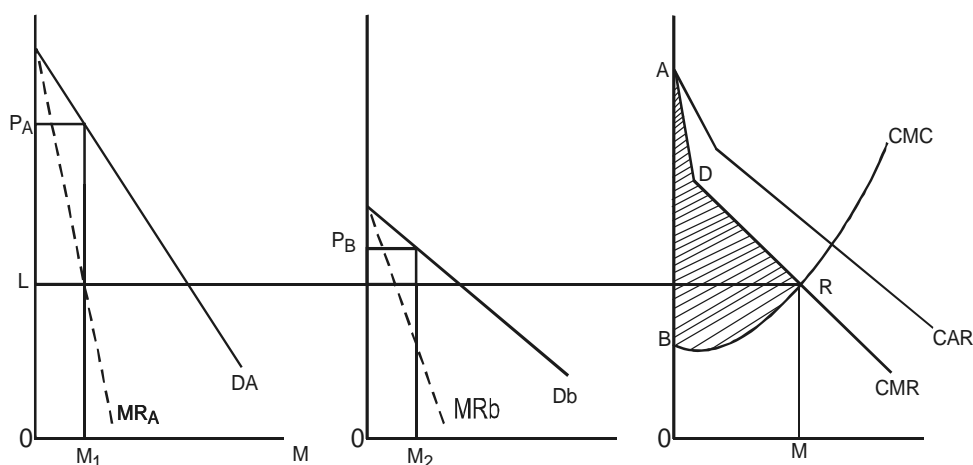
You will notice that the marginal revenue in both the markets is different when price elasticity of demand is different. You will also notice that the MR is greater in the market where the price elasticity of demand is higher. The monopolist can now transfer a part of his output to market II because MR is greater in Market II. Assuming that one unit of output is withdrawn from market I, the loss to the monopolist will be Rs.30/- but the gain in market II will be Rs. 45, thus making a net gain of Rs. 15. However, such shifting of products from market I to II will continue only till the time when the marginal revenues from both the markets become equal. Further, when the marginal revenue become equal in both the markets, the monopolist can raise the price in market I because it has lower price elasticity and lower the price in market II because it has higher price elasticity. The monopolist therefore can continue making profits as long as the price elasticity of demand is different in both the markets.

6.7.4 EQUILIBRIUM OF PRICE DISCRIMINATING MONOPOLIST

In order to explain we will discuss the Third Degree Price Discrimination. Let us point out the conditions under which price discrimination is possible and profitable.

- (1) Monopolist operates in two markets, say A and B.
- (2) The two markets differ in elasticities.
- (3) Production is undertaken at one place, let us assume it is at equidistance between the two markets so that there is no scope for price differentials on account of transport cost. Equilibrium output is determined at a point where MC cuts combined MR from below. Fig 6.10 explains the third degree price discrimination by a monopolist.

In Fig.6.10 A and B are the two markets. Fig. c explains production, Market A is inelastic and B is elastic. Production in fig. C is determined by the equilibrium conditions at point R. MR curve in C is combined MR i.e. derived from horizontal summation of fig A & B. The curve CMR is the combined MR curve.



**Fig 6.10(A) Sub
Market**

**Fig 6.10(B) Sub
Market**

**Fig 6.10 (C) Total
Market**

The upward sloping MC cuts CMR at point R. The total output OM is distributed between market A and B in such a way that MR earned in both the markets is equal ($MR_a = MR_b$). The horizontal line RL drawn from point R in figure C to fig. A shows the equality of marginal revenue (OL) both in A & B markets. Accordingly OM_1 and OM_2 output is sold in Market A and B at a price OP_1 and OP_2 respectively.

Price discrimination as shown in Fig.6.10 is possible because of:

- (1) Different markets (A & B) differ in price elasticities enabling him to charge different prices.
- (2) Total output is distributed in A and B markets in such a way where marginal revenue in both the markets is equal.
- (3) The monopoly firm in the above diagram, produce equilibrium output ($MC=MR$) and earns maximum possible profit.

| | | |
|----------|--------------|---------------|
| When its | $TR = OMRDA$ | $\pi = OMRDA$ |
| | $TC = OMRB$ | $= BRDA$ |

Check your Progress:

1. What is discriminating monopoly?
2. Distinguish between first and Second degree price discrimination.
3. When price discrimination is possible?
4. When price discrimination is profitable?
5. Explain third degree price discrimination.

6.7.5 DUMPING A CASE OF INTERNATIONAL PRICE DISCRIMINATION

When the monopoly firm resorts to price discrimination in the international market it is known as DUMPING. When the monopolist fixes a higher price in the home market and lower price in the international market, the monopolist is said to be dumping his products in the overseas market. A higher price is fixed in the domestic market because the firm enjoys monopoly status while a lower price is fixed in the overseas market because it is a competitive market. The practice of dumping in the international market is depicted in fig below.

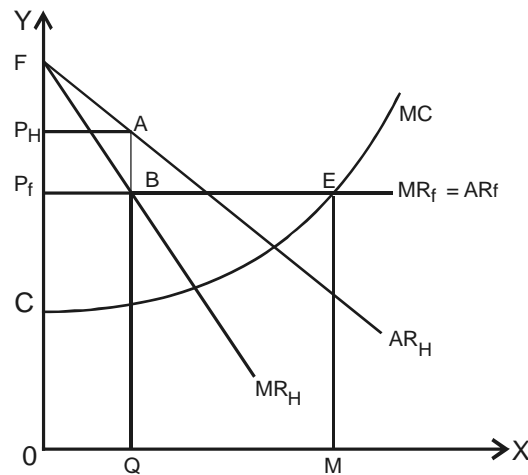


Fig 6.11 Dumping

You will notice from fig 6.11 that the demand curve of the monopoly firm in the international market is perfectly elastic ($AR_f = MR_f$) and the demand curve in the home market is downward sloping (AR_h). The marginal cost curve MC intersects the MR_d curve at point 'E' and equilibrium output OM is determined. The combined marginal revenue curve is $FBED$ which is the lateral summation of MR_f and MR_h . Now the total output OM is distributed between the home market and the overseas market in such a way that the MR in both the markets is equal to the marginal cost ' ME '. You will notice that when ' OQ ' output is sold in the domestic market, the marginal revenue is ' QB ' which is equal to ME ($QB = ME$). Hence, ' OQ ' output will be sold in the domestic market at price OP_h because the domestic price OP_h is determined by the demand curve in the domestic market (AR_h). The remaining output ' QM ' will be sold in the international market at the competitive price ' OP_f ' which is lower than ' OP_h '. The area ' $CEBF$ ' shows the total profits made by the monopolist from both the market. Once again it is proved the price discrimination or dumping is possible in the international market, because price elasticity of demand is different in both the market. The domestic price OP_h is higher because demand is relatively inelastic and the international price OP_f is lower because demand is perfectly elastic.

6.8 Summary

Monopoly market is characterized by a single seller. Being a monopolist he controls the entire market and decides the price to be charged. Hence, he is a price maker.

Price discrimination means charging different prices to different consumers for a similar product, or a service. Dumping is an example of international price discrimination.

6.9 Questions

- 1) Define
 - a) Monopoly
 - b) Discriminating Monopoly
 - c) Dumping
- 2) State and explain features of monopoly
- 3) Explain short and long run equilibrium of a monopolist.
- 4) What are the degrees of price discrimination?
- 5) Write a note on dumping.



Monopolistic Competition and Oligopoly

Unit Structure

- 7.0 Objectives
- 7.1 Introduction
- 7.2 What is monopolistic Competition
- 7.3 Features of Monopolistic Competition
- 7.4 Equilibrium of a monopolistically in Competitive firm the short-run
- 7.5 Equilibrium of a monopolistically in Competitive firm the long-run
- 7.6 Group Equilibrium in the Long Period
- 7.7 Selling Costs and Selling Costs
- 7.8 Production Costs and Equilibrium
- 7.9 Wastes of monopolistic competition
- 7.10 Oligopoly
 - 7.10.1 Characteristic of Oligopoly market
 - 7.10.2 Price Determination Curve model under Oligopoly
- 7.11 Summary
- 7.12 Questions

7.0 Objectives

After going through this unit you will be able to

- Know, what the monopolistic competition is?
- State the features of monopolistic competition
- Explain short and long run equilibrium of a monopolistically competitive firm
- Distinguish between selling and production costs
- Define oligopoly
- State features of oligopoly
- Explain kinky demand curve model under oligopoly

7.1 Introduction

We have so far studied market situations under perfect competition and monopoly. Till 1933 it was believed that economic forces were working under perfect competition, and monopoly was an exceptional situation. However, an economist, Mr. Sraffa, wrote in his article, 'The Law at Returns under competitive conditions', which was published in the *Economic Journal* in 1926: 'It is necessary to abandon the path of free competition and turn in the opposite direction, namely, towards monopoly.' In the actual world, perfect competition is conspicuous by its absence. Pure monopoly is also rare. In reality, a market situation lies between these two extremes. The theory of price was therefore, reformulated by Mrs. Joan Robinson and Prof. Edward Chamberlin. Mrs. Robinson's *Economics of Imperfect competition* and Prof. Chamberlin's *Theory of Monopolistic competition* was published about the same time in 1933, in Great Britain and the USA respectively. In this chapter, we shall study the theory of monopolistic competition which is Prof. Chamberlin's brainchild.

7.2 What is Monopolistic Competition

Under monopolistic competition, both the elements are present: monopolistic and competitive. Since there are many producers producing a product, there is an element of competition. But the product they sell is not homogeneous. Every individual producer differentiates his product in quality, by branding, packing, trademark, etc. Here enters an element of monopoly. There is monopoly in the form of a differentiated product. Each producer has a monopoly of his product. But at the same time, close substitutes are produced by different producers, and hence there is competition among them. While commenting on the aptness of the term monopolistic competition, Prof. Chamberlin observes: 'Where there is any degree of differentiation whatever, each seller has an absolute monopoly of his own product, but is subjected to the competition of more or less imperfect substitutes. Since each is a monopolist and yet has competitors, we may speak of them as Competing Monopolists, and, with the help of peculiar appropriateness of force at work as those of monopolistic competition.'

Let us take an Indian example of monopolistic competition. There are various manufacturers of bathsoap: Breeze, Dove, Goldmist, Jai, Hamam, Lux, Liril, Moti, Mysore Sandal, etc. The producer of Hamam has the monopoly to produce it. But he has to face competition from the manufacturers of Breeze, Liril, Moti, Mysore Sandal, Pears, Rexona, etc. because these are close substitutes of similar products. The following are the other examples of monopolistic competition in India.

7.3 Features of Monopolistic Competition

Monopolistic competition has the following main features:

(1) Large number of firms:

As under perfect competition, there is a large number of firms in the market. Each firm produces a small share of the total output of an industry. No one firm controls a significant proportion of the total market supply. The output decision of an individual firm does not affect the output decisions of any other firm. For example, there are 50 manufacturers of toilet soap. Producing a similar product, but with different brand names. Any small price cut by one firm would take some business away from its rivals, in equal proportion. The firm's own revenue will increase substantially, but that of other firms will not diminish much, and they would not take much cognizance of the price cut by such firm, and will not react. Thus, since there are a large number of firms, any action by an individual firm either in price-cut or price-rise and in increasing or decreasing output will have no effect on other firms. The existence of a large number of firms represents to competitive element.

(2) Product differentiation:

Even though all firms produce a similar product, they differentiate it in several ways. One way of product differentiation is based upon certain characteristics of the product itself, such as exclusive patented feature trade marks, trade name, peculiarities of packaging or container or singularity in quality, design, colour or style. Product differentiation may be real or fancied what is important here is that it leads buyers to a preference of one variety over another. For example, Forhans toothpaste may attract a particular class of buyers who believe that its formula is prepared by a foreign dentist, Mr. R.J. Forhans of New York City. Sway washing powder may induce buyers to buy it because of its attractive plastic container.

(3) Free entry and exit of firms:

Under monopoly, the entry of new firms is blocked or prevented because of technical or institutional factors. But under monopolistic competition, there is no such difficulty. New firms can and do enter or existing firm may leave the industry. The entry of new firms is not blocked because of the simplicity of production techniques and smallness of capital requirement. Those firms which are unfortunate continue to incurring losses leave the group in the long run whereas existence of supernormal profits attracts new entrepreneurs into the field.

(4) Selling costs:

Along with product differentiation, firms under monopolistic competition have to undertake sales promotional activity. Their expenditure on this activity is described as selling costs. Selling costs are defined by Prof. Chamberlin as costs incurred in order to alter the position or shape of the demand curve for a product, i.e, for shifting the demand curve to the right. Every producer is eager to increase the demand for his product by incurring such selling costs. They are incurred to persuade buyers to buy a particular firm's product in preference to that of another manufactures.

Selling costs include cost of advertising for promoting sales, salesmen's salaries and the expense of the sales department, margins granted to dealers in order to induce them to put in greater and better effort in favour of particular manufacture's product, cost of demonstration of new goods, etc. All these become a powerful force acting upon sales volume, and hence upon prices and profit. It is interesting to study various ways of sales promotions by different producers of the 'Similar' products, (eg. toothpastes of different makes) through cine advertising Tv feature films, press publicity hoardings, demonstrations, exhibition, displays, etc.

(5) Concept of group:

Prof. Chamberlin has used the word group instead of industry. Industry refers to a number of firms producing a homogeneous product under perfect competition. Under monopolistic competition, there is heterogeneity and therefore, Prof. Chamberlin has used the concept of group to imply a collection of firms producing closely related but not homogeneous goods.

7.4 Individual Equilibrium of a Monopolistically Competitive Firm (Short Period)

The process of individual equilibrium in the short period is shown in Fig.7.1 have noted that, for maximum profit, two conditions must be satisfied under perfect competition and monopoly 1) $MR=MC$ and (2) MC must cut MR from below. Under monopolistic competition also, a firm will make the maximum profits when these two conditions are satisfied. In the short periods, as shown in Fig 7.1.

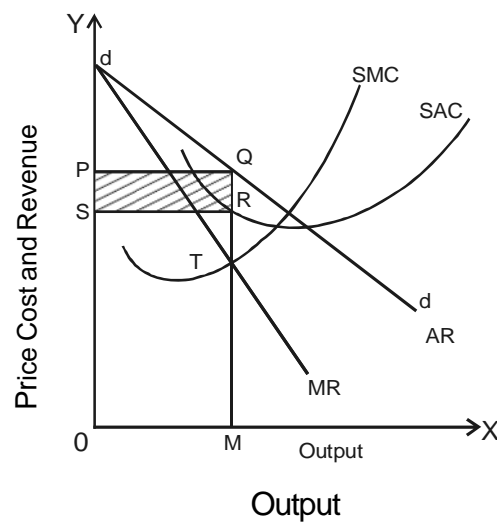


Fig. 7.1: equilibrium in the short-run with supernormal profits

The firm under monopolistic competition produces OM output at which MR and MC are equal and MC cuts MR from below. Since its average revenue is greater than the average cost, it is earning supernormal or abnormal profits. The main reasons for these abnormal profits is that other rival firms are not able to produce close competitive substitutes.

The firms, as shown in fig.7.1 makes supernormal profits shown by the rectangle PQRS (shaded area). However, it is also possible that the demand may not be favourable to a firm under monopolistic competition, and it may incur losses, as shown in fig.7.2. In the long run, it may leave the industry if it is not able to change its demand relative to its cost conditions through further product differentiation and advertising.

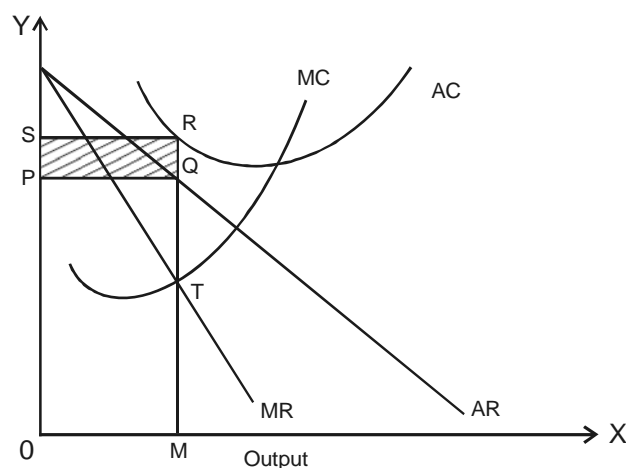


Fig 7.2 Equilibrium with losses

Check your Progress:

1. What is monopolistic competition?
2. Explain features of monopolistic competition.
3. Explain short run equilibrium of monopolistic competitive firm.

7.5 Equilibrium of a Monopolistic Firm in the Long Run.

In the long –period, a firm under monopolistic competition earn normal profits, as shown in Fig 7.3. It's rival firms are making similar products. New firms are started. The firm's supernormal profits are taken away by the competing firms producing very close substitutes.

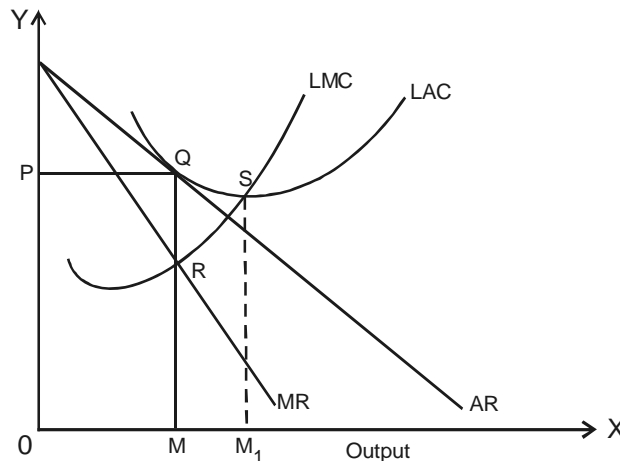


Fig 7.3 Long - run Equilibrium

Less than optimum output:- The long-run situation of a firm under monopolistic competition is similar to that of a firm under perfect competition in one respect, viz., in both these situations, a firm can earn only normal profits in the long period. However, there is one vital difference. Under perfect competition, the equilibrium output is produced at the minimum average cost (optimum output) because the average revenue curve of the firm is a horizontal straight line. But in monopolistic competition, the equilibrium output is smaller than the optimum output. This is because the firm's average revenue curve is not a horizontal straight line, but slopes downwards to the right, and hence it is impossible for it to be tangent to a given U-Shaped average cost curve at its minimum point. Thus, there remains some unused capacity called excess capacity under monopolistic competition. In fig 7.3 the excess capacity not used by the firm is MM1.

7.6 Group Equilibrium (Long Period)

Group equilibrium refers to the adjustment of prices and products of a number of producers whose goods are fairly close substitutes. For example, all television manufacturing firms may be regarded as one group of monopolistic competitors. As stated above, each firm in the group has downward sloping demand curve, the shape of which is determined by the actions of the very close rival producers within the group. Each firm has to be careful about such actions. A firm earning super normal profit has to keep on watching the action of other rival firms. If one producer makes large profits through successful product differentiation, other revival producer will attempt to produce products similar to, though not exactly identical with those of the rival producer making huge profits. In the long period, therefore, the super normal profits of this producer will be competed away by the existing firms and by the new firms which develop very similar products, e.g. TV sets produced by a group of firms. One firm makes a huge profit by introducing a new kind of TV sets (say with a remote control and multi channels). Other firms certain to introduce such a type of TV sets in the long period. Of course, their products cannot be identical; never the less, they will be able to share huge profit of the fortunate firm as a result of which all firms earn only normal profits. If all earn supernormal profit new firms will enter the group and share these profits by producing similar products. The best modern example is that of washing powder and bath soaps. Lured by the abnormal profits of the existing firms in the groups manufacturing washing powder and bath soaps, many new producers have entered these groups.

We see advertisement of these new products in various periodicals. In the long period, the group equilibrium will, therefore, be established where the price is equal to the average cost of production (see fig 7.4 A and B).

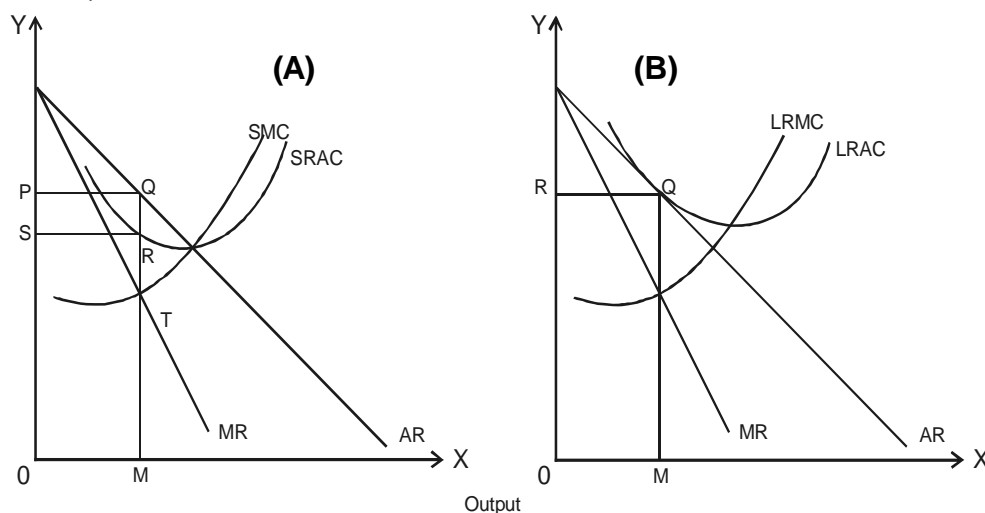


Fig 7.4 (A) Fortunate short period super-normal profits

Fig 7.4 (B) Group Equilibrium normal profits for all firms in long-run

In the Long period, the monopolistic profits of the fortunate firms (fig 7.4 A) will be carried away by the other existing firms and new firms entering the group. The long-run group equilibrium is shown in fig 7.4 B. All firms earn normal profits in the long period. The average cost (QM) is equal to the average revenue (QM). The equilibrium output is OM. The average revenue fig 7.4 B in the long period tends to be more elastic than the average revenue curve (fig 7.4A) in the short period.

7.7 Selling Costs and Equilibrium

A firm under monopolistic competition, as we have noted earlier, incurs additional expenditure on persuading people to buy its own products rather than those of its rival firms. This advertising is described as competitive advertising and is undertaken by rival firms to increase their individual sales at the expense of others in the group. The cost of advertising and other sales-promotion activities of a firm are called selling costs. So far, we have considered equilibrium position with price variation. Selling costs influence equilibrium price - output adjustment of a firm under monopolistic competition. (see fig 7.5)

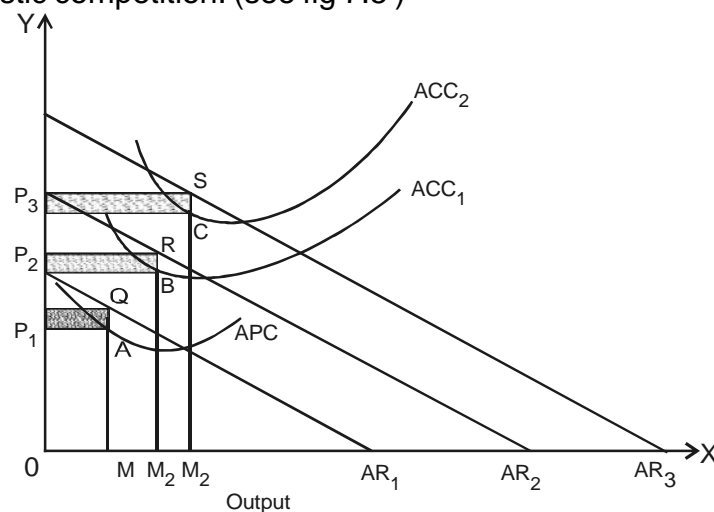


Fig 7.5 : Selling cost Equilibrium

Fig 7.5 illustrates the effect of selling outlay on competitive advertising. Before selling costs are incurred, the firm's average revenue and demand curve is AR_1 , while APC represents its basic production cost. It earns maximum profits, as shown by the first shaded area. Now, the firm spends Rs. 10,000 on competitive advertising. If the production is one unit, the average selling cost is Rs. 10,000/-. But when 5,000/- units are produced, it is Rs. 2 per unit; when 10,000 units are produced, it is Rs. 1 per unit. Thus, as the output increases, the selling cost per unit goes on decreasing. ACC_1 represents the average production cost plus the average selling cost at each level of output. The vertical distance between

APC and ACC1 is the average selling cost for the various levels of output when a sum of Rs.10,000/- is spent on advertising, the firm's demand increases and the demand curve shifts to the right (AR2). Its total profits are larger than before (second shaded rectangle). If the additional profits are more than Rs. 10,000/- the advertising expenditure is fruitful to the firm. The firm, therefore spend another Rs. 10,000/- on advertising. The total selling outlay is now Rs. 20,000/-. The new average cost curve is ACC2 and the new demand curve is AR3 which is the result of the rise in the selling cost. The firms total profits are longer (third shaded area). They must be more that Rs. 20,000/- which is the total selling cost on advertising. Otherwise, the firm would have simply wasted its money. How long will this continue? It will continue as long as any addition to the revenue is greater that the addition to the selling cost. The firm will stop incurring selling costs when the total profits are at the highest possible level. This would be the point due to the additional revenue due to advertising expenditure on advertising.

It should be noted that the effects of advertising on prices and output are uncertain. Advertising by a firm may be considered successful if the elasticity of demand for its products falls.

Table 7.1 Schedule of Selling Costs & Profits

| Doses | Doses of additional selling costs of (Rs) | Additional Revenue from Additional Dose of Selling Cost (Rs.) |
|-------|---|--|
| 1 | 10,000 | 15,000 |
| 2 | 10,000 | 12,000 |
| 3 | 10,000 | 10,000 |
| 4 | 1 0,000 | 8,000 |

7.8 Distinction Between Production Costs and Selling Costs.

- (1) Production Costs include all costs incurred for producing a commodity, viz, costs of raw materials, power, labour, land, capital, etc. These costs include rent, wages, interest and normal profits. According to Prof. Chamberlin, Production costs include all costs incurred for producing a commodity or providing a service, cost of transport and cost of distribution to enable the buyer to ultimately get these commodities or services. Selling costs, on the other hand, include all costs aimed at increasing sales of a commodity, i.e. for creating additional demand for a commodity. These costs include

cost of cine, TV and press advertising, demonstrations, hoardings, distribution of free gifts, exhibition, displays, etc.

- (2) Production costs vary according to the total quantity of the commodity to be produced, scale of operations and nature of the commodity. Selling costs vary according to the nature and degree of competition.
- (3) The motive behind production costs is to increase production of the commodity and reach it to the consumer as fast as possible and in the best possible manner. The motive behind selling costs is to increase demand for the commodity by influencing the consumer through advertising, hoardings, demonstration, etc.
- (4) It is argued that production costs create utility, but selling costs do not create utility. Even though this may be true to some extent, yet even selling costs have educational and aesthetic value and, thus, they do create utility. Many advertising films have entertainment value. For example, sponsored programmes on TV by manufacturing firms, such as Tara, Hasrate, Close up Antakshari, Krishna, etc.
- (5) Production costs add to the economic welfare of the country because they directly add to the real national income through the supply of goods and services. Selling costs, on the other hand, do not appear to contribute to the economic welfare of the community though they do add to the national income in the form of services. Many a time, due to severe competition, selling costs, becomes a waste of economic resource. Price increases considerably due to selling cost. Of course, it is to that selling cost does provide employment to artists and others in the field.
- (6) Production cost adjusts supply of product to the demand for it, and selling costs adjust demand to the supply of the product. Similarly more and more demand is created for the product through selling cost and additional production costs have to be incurred to meet this increased demand. These points of distinction enable us to precisely define what are production cost and what are the selling costs are those costs which adapt product to the demand for it and selling costs are those which adapt demand to the product.

Production costs are incurred to satisfy consumer's wants whereas selling costs are incurred to change consumer's want. For example, production costs in a cigarette factory are incurred to satisfy smokers; a large selling cost is incurred by the producers of cigarettes to convert non-smokers into smokers through attractive advertisements.

Check your Progress:

1. Explain equilibrium of monopolistic firm in the long run.
 2. What is Group equilibrium?
 3. Distinguish between Selling cost and Production.
-
-
-
-

7.9 Wastes of Monopolistic Competition

Under monopolistic competition, there are several wastes and both the consumers and factors of production are exploited. These wastes of monopolistic competition have been pointed out by Prof. Rothschild. Let us discuss them briefly.

- (1) Unemployment:** In monopolistic competition, the problem of unemployment is aggravated for many reasons. One of these is the fact that productive capacity is not fully utilized under monopolistic competition and, therefore, employment is not increased. Further, in order to maintain high prices, production is sacrificed and this may aggravate cyclical unemployment.
- (2) High price for the consumer:** Under monopolistic competition, a consumer has to pay a higher price for a product than under perfect competition even in the long period. Even though the firm is earning only normal profits, the price paid by the consumer is more than that under perfect competition.
- (3) Excess capacity:** Under monopolistic competition, a firm's equilibrium output is less than the optimum output. The average cost at the equilibrium level is more than the minimum. In fig 7.4(B), equilibrium output is OM, which is less than the optimum output. There is excess or unused capacity which is regarded as a waste in monopolistic competition.
- (4) Selling cost:** Under monopolistic competition, as we have noted above, extra expenditure is incurred by firm on competitive advertising to increase individual sales. This advertising is regarded as a waste under monopolistic competition, because it leads to wasteful competition among rival firms and increases the cost which is passed on to the consumers in the form of higher price. Thus, competitive advertising is a clear waste of resources.
- (5) Lack of specialization:** Since there are many rival firms producing similar, but not identical products, the scope of large-scale production is limited by the smallness of size. There is inadequate specialization

and a firm cannot reap the advantages or economies of large-scale production. Thus, consumers are deprived of the fruits of specialization and large-scale production.

(6) Cross- transport: There is a waste of cross- transport under monopolistic competition. The product of a Calcutta manufacturer may be sold in Bombay and a similar product of Bombay producer may be sold in Calcutta. The consumers have to pay an increased price, which would include transport costs. If the Calcutta producer serves the Calcutta market and the Bombay producer serves the Bombay market, transport cost can be avoided and the consumers would be benefited. But this does not happen because of product differentiation, and every rival producer likes to capture the market throughout India.

(7) Consumers hypnotised: Through colorful packaging, beautiful displays, attractive advertising, consumers, in a way, are hypnotized and buy even inferior quality goods at higher prices. Many honest firms unable to spend lavishly on advertising die prematurely.

The only advantage, it appears, of monopolistic competition is that, under it, varieties and alternatives are offered by rival firms through product differentiation. There is also a possibility of improvement in quality. However, in the real world, we find that waste is greater than benefits under monopolistic competition.

7.10 OLIGOPOLY

We have studied price and output determination under three market forms, namely, perfect competition, monopoly and monopolistic competition. However, in the real world economies we find that many of the industries are oligopolistic. Oligopoly is an important form of imperfect competition. Oligopoly is often described as 'competition among the few'. In other words, when there are few (two to ten) sellers in a market selling homogeneous or differentiated products, oligopoly is said to exist. Consider the example of cold drinks industry or automobile industry. There are a handful of firms manufacturing cold drinks in India. Similarly there are few members of automobile industry in India. These industries exhibit some special features which are discussed in the following paragraphs.

7.10.1 Characteristics, of Oligopoly Market:-

(1) Few Sellers: The oligopoly market is characterized by few large firms or sellers each sharing a substantial portion of the total market. The number varying from at least two sellers to about ten since the market shares of individual firms are substantial, changes in price and output of one firm influences the price and output policies of rival firms.

(2) Interdependence amongst the Firms: On account of the fewness of numbers, the firms are interdependent in their decision-making with regard to price, production and promotional policies. The product offered by the firms are close substitutes and hence the cross price elasticity of demand is not only positive but also high. As a result, inaction of individual firms in the face of price reduction or product differentiation would only be at the cost of reduced market share. Hence under oligopolistic competition, firms react immediately to the changes in the business policies of rival firms.

(3) Selling Costs: Aggressive advertising and sales promotion exercises is an important characteristic feature of oligopolistic competition. Since the products are close substitutes, the only way to retain or enlarge ones market share is to resort to non-price competition. Prof. Willim Baumol in his work 'Economic Theory and Operations Analysis' has rightly remarked that "It is only under oligopoly that advertising comes fully into its own," A firm under oligopoly therefore competes by increasing advertisement expenditure, product quality improvement and other sales promotion strategies.

(4) Group Behavior: The oligopoly market consists of a small group of big sellers who are extremely interdependent. In determining their price and output policies, their behavior is found to vary from collusion to competition. If they find that competition is being stretched beyond the desirable limits, they may enter into tacit co-operation or collusion and make common cause yet at other times, intense cut-throat competition may be witnessed in order to retain and expand their market shares. Thus the behavior of the group under oligopolistic competition is uncertain and therefore unpredictable.

(5) Indeterminate Average Revenue Curve: The average revenue curve or the demand curve of an oligopoly firm is found to be indeterminate on account of the inability to predict or foresee the reactions of the competing firms to one's own business strategies particularly the price and output policies. The demand curve therefore loses its definiteness and determinateness on account of its responsiveness to the changing prices of substitutes in the market.

(6) Price Rigidity-or Inelastic Price : Heterogeneous Oligopoly is characterized by price inelasticity or rigidity. It is fixed at a certain level because a movement away from the fixed price proves to be counter productive. For instance, if a firm decides to reduce the price, all the rival firms will follow suit and reduce the price reduction exercise to meaninglessness. Similarly, if a firm will follow resulting in loss of

market share for the firm which has attempted price risk. Thus once the price is fixed at a certain level, it is found to remain constant.

7.10.2 Price Determination Under Oligopoly

Due to indeterminate nature of demand curves of oligopoly there is no single and simple solution to the price-determination problem under oligopoly. This is due to the uncertainty regarding the reactions of the rivals to any move by an individual firm. In the words of Baumal, when a businessman wonders about his competitor's likely response to some move which he is considering, he must recognize that his competitor too, is likely to take this interdependent phenomenon into account. The firm's attempts to outguess one another is then likely to lead to an interplay of anticipated strategies and counter strategies which is tangled beyond the hope of direct analysis.

Again the objective of a firm in an oligopoly situation may not necessarily be profit maximization. Prof. Rothschild says that an oligopolist's objective in price output fixation is maximizing security or achieving reasonable amount of profit over a long period of time. According to Prof. Boumal, it is maximizing of sales which is an objective of an oligopolist.

It is for these reasons, viz, indeterminacy of demand curve and variety of objectives, that there is no single determinate solution of the oligopoly price problem. There are many possible solutions, but we will discuss here a Kinky Demand Curve Model.

Check your Progress:

1. What do you understand by Oligopoly ?
2. How price is determined under Oligopoly ?

7.10.3 Kinky Demand Curve Model under Oligopoly

As we have noted earlier, if a firm adopts a policy of reducing its price, it cannot assume to move over the same demand curve, because of the reaction by its rivals who may reduce their prices. The demand of the firm's product therefore cannot expand to the same extent as that in the case of its earlier demand curve. The demand curve after price cut would become less elastic due to adverse reaction of the rival firms who may reduce their prices and hence the demand for the price cutting firm

will not expand much. The demand curve will become kinky as shown in fig. 7.6

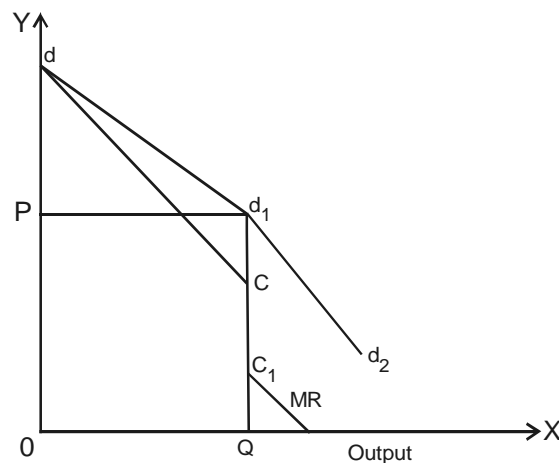


Fig 7.6 : dd_1d_2 is a kinky demand curve.

In fig 7.6 at OP price, the output sold by the firm is OQ. If the price OP is reduced by the firm, the adverse reaction by other firms will change the shape of the demand curve from d_1 towards x-axis. It will become relatively less elastic from d_1 onwards. For the firm, dd_1 is an elastic demand curve based on ceteris paribus assumption (other conditions remain same – no reaction $d_1 d_2$ part of the demand curve is less elastic, based on mutatis mutandis (i.e. subject) to all reactions by other firms) assumption. The demand curve dd_1d_2 becomes 'kinked' at the current price OP. MR curve has also two slopes dc section relates to the demand curve dd_1 (ceteris paribus assumption) and $c_1 c_2$ section relates to the d_1d_2 demand curves (mutatis mutandis) assumption, i.e. considering all reaction. There is a vertical discontinuity in the marginal revenue curve, between c and c_1 . This gap will depend upon the relative slopes of two sections of the demand curves, viz, dd_1 and $d_1 d_2$, which are decided by the elasticity of demand under two situations (ceteris paribus dd_1 and mutatis mutandis $d_1 d_2$)

For profit maximizing output, the MC curve of the firm should pass through either C or C_1 or through some point between C and C_1 as shown in fig 7.7. This will ensure profit maximizing price and output conditions, viz, $MR=MC$ and MC cuts MR from below. The total profits are $pd_1 RS$ (see fig 7.7)

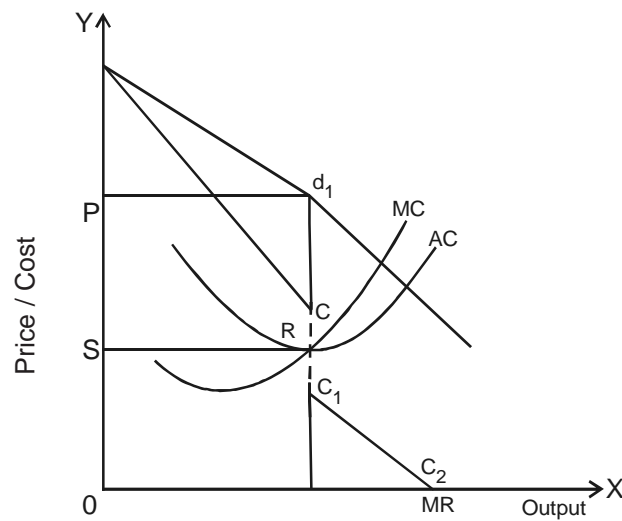


Fig 7.7 Profit maximising price and output condition under oligopoly

Price rigidity under oligopoly: The kinked demand curve analysis is not a theory of price determination. It starts from the current price and output levels rather than attempting to find out the equilibrium price and output levels from the cost and demand schedules. Kinked demand curve rather explains the price rigidity under oligopoly, when costs conditions and demand conditions change. In other words, under oligopoly though the marginal cost curve and marginal revenue curve shift considerably, the profit maximizing price level would remain the same (see fig7.8 and fig7.9) The price will change only if MC curve changes below MC1 curve or beyond MC2 curve. Fig 7.8

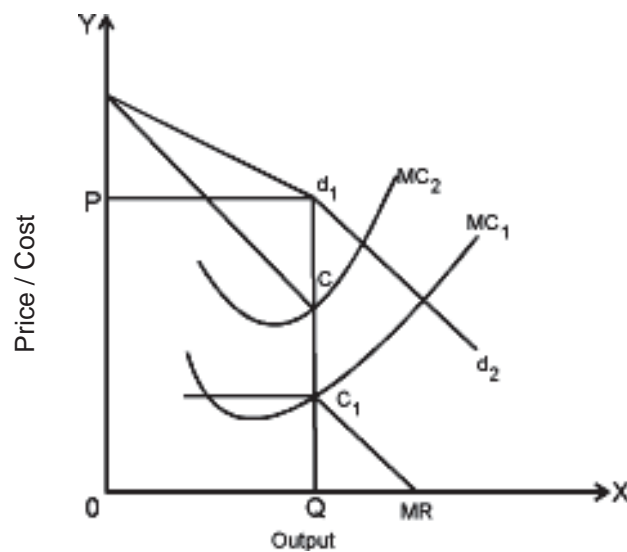


Fig 7.8

In the above fig.7.8 whether MC₁ curve moves up to MC₂ or MC₂ moves down to MC₁, OP still remains the profit maximizing price.

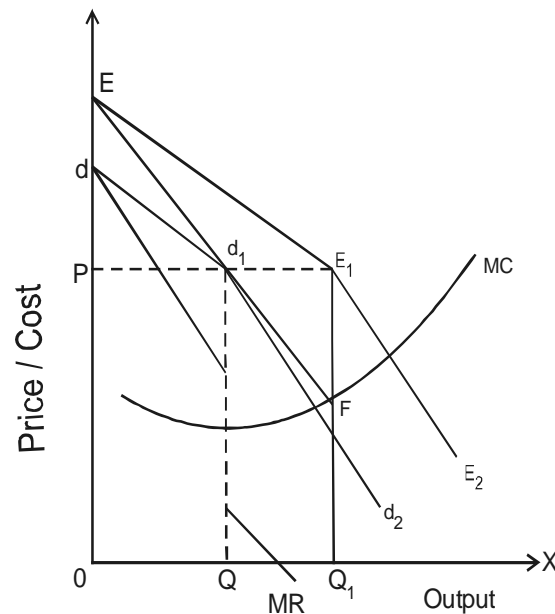


Figure 7.9

In fig.7.9 the demand curve dd_1d_2 shifts to EE_1E_2 . The new MR curve is EF. However, since MC cuts MR at P, such that the same OP price prevails in spite of demand shifts. Price will change only when there is a considerable change in the demand curve.

7.11 Summary

Under monopolistic competition both the elements are presents-monopolistic and competitive. Since there are many producers producing a product, there is an element of competition. But there is monopoly in the form of differentiated product. Product differentiation and selling cost are the special features of monopolistic competition. Oligopoly can be described as 'competition among the few'. Interdependence amongst the oligopolist has resulted into price rigidity and demand curve with indeterminate shape.

7.12 Questions

1. Define:
(a) Monopolistic competition (b) Oligopoly.
(c) Production cost, and (d) Selling costs.
2. What are the features of monopolistic competition?
3. Explain the short-run equilibrium of a monopolistically competitive firm.

4. Explain the group equilibrium in the long-run.
5. Explain the wastes of monopolistic Competition.
6. Discuss the features of oligopoly.
7. Explain the kinky demand curve model under oligopoly .



MANAGEMENT

UNIT STRUCTURE

- 8.0 Objectives
- 8.1 Introduction
- 8.2 The Evolution of Management Thought
- 8.3 Contingency Approach to Management
- 8.4 Contribution of Frederick Winslow Taylor, Henri Fayol, Elton Mayo
- 8.5 Functions of Management
- 8.6 Social Responsibilities of Companies
- 8.7 Summary
- 8.8 Questions

8.0 OBJECTIVES

After studying the unit the students will be able to

- Understand the evolution of management thoughts through various schools of thoughts.
- Explain the System contingency approaches to management.
- Know the contribution of F. W. Taylor, Henri Fayol and Elton Mayo to the development of management.
- Elaborate the various management functions.
- Discuss the responsibilities of business/management to the society

8.1 INTRODUCTION

Through the practice of management and the continued development of commerce and wealth we are transforming our lives. While appreciating the past success of 'management' we would also recognise that today's accelerating pace of change is putting pressure on our organisations to be at the forefront of management thinking.

In his comprehensive book 'The Evolution of Management Thought' Daniel A Wren writes, "Within the practices of the past there are lessons of history for tomorrow in a continuous stream. We occupy but one point

in this stream. The purpose... is to present...the past as a prologue to the future.”

So with the aim of accelerating the development of our management practice for the future let us examine that stream of evolving management thought of the past.

8.2 THE EVOLUTION OF MANAGEMENT THOUGHTS

The evolution of the discipline of management has helped to develop a body of knowledge about the practice of management. Within the field of management, eight schools of thought have contributed significantly to the development of management.

The following table brings together the theories of management and the issues that they address.

Theories of management and the problems they address

| | |
|--|--|
| Theories of management skills The human relations school The organisation behaviour school The information and decision school | The motivational problem Improving the integration of people into organisations The management decision-skills problem |
| Theories of management functions Scientific management The quantitative school The strategic management school | The human productivity problem The application of objective functions to management The organisation long-range planning problem |
| Theories of organisation systems Administrative management The organisation theory school | The organisation problem The organisation design problem |

Table 1

In this chapter, we will focus on four well-established schools of management thought: the scientific management school, the classical organization theory school, the behavioral school, and the management science school. Although these schools, or theoretical approaches,

developed historical sequence, later ideas have not replaced earlier ones. Instead, each new school has tended to complement or coexist with previous ones. At the same time, each school has continued to evolve, and some have even merged with others.

8.2.1 THE SCIENTIFIC MANAGEMENT SCHOOL:

Scientific Management theory arose in part from the need to increase productivity. In the United States especially, skilled labor was in short supply at the beginning of the twentieth century. The only way to expand productivity was to raise the efficiency of workers. Therefore, Frederick W. Taylor, Henry L. Gantt, and Frank and Lillian Gilbert devised the body of principles known as scientific management theory.

F W Taylor is considered to be the father of scientific management. Henry Gantt, Frank and Lillian Gilberth and Harrington Emerson supported Taylor in his efforts. Together with Taylor they revolutionized management thinking. Scientific management is the name given to the principles and practices that grew out of their work of Taylor and his followers and that are characterized by concern for efficiency and systematization in management. Four basic part of a series of ideas developed by Taylor are as follows:

- Each person's job should be broken down into elements and performed in a scientific way.
- Workers should be scientifically selected and trained to do the work.
- There should be co-operation between management and workers. And
- There should be division of labour between managers and workers.

Among the other significant contribution to this school of thought was Henry L Grant. He emphasized the psychology of the worker and the importance of morale in production. Grant devised a wage payment system and developed a chart in system of control for scheduling production operation which became the basis for modern scheduling techniques like CPM and PERT.

Frank and Lillian Gilbert concentrated on time-and-motion study to develop more efficient ways of performing repetitive tasks. Time-and-motion study and piece-rate incentives are two major managerial practices developed and widely in use today.

Harrington Emerson in his book "Twelve Principles of Efficiency" states that a manager should carefully define objectives, use the scientific method of analysis, develop and use standardized procedure, and reward employees for good work.

8.2.2 CLASSICAL ORGANIZATION SCHOOL:

Scientific management theory concerned the optimization of individual workers and work processes. During the same period, classical organization theory complimented scientific management by providing a framework for the structuring the organization. The leading proponents of classical organization theory were Henri Fayol (a French engineer), Lyndall Urwick (a British company manager), and Max Weber (a German sociologist).

Classical organization theory is the “B” in bureaucracy. Weber defined the organization elements which comprised the “ideal bureaucracy.” These included:

- A clearly defined set of rules and procedures
- Division of labor according to functional expertise
- A clear chain of command
- Individual advancement based on merit
- Professional managers

As you can see, many aspects of Weber's “ideal bureaucracy” are simply measures that ensure fairness and objectivity.

The Classic organizational theory has been derived from organizational structures and procedures during the industrial revolution which emphasis the Economic rationale for the factory system and believed that all formal organizations are force multipliers. It main features:

- Organizations exist to accomplish production-related and economic goals.
- There is one best way to organize for production, and that way can be found through systematic, scientific inquiry.
- Production is maximized through specialization and division of labor.
- People and organizations act in accordance with rational economic principles.

The Classic organizational theory is followed by Neoclassical Organization Theory and the Modern Structural Organization Theory which talked about the important source of the power and politics, organizational culture, systems theory, specialization and division of labour.

8.2.3 BEHAVIOURAL MANAGEMENT SCHOOL:

The **behavioural management theory** is often called the human relations movement because it addresses the human dimension of work. Behavioural theorists believed that a better understanding of human behaviour at work, such as motivation, conflict, expectations, and group dynamics, improved productivity.

The theorists who contributed to this school viewed employees as individuals, resources, and assets to be developed and worked with — not as machines, as in the past. Several individuals and experiments contributed to this theory.

The Elton Mayo and Roethlisberger contributions through The Hawthorne experiments in Chicago from 1924 to 1932. The general conclusion from the Hawthorne studies was that human relations and the social needs of workers are crucial aspects of business management. **Abraham Maslow**, developed one of the most widely recognized **need theories**, a theory of motivation based upon a consideration of human needs. His theory of human needs had three assumptions:

- Human needs are never completely satisfied.
- Human behaviour is purposeful and is motivated by the need for satisfaction.
- Needs can be classified according to a hierarchical structure of importance, from the lowest to highest.

The Two Factor theory of Douglas McGregor that, the Theory X manager has a negative view of employees and assumes that they are lazy, untrustworthy, and incapable of assuming responsibility. On the other hand, the Theory Y manager assumes that employees are not only trustworthy and capable of assuming responsibility, but also have high levels of motivation.

As a group, these theorists discovered that people worked for inner satisfaction and not materialistic rewards, shifting the focus to the role of individuals in an organization's performance.

8.2.4 MANAGEMENT SCIENCE SCHOOL:

During World War II the allies faced many complex problems and to overcome these problems operational research teams were set up, consisting of mathematicians, physicists and other scientists, who pooled their knowledge to solve problems. After the war, their ideas were applied to industrial problems which were previously unsuccessfully solved by conventional means. With the aid of the electronic computer, these procedures became known as the “management science” school relying heavily on quantitative methods.

The contribution of the quantitative school was greatest in the areas of planning and control. However, many doubted the ability of this school to deal effectively with “people.” The techniques in this school consisted of capital budgeting, production scheduling, optimum inventory levels and development of product strategies

The management science school differs from the classical and behavioral schools in the following ways:

- The classical or scientific management approach concentrates on the efficiency of the manufacturing process. The management science school places greater weight on the overall planning and decision-making process.
- It relies heavily on the use of computers and mathematical models in planning;
- It is focused on the evaluation of effectiveness of models like the techniques of the use of models in managerial decision making: the return on investment analysis for example.

In essence, by using computers and quantitative analysis techniques, the management science school has made it possible to consider the effect of a number of variables in organizations which may otherwise have been overlooked. It must be emphasized that statistical evidence alone may not be sufficient to solve various management problems. The more comprehensive techniques of the behavioural school or the administrative management approach may still be needed to complement. Especially the behavioural school has the ability to look at the welfare of staff and can identify the reasons behind certain behaviour.

CHECK YOUR PROGRESS:

1. Briefly explain the evolution of management thoughts along with the theories of management and the problems they address
2. In a nut shell discuss the four management schools that you have studied.

8.3 CONTINGENCY APPROACHES TO MANAGEMENT

The contingency approach believes that it is impossible to select one way of managing that works best in all situations like promoted by Taylor.

The contingency approach believes that it is impossible to select one way of managing that works best in all situations like promoted by Taylor. Their approach is to identify the conditions of a task (scientific management school), managerial job (administrative management school) and person (human relations school) as parts of a complete management situation and attempt to integrate them all into a

solution which is most appropriate for a specific circumstance. Contingency refers to the immediate (contingent or touching) circumstances.

The manager has to systematically try to identify which technique or approach will be the best solution for a problem which exists in a particular circumstance or context.

An example of this is the never ending problem of increasing productivity. The different experts would offer the following solutions:

- Behavioural scientist: create a climate which is psychologically motivating;
- Classical management approach: create a new incentive scheme;
- Contingency approach: both ideas are viable and it depends on the possible fit of each solution with the goals, structure and resources of the organization.

The contingency approach may consider, for policy reasons, that an incentive scheme was not relevant. The complexity of each situation should be noted and decisions made in each individual circumstances.

It should be realized that the contingency approach is not really new because Taylor already emphasized the importance of choosing the general type of management best suited to a particular case. Henri Fayol, in turn, also found that there is nothing rigid or absolute in management affairs.

Similar ideas were expressed in the 1920s, by Mary Parker Follett (1865-1933) who was greatly interested in social work and was a genius for relating individual experience to general principles. Her concept of the law of the situation referred to the necessity of acting in accordance with the specific requirements of a given situation. She noted that these requirements were constantly changing and needed continuous efforts to maintain effective working relationships.

The contingency approach seeks to apply to real life situations ideas drawn from various schools of management thought. They claim that no one approach is universally applicable and different problems and situations require different approaches. Managers must try to find the approach that is the best for them in a certain given situation, so they can achieve their goals.

It is important to note that the contingency approach stresses the need for managers to examine the relationship between the internal and external environment of an organization. Critics of the contingency approach have blamed it to lack theoretical foundation and are basically intuitive. Managers today are advised to analyze a situation and use ideas

from the various schools of thought to find an appropriate combination of management techniques to meet the needs of the situation.

CHECK YOUR PROGRESS:

1. What is contingency approach to management?

8.4 CONTRIBUTION OF FREDERICK WINSLOW TAYLOR, HENRI FAYOL, ELTON MAYO

8.4.1 Frederick Winslow Taylor:

Frederick Winslow Taylor was born in 1856 to a wealthy Quaker family in Germantown, Philadelphia, Pennsylvania. After the depression of 1873, Taylor became an industrial apprentice patternmaker, gaining shop-floor experience at a pump-manufacturing company.

Taylor is regarded as the father of scientific management, In Peter Drucker's description; Frederick W. Taylor was the first man in recorded history who deemed work deserving of systematic observation and study. On Taylor's 'scientific management' rests, above all, the tremendous surge of affluence in the last seventy-five years which has lifted the working masses in the developed countries well above any level recorded before, even for the well-to-do.

Taylor believed that the industrial management of his day was amateurish, that management could be formulated as an academic discipline, and that the best results would come from the partnership between a trained and qualified management and a cooperative and innovative workforce. Each side needed the other, and there was no need for trade unions.

Taylor's approach is also often referred to, as Taylor's Principles, or frequently disparagingly, as Taylorism. Taylor's scientific management consisted of four principles:

1. Replace rule-of-thumb work methods with methods based on a scientific study of the tasks.
2. Scientifically select, train, and develop each employee rather than passively leaving them to train themselves.
3. Provide "Detailed instruction and supervision of each worker in the performance of that worker's discrete task" (Montgomery 1997: 250).

4. Divide work nearly equally between managers and workers, so that the managers apply scientific management principles to planning the work and the workers actually perform the tasks.

Taylor had very precise ideas about how to introduce his system. It is only through enforced standardization of methods, enforced adoption of the best implements and working conditions, and enforced cooperation that faster work can be assured. And the duty of enforcing the adoption of standards and enforcing this cooperation rests with management alone.

Taylor thought that by analyzing work, the “One Best Way” to do it would be found. He is most remembered for developing the time and motion study. Taylor’s system was widely adopted in the United States and the world until its demise in the 1930’s as organized labor pushed for a minimum wage based on hourly pay, as opposed to Taylor’s contention that pay ought to be based on performance. In practice “Taylorism” too often fell short of collaboration between labor and management and, frequently, was a mask for business exploitation of workers. The enduring and unquestionable contribution of Frederick Taylor is that management is firmly established as something done by trained, professional practitioners and is elevated as the subject of legitimate scholarship.

8.4.2 GEORGE ELTON JOHN MAYO (26 December 1880 - 7 September 1949):

George Elton John Mayo was an Australian psychologist, sociologist and organization theorist. He lectured at the University of Queensland from 1911 to 1923 before moving to the University of Pennsylvania, but spent most of his career at Harvard Business School (1926 - 1947), where he was professor of industrial research. Mayo is known as the founder of the Human Relations Movement, and is known for his research including the Hawthorne Studies, and his book *The Human Problems of an Industrialized Civilization* (1933). The research he conducted under the Hawthorne Studies of the 1930s showed the importance of groups in affecting the behavior of individuals at work. However it was not Mayo who conducted the practical experiments but his employees Roethlisberger and Dickinson. This enabled him to make certain deductions about how managers should behave. He carried out a number of investigations to look at ways of improving productivity, for example changing lighting conditions in the workplace. What he found however was that work satisfaction depended to a large extent on the informal social pattern of the work group. Where norms of cooperation and higher output were established because of a feeling of importance, physical conditions or financial incentives had little motivational value. People will form work groups and this can be used by management to

benefit the organization. He concluded that people's work performance is dependent on both social issues and job content. He suggested a tension between workers' 'logic of sentiment' and managers' 'logic of cost and efficiency' which could lead to conflict within organizations.

Flowing from the findings of these investigations he came to certain conclusions as follows:

- Work is a group activity.
- The social world of the adult is primarily patterned about work activity.
- The need for recognition, security and sense of belonging is more important in determining workers' morale and productivity than the physical conditions under which he works.
- A complaint is not necessarily an objective recital of facts; it is commonly a symptom manifesting disturbance of an individual's status position.
- The worker is a person whose attitudes and effectiveness are conditioned by social demands from both inside and outside the work plant.
- Informal groups within the work plant exercise strong social controls over the work habits and attitudes of the individual worker.
- The change from an established society in the home to an adaptive society in the work plant resulting from the use of new techniques tends continually to disrupt the social organization of a work plant and industry generally.
- Group collaboration does not occur by accident; it must be planned and developed.

8.4.3 HENRI FAYOL, (1841-1925):

Fayol's career began as a mining engineer. He then moved into research geology and in 1888 joined, Comambault as Director. Comambault was in difficulty but Fayol turned the operation round. On retirement he published his work - a comprehensive theory of administration - described and classified administrative management roles and processes that became recognized and referenced by others in the growing discourse about management. He is frequently seen as a key, early contributor to a classical or administrative management school of thought.

His aspiration for an "administrative science" sought a consistent set of principles that all organizations must apply in order to run properly.

F. W. Taylor published "The Principles of Scientific Management" in the USA in 1911, and Fayol in 1916 examined the nature of management

and administration on the basis of his French mining organisation experiences.

Fayol argued that principles existed which all organisations - in order to operate and be administered efficiently - could implement. This type of assertion typifies a “one best way” approach to management thinking. Fayol’s five functions are still relevant to discussion today about management roles and action.

1. To forecast and plan - purveyance
Examine the future and draw up plans of action
2. To organize
Build up the structure, material and human of the undertaking
3. To command
Maintain activity among the personnel.
4. To co-ordinate
Bind together, unify and harmonise activity and effort
5. To control
See that everything occurs in conformity with policy and practise

Fayol also synthesised 14 principles for organisational design and effective administration as under:

1. **Division of work:** Division of work and specialization produces more and better work with the same effort.
2. **Authority and responsibility:** Authority is the right to give orders and the power to exact obedience. Authority creates responsibility.
3. **Discipline:** Good discipline requires managers to apply sanctions whenever violations become apparent.
4. **Unity of command:** An employee should receive orders from only one superior.
5. **Unity of direction:** Organizational activities must have one central authority and one plan of action.
6. **Subordination of individual interest to general interest:** The interests of one employee or group of employees are subordinate to the interests and goals of the organization.
7. **Remuneration of personnel:** Salaries to employees should be fair and provide satisfaction both to the employee and employer.
8. **Centralization:** The objective of centralization is the best utilization of personnel.
9. **Scalar chain:** A chain of authority exists from the highest organizational authority to the lowest ranks.

10. **Order:** The right materials and the right employees are necessary for each organizational function and activity.
11. **Equity:** equity is a combination of kindness and justice. Both should be considered when dealing with employees.
12. **Stability of tenure of personnel:** To attain the maximum productivity of personnel, a stable work force is needed.
13. **Initiative:** Zeal, energy, and initiative are desired at all levels of the organizational ladder.
14. **Esprit de corps:** Teamwork is fundamentally important to an organization.

CHECK YOUR PROGRESS:

1. Explain the findings of George Elton John Mayo regarding the connection between cooperation and higher output
2. What are the five functions of Fayol

8.5 FUNCTIONS OF MANAGEMENT

The functions of Management are common to all business firm and non-business firm also. Management's primary function is the satisfaction of the stakeholders. This typically involves making a profit (for the shareholders), creating valued products at a reasonable cost (for customers), and providing rewarding employment opportunities (for employees). This can be achieved only when management accomplishes its functions. A diagrammatic representation of the functions of management is as under:

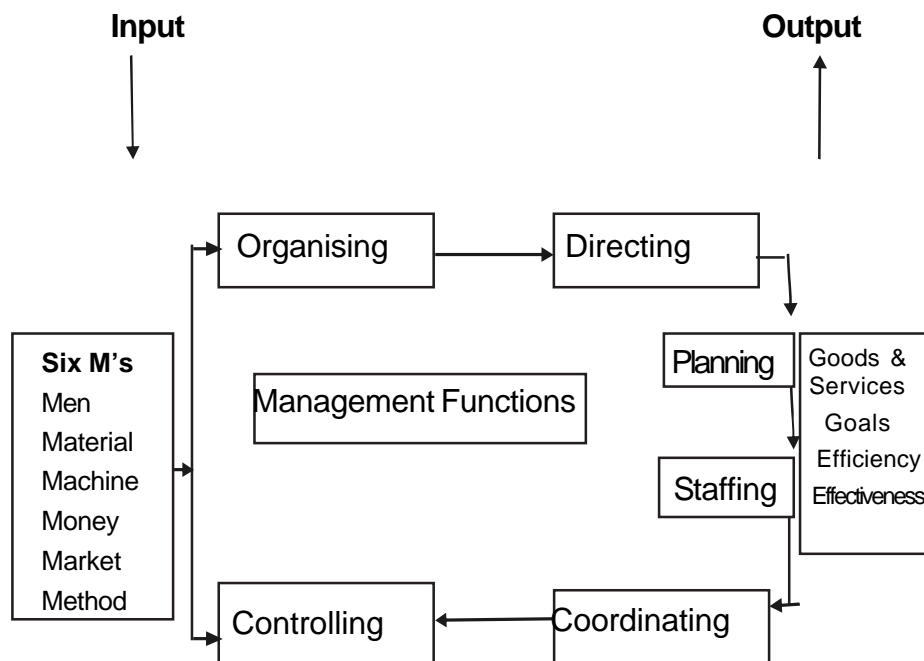


Figure 1
Functions of Management

FOLLOWING ARE THE COMMON FUNCTIONS OF MANAGEMENT:

8.5.1 PLANNING:

Planning means looking ahead and chalking out future courses of action to be followed taking into consideration available & prospective human and physical resources. It is a systematic activity which determines when, how and who is going to perform a specific job. It is rightly said “Well plan is half done”.

According to Koontz & O'Donnell, “Planning is deciding in advance what to do, how to do and who is to do it. Planning bridges the gap between where we are to, where we want to go. It makes possible things to occur which would not otherwise occur”.

Planning requires administration to assess appropriate course of action to attain the company's goals and objectives. For management to do this efficiently, it has to be very practical and simple. Planning is important at all levels of management. However, its characteristics vary by level of management.

• Steps in Planning Function:

1. Establishment of objectives:

- a. Setting of goals and objectives to be achieved.
- b. Stated in a clear, precise and unambiguous language.

- c. Stated in quantitative terms.
- d. Should be practical, acceptable, workable and achievable.

2. Establishment of Planning Premises:

- a. Planning premises may be internal or external. Internal includes capital investment policy, management labour relations, philosophy of management, etc. Whereas external includes socio-economic, political and economical changes.
- b. Internal premises are controllable whereas external are non-controllable.

3. Choice of alternative course of action:

- a. A number of alternative course of actions have to be considered.
- b. Evaluated each alternative in the light of resources available
- c. Chose the best alternative

4. Securing Co-operation:

After the plans have been determined, it is necessary rather advisable to take subordinates or those who have to implement these plans into confidence. This motivates them, valuable suggestions can come and employees will be more interested in the execution of these plans.

5. Follow up/Appraisal of plans:

After the selected plan is implemented, it is important to appraise its effectiveness and correct deviations or modify the plan as required.

Planning is basically a decision making function which involves creative thinking and imagination that ultimately leads to innovation of methods and operations for growth and prosperity of the enterprise

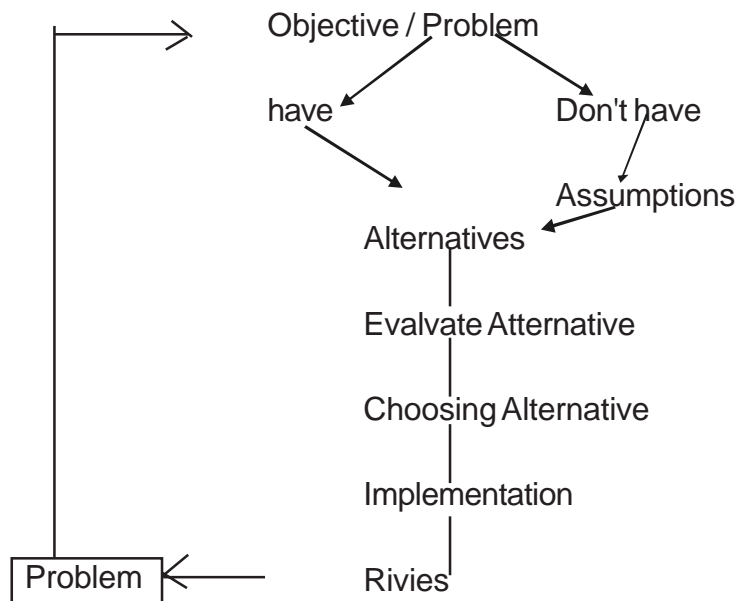


Figure 2
Planning Process

8.5.2 ORGANIZING

Organizing is the function of management which follows planning. It is a function in which the synchronization and combination of human, physical and financial resources takes place. All the three resources are important to get results. Therefore, organizational function helps in achievement of results which in fact is important for the functioning of a concern. Hence, a manager always has to organize in order to get results.

A manager performs organizing function with the help of following steps:-

1. Identification of activities - All the activities which have to be performed in a concern have to be identified, grouped and classified into units.
2. Departmentally organizing the activities - dividing the whole concern into independent units and departments is called departmentation.
3. Classifying the authority - Authorities bringing smoothness in a concern's working.
4. Co-ordination between authority and responsibility: Each individual is made aware of his authority and knows whom they have to take orders from and to whom they are accountable and to whom they have to report.

Thus an organization structure should be designed to clarify who is to do what tasks & who is responsible for what results & to furnish decision-

making & communications networks reflecting & supporting enterprise objectives.

8.5.3 STAFFING

The managerial function of staffing involves manning the organization structure through proper and effective selection, appraisal and development of the personals to fill the roles assigned to the employers/ workforce. Staffing pertains to recruitment, selection, development and compensation of subordinates.

• Nature of Staffing Function

1. Staffing is an important managerial function
2. Staffing is a continuous activity
3. The basis of staffing function is efficient management of personals.
4. Staffing helps in placing right men at the right job
5. Staffing is performed by all managers depending upon the nature of business, size of the company, qualifications and skills of managers, etc.

Since, the success of the organization depends upon the performance of the individual, staffing function of manager deserves sufficient care & attention of the management.

8.5.4 DIRECTING

Directing is a process in which the managers instruct, guide and oversee the performance of the workers to achieve predetermined goals. Planning, organizing, staffing has got no importance if direction function does not take place.

Direction has got following characteristics:

1. Pervasive Function - Directing is required at all levels of organization.
2. Continuous Activity - Direction is a continuous activity as it continuous throughout the life of organization.
3. Human Factor - Since human factor is complex and behavior is unpredictable, direction function becomes important.
4. Creative Activity - Direction function helps in converting plans into performance
5. Executive Function - Direction function is carried out by all managers and executives at all levels throughout the working of an enterprise;

To sum up, the plans may be the best feasible ones, the activities may be systematically organized, the staff may be highly efficient, but the organization will not succeed, if there is no proper direction. Mere planning,

organizing and staffing are not sufficient to set the tasks in motion. Directing involves not only instructing people what to do, but also ensuring that they know what is expected from them.

8.5.5 CO-ORDINATION

Co-ordination tries to achieve harmony between individual's efforts towards achievement of group goals and is a key to success of management. Management seeks to achieve co-ordination through its basic functions of planning, organizing, staffing, directing and controlling.

Co-ordination is achieved through planning, organizing, staffing, directing and controlling. Co-ordination is life-line of management. It is required in each & every function and at each & every stage & therefore it cannot be separated.

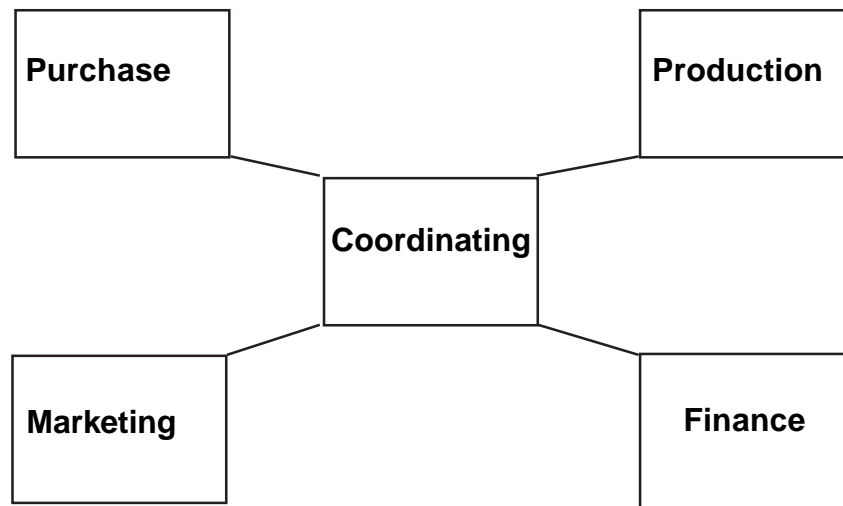


Figure 3

8.5.6 CONTROLLING

Controlling is measuring and correcting individual or organizational performance to ensure that event confirm to plans. It involves measuring performance against set goals and plans showing where deviations from the standards exist and helping to correct those deviations. The control process is cyclical which means it is never ending. Employees often view controlling negatively No matter how positive the changes may be for the organization.

Controlling is a four-step process of establishing performance standards based on the firm's objectives, measuring and reporting actual performance, comparing the two, and taking corrective or preventive action as necessary.

- **Designing Effective Control Systems**

Effective control systems have the following characteristics:

1. Control at all levels in the business
2. Acceptability to those who will enforce decisions
3. Flexibility
4. Accuracy
5. Timeliness
6. Cost effectiveness
7. Understandability
8. Coordinated with planning, organizing and leading.

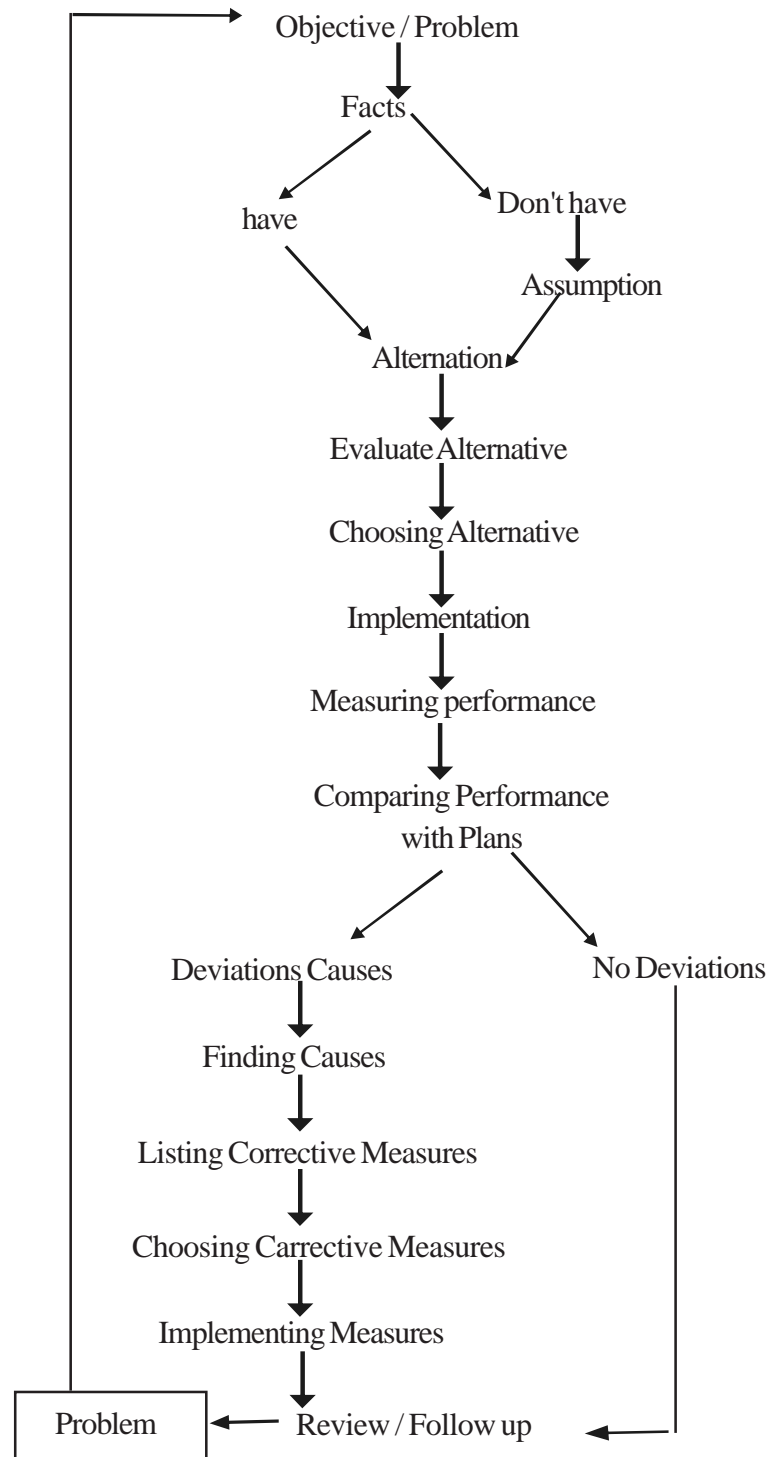


Figure 4

Controlling Process

• **Controlling involves following steps:**

1. Establishment of Standards: Establishment of Standards is the first step in control process. Standards represent criteria for performance. A standard acts as reference line or a basis of appraisal of actual performance. Standards should be set precisely and preferable in quantitative terms. Standards are yardsticks against which actual results are measured and efficiency is determined. Standards are plans which tell us where we should be. Standards may be physical, financial, qualitative or tangible. Standards are usually stated in specific terms but they may also be intangible like the degree of morale goodwill market image and public opinion and attitude.

2. Measuring Performance: The second step is to measure actual performance of various individuals, groups or units. Standards are established to measure actual performance. Management should not depend upon the guess that standards are being met measurement of performance against standards should ideally be done on a forward looking basis so that deviations may be detected in advance of their occurrence and avoided by appropriate actions.

3. Comparing performance with the standards: Comparing of actual performance with pre-determined standards is an important step in control process.

Comparison is easy where standards have been set in quantitative terms as in production and marketing. In other cases, where results are intangible and cannot be measured quantitatively direct personal observations, inspection and reports are few methods which can be used for evaluation. The evaluation will reveal some deviations from the set standards. The evaluator should point out defect or deficiencies in performance and investigate the causes responsible for these.

4. Taking corrective actions: Taking Corrective Actions Managers should know exactly where in the assignment of individual or group duties, the corrective action must be applied. Managers may correct deviations by redrawing their plans or by modifying their goals. Or they may correct deviations by exercising their organizing functions through reassignment or clarification of duties. They may correct, also, by additional stapling or better selection and training of subordinates. The negative difference between where we should have been and where we actually are is controlled. Deviation is corrected controls should facilitate corrective actions.

CHECK YOUR PROGRESS

1. What are the steps in planning function?

2. Explain the steps in organizing
 3. What are the characteristics of direction
 4. Explain the importance of co-ordinating
 5. Effective Controlling will benefit to achieve end results? Explain
 6. Discuss the functions of management.
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8.6 SOCIAL RESPONSIBILITIES OF COMPANIES

It is the duty of the businessmen to ensure good working conditions and a good standard of living for workers, to supply customers with goods of acceptable quality at reasonable prices and to fulfil the obligations to the State by the prompt payment of taxes, observance of rules, and cooperation in larger purpose of the society. [J.M.Parsons]

In short the term social responsibilities can be defined as the obligation of management towards the society and others concerned.

8.6.1 AN ENTERPRISE SHOULD LOOK INTO THE RESPONSIBILITIES:

- **Towards community:**
 - i. Make the best possible or efficient use of the society's resources.
 - ii. Provide maximum possible employment opportunities
 - iii. Keep the environment healthy and free from all types of pollution
 - iv. Contribute to the upliftment of the weaker sections of the society
 - v. Refrain from indulging in anti-social and unethical practices.
- **Towards Customers:**
 - i. Regular supply of right quality of goods , at right time and place
 - ii. Charge reasonable prices
 - iii. Prompt, adequate and continuous service
 - iv. Redresses customers grievances
 - v. Encourage fair trade practices
- **Towards share holders:**
 - i. Fair return on investment
 - ii. Safety of investment
 - iii. Steady appreciation of investment
- **Towards Employees**
 - i. Fair wages, salaries

- ii. Good and safe working conditions
- iii. Adequate service benefits
- iv. Recognition to employees, their contribution etc.

8.6.2 REASON FOR SOCIAL RESPONSIBILITIES:

Business enterprises are creatures of society and should respond to the demands of society. If the management does not react to changes in social demands, the society will either force them to do so through laws or will not permit the enterprise to survive. Therefore the long term interests of business are best served when management assume social responsibilities. For long term success it matters a great deal if the firm has a favorable image in the public mind. Every business enterprise is an organ of society and its activities have impact on the social scene. Therefore, it is important for management to consider whether their policies and actions are likely to promote the public good, advances the basic values of society, and constitute to its stability, strength and harmony.

Besides taking care of the financial interest of owners, managers of business firms must also take into account the interest of various other groups such as employees, consumers, the government and the community as a whole.

8.6.3 RESPONSIBILITY TOWARDS OWNERS:

The primary responsibilities of management is to assure a fair and reasonable rate of return on capital and fair return on investment can be determined on the basis of difference in the risks of business in different fields of activity. With the growth of business the shareholders can also expect appreciation in the value of their capital.

8.6.4 RESPONSIBILITY TOWARDS EMPLOYEES:

Management responsibility towards employees relate to the fair wages and salaries, satisfactory work environment, labour management relations and employee welfare. Fair wages should be fixed in the light of labor productivity, the prevailing wage rates in the same or neighboring areas and relative importance of jobs. Employees are expected to build up and maintain harmonious relationships between superior and subordinates. Another aspect of responsibility towards employees is the provision of welfare amenities like safety and security of working conditions, medical facilities, housing, canteen, leave and retirement benefits.

8.6.5 RESPONSIBILITY TOWARDS CONSUMERS:

In a competitive market, serving consumers is supposed to be a prime concern of management. In the event of shortage of supply there is

no automatic correction. Besides consumers are often victims of unfair trade practices and unethical conduct of business. Consumer interests are thus protected to some extent with laws and pressure of organized consumer groups. Management should anticipate these developments, satisfy consumer needs and protect consumer interests. Goods must be of appropriate standard and quality and be available in adequate quantities at reasonable prices. Management should avoid resorting to hoarding or creating artificial scarcity as well as false and misleading advertisements.

8.6.6 RESPONSIBILITY TOWARDS THE GOVERNMENTS:

As a part of their social responsibility, management must conduct business affair in lawful manner, honestly pay all the taxes and dues, and should not corrupt public officials for selfish ends. Business activities must also confirm to the economic and social policies of the government.

8.6.7 RESPONSIBILITY TOWARDS THE COMMUNITY AND SOCIETY:

The socially responsible role of management in relation to the community are expected to be revealed by its policies with respect to the employment of handicapped persons, and weaker sections of the community, environmental protection, pollution control, setting up industries in backward areas, and providing relief to the victims of natural calamities etc.

8.6.8 ARGUMENTS IN FAVOR OF SOCIAL RESPONSIBILITIES:

- i. Businesses are unavoidably involved in social issues. Businesses are either part of the solution or part of the problem.
- ii. Businesses have the resources to tackle today's complex societal problems. Private business sectors can play a decisive role in solving society's more troubling problems.
- iii. A better society means a better environment for doing business. Business can enhance its long-run profitability by making an investment in society today.
- iv. Corporate Social action will prevent government intervention: Government will force business to do what it fails to do voluntarily.

A Stakeholder Audit identifies all parties possibly impacted by the organization, since many groups in society besides stockholders have a stake in corporate affairs.

8.6.9 ARGUMENTS AGAINST SOCIAL RESPONSIBILITIES:

- i. Profit maximization ensures the efficient use of society's resources.

- ii. Businesses generally lack the ability to pursue social goals. inefficiencies can be expected if managers divert their attention from the pursuit of economic goals.
- iii. Businesses already have enough power. There is no need to hand them over more power.
- iv. Businesses should stick to pursuing profit by producing marketable goods and services.

8.6.10 SOME FACTS OF SOCIAL RESPONSIBILITIES TO BE TAKEN CARE IN INDIA ARE:

- i. Contribution towards economic development of backward regions and weaker sections of the society and to recognize and respect social values, business ethics and cultural heritage.
- ii. Cooperate with Government in solving problems like communalism, illiteracy, over population, concentration of income, wealth etc.
- iii. Make the country economically self-reliant through export promotion and import substitution.
- iv. Make the best of use of national resources
- v. Protect national environment

No responsibility towards society is no longer a matter of choice for businessmen, but it is requisite and it is the foremost responsibility of the Manager to ensure that social responsibilities are met.

8.7 SUMMARY

The Evolution of Management Thought:

The evolution of the discipline of management has helped to develop a body of knowledge about the practice of management. Within the field of management, eight schools of thought have contributed significantly to the development of management. They can be broadly classified into Theories of management skills, Theories of management functions and Theories of organisation systems.

The four schools that have been discussed are The Scientific Management School of which F. W. Taylor is the mentor; Classical Organization School of which Henri Fayol is the leading thinker; Behavioral Management School is represented by Elton Mayo and Douglas McGregor and the Management Science School.

Contingency Approach to Management:

The contingency approach believes that it is impossible to select one way of managing that works best in all situations. The contingency approach seeks to apply to real life situations ideas drawn from various

schools of management thought. They claim that no one approach is universally applicable and different problems and situations require different approaches. Managers must try to find the approach that is the best for them in a certain given situation, so they can achieve their goals.

Contribution of Frederick Winslow Taylor, Henri Fayol, Elton Mayo:

Taylor is regarded as the father of scientific management. Taylor believed that the industrial management of his day was amateurish, that management could be formulated as an academic discipline, and that the best results would come from the partnership between a trained and qualified management and a cooperative and innovative workforce.

George Elton John Mayo is known as the founder of the Human Relation Movement. Norms of cooperation and higher output can be established among workers which can bring in the feeling of importance as part of motivation.

Henri Fayol also synthesised 14 principles for organisational design and effective administration. Division of work, Authority and responsibility, Discipline, Unity of command, Unity of direction, Subordination of individual interest to general interest, Remuneration of personnel, Centralization, Scalar chain, Order, Equity, Stability of tenure of personnel, Initiative and Esprit de corps.

Functions of Management:

Management's primary function is the satisfaction of the stakeholder i.e. making a profit for the shareholders, creating valued products at a reasonable cost for customers and providing rewarding employment opportunities for employees. This can be achieved only when management accomplishes its functions. The basic functions of management are Planning, Organizing, Staffing, Directing, Coordinating and Controlling.

Social Responsibilities of Companies:

Social responsibilities can be defined as the obligation of management towards the society and others concerned. The enterprise has the responsibility towards the shareholders, customers, employees and the community. The long term interests of business are best served when management assume social responsibilities. Every business enterprise is an organ of society and its activities have impact on the social scene. Therefore, it is important for management to consider whether their policies and actions are likely to promote the public good, advances the basic values of society, and constitute to its stability, strength and harmony. Social responsibility is no longer a matter of choice but part and parcel of business plan.

8.8 QUESTIONS

1. Discuss the four management schools.
2. Write a brief note on contingency approach management.
3. Discuss Fayol's 14 principles of management.
4. Explain Taylor's Principles of management
5. Explain the steps in planning.
6. What are the steps in organizing function?
7. Elaborate the characteristics of direction.
8. Explain the importance of co-ordinating
9. Effective Controlling will benefit to achieve end results. Explain
10. Discuss the functions of management.
11. Explain the concept of Social Responsibilities and identify the responsibilities of a business enterprise towards various entities.
12. Elaborate the social responsibilities towards owners, employees, consumers, government, community and society.
13. Present your argument in favor and against social responsibilities and what care should be taken to discharge social responsibilities.



NATURE OF PLANNING, DECISION MAKING PROCESS, MANAGEMENT BY OBJECTIVES

UNIT STRUCTURE

- 9.0 Objectives
- 9.1 Introduction
- 9.2 Meaning and Definition of Planning
- 9.3 Definition and Importance of Decision making
- 9.4 Decision making Process
- 9.5 Conditions of Decision making
- 9.6 MBO
- 9.7 Summary
- 9.8 References
- 9.9 Questions

9.0 OBJECTIVES

After studying the unit the student will be able to:-

- Understand the fundamentals of planning,
- Know the preview of decision making process.
- Comprehensively generalize and explore the concept of Management by objectives.

9.1 INTRODUCTION

Planning is the most important fundamental function of Management and all other functions are influenced by planning process. It governs and controls the survival growth and prosperity of any business enterprise. Planning involves selecting the objectives of an enterprise and departments goals, programmes, determining the ways of reaching them. Planning involves choosing of a course of action from the available alternatives for accomplishing the results without any uncertainty. Planning is future oriented. A good Organizational performance can help the

manager to discover new challenges and overcome mistakes through proper planning.

Planning is the most sensitive and significant process because it applies to intellectual and rational approach of preventing and solving the problem. It is a futuristic process of devising preparatory step for actions.

In planning process objectives, policies, programmes, procedures, rules, strategies are determined and laid down for appropriate task orientation.

Planning sketches a complete mental picture of things which are yet to happen in the enterprise through the process of looking ahead.

9.2 MEANING AND DEFINITION OF PLANNING

Planning is the process of deciding in advance what is to be done, when, where, how and by whom it is to be done. Planning is the basic and first managerial function to be performed in the process of management. Planning decides everything regarding the new enterprise in advance. In the competitive and ever-changing environment, planning helps the business enterprises to be more focused it is a pre-determined future course of action to achieve specified objective, goal or aim.

9.2.1 DEFINITIONS OF PLANNING:

1) George R. Terry :

“Planning is the selecting and relating of facts and the making and using of assumptions regarding the future in the visualization and formulation of proposed activities, believed necessary to achieve the desired results.”

2) Koontz and O'Donnell:

“Planning is an intellectually demanding process; it requires conscious determination of course of action and basing of decisions on purpose, knowledge and considered estimates.

3) Louis A. Allen:

“Management planning involves the development of forecasts, objectives, policies, programmes, procedures, schedules and budgets.”

According to Allen planning is essentially deciding about future. The ways and means required to achieve Organizational goals from the essential part of planning.

4) Theo Haimann:

“Planning is deciding in advance what is to be done, when a manager plan, he projects a course of action for the future, attempting to

achieve a consistent, Co-ordinated structure of operations aimed at the desired results”.

5) Mary Cushing Niles:

“Planning is the conscious act of selecting and developing the best course of action to accomplish an objective. It is the basis from which future management action spring”.

6) Alford and Beatly:

“Planning is the thinking process the organized foresight, the vision based on fact and experience that is required for intelligent action”.

7) James fundy:

“Planning as determination of what is to be done, how and where it is to be done, who is to do it and how results are to evaluated.”

8) Billy Goetz:

“Managerial planning includes formulation of policies, design of Organization, selection of resources and establishment of techniques and procedure”.

From the above definition it would be clear that planning is a basic managerial function. It is a decision in advance about what to do, when to do, how to do and who will do a particular task. It helps in determining the course of action to be followed for achieving the various Organizational objectives. It involves the selection of organizational objective and developing policies, programmes, procedures, budgets and strategies. The operations acquire design, shape and a well-balanced structure through planning. It is a rational approach to the future. The absence of planning means contradictions inconsistencies and duplication of work in the operations of an organization.

9.2.2 NATURE OR CHARACTERISTICS OF PLANNING:

1) Planning is the basic function of Management:

Management is a dynamic process and planning is a core function of management, as a result both are part and parcel of each other. The Management activities start with planning and ends with planning. The policies, programmes, procedures, strategies are worked out by the managers with planning process and improvements and adjustments are also made through planning process.

2) Planning contributes to objectives :

Planning contributes to accomplishment of objectives and designing alternative course of action. A intellectual thinking process is applied for meeting the objectives. Planning process is instrumental in achieving the goals.

In short, business planning is the process by which a manager looks to the future and discovers an alternative course of action open to him. It is also considered as the thinking process, an organized foresight, the vision based on facts and experience which is required for intelligent action. Planning is deciding in advance who will do what at a certain time and how it is to be achieved. Its focus is on making things happen. Planning bridges the gap from where we are, to where we are, to where we want to go. It sketches a mental picture of things, yet to happen. Business planning is an analytical process which covers assessment of the future, determination of objectives or goals in the light of the future, the development of alternative courses of action to realize such goals and finally, the selection of the best course of action from among those alternatives.

3) Planning is directed towards efficiency:

The main purpose of planning is to increase efficiency of the enterprise. Objectives of the enterprise are efficiently achieved by determining best course of action.

4) Planning is flexible and dynamic:

As future is uncertain and the future course of action is dynamic, planning has to be more flexible. According to current situations and conditions prevailing in an enterprise, planning is adopted in the most flexible manner to come to directive results.

5) Planning must be precise:

The meaning, nature and scope of planning needs to be precise. Planning should be realistic and framed in intellectual and meaningful way.

6) Planning a intellectual process of looking ahead:

Planning relates to conscious determination of courses of action, based on decisions on purpose, facts and estimates. Planning implies a pre-determined course of action involving time bound programme of action to achieve its objectives in a set of time in an efficient and economic manner.

7) Planning is an integrated process:

Planning relates to formation of sound policies, programmes and procedures for accomplishing goals or objectives. It is first managerial function and other managerial function like organizing, staffing, directing and controlling depend upon it.

8) Planning is a selective process:

Planning involves the selection of the best. One action after making a proper analysis of various alternative courses of action.

9) Planning is Pervasive:

Planning is a pervasive activity covering all the levels of enterprise. As top level management is concerned with strategic planning, the middle level management and the lower level management are concerned with administrative and operational planning. Decision Making is a part of planning.

10) Planning is continuous and never ending responsibility of a manager :

This is required to maintain enterprise as an on –going concern. Planning gets used up because tomorrow becomes today and calls for further planning. A plan will be followed by series of other plans in quick succession.

CHECK YOUR PROGRESS:

- 1) What is planning?
- a) Fill up the blanks with appropriate words given below
- 1) Planning is based on clearly.....,
- 2) Planning provides proper analysis and classification of..... ,
- 3) Planning establishes that are flexible.
- 4) Planning uses available to the utmost before creating new authorities and new resources

(Answers: - Standards, objectives, actions, resources)

9.3 DEFINITION AND IMPORTANCE OF DECISION MAKING

9.3.1 DEFINITION:

Decision making is a process by which a course of action is selected from among the available alternatives so that a desired goal or result can be achieved. Decision is a part and parcel of any activity. Decision making is the substance of a manager's job. The whole process of management is a decision making process. Decision making is an important management strategy. An executive performs all his duties and functions through making decisions.

According to Peter Drucker, 'whatever a manager does, he does through decision – making.' The term 'decision making' has been defined by various management gurus in various ways. Some of the definitions are:

1) George Terry:

‘Decision – making is the selection based on some criteria from two or more possible alternatives’

2) Haynes and Massie:

‘A decision is a course of action which is consciously chosen for achieving a desired result’.

3) F.G. Moore:

‘Decision – making is a blend of thinking, deciding and acting’.

4) R.S. Davar:

‘Decision making may be defined as the selection based on some criteria of one behavior alternative from two or more possible alternatives’.

5) Mary C. Niles:

‘Decision making takes place in adopting the objectives and choosing the means, and again when a change in the situation creates a necessity for adjustment.

9.3.2 IMPORTANCE AND NATURE OF DECISION MAKING:

A business enterprise is essentially an information and decision – making system. Selection of corporate objectives, business policies programmes, procedures, tactics, rules and strategies, essentially call for decision making. Decision making helps in the entire management process ie planning, organizing, motivating, controlling etc. All managerial activities and functions are exercised through decision making. Thus, decisions are required to be arrived at on numerous managerial issues and problems, in each and every functional area of business such as production, marketing, finance, personnel and office administration. A decision may relate to the end, the means or both. Nature of decision making can be analyzed by the following: -

1. Decision making includes exploring the various alternatives to achieve the pre-determined goals in an optimum way.
2. A manager requires some amount of personal instinct and a speculative native before he makes decision for the future.
3. Decision making is selective in nature.
4. Decision making is evaluative in nature
5. Decision making is goal oriented
6. An accomplishment of work requires decision making from start till the end. Hence it is a dynamic process.

9.4 DECISION – MAKING PROCESS

Every decision is the outcome of a dynamic process which is influenced by multiple forces. This process should not be interpreted to mean that decision – making is a fixed procedure. Decision making is essentially a choice- making activity involving the selection of a particular course of action from among several alternatives. The decision making process should be seen as a sequential process rather than a series of steps to enable the decision – maker to examine each element on the progression that leads to a decision.

The decision – making process may be defined as a series of steps that begins with an analysis of information and finally ends in a solution. The decision making process involves the following steps.

1. Identifying or defining managerial problems,
2. Analyzing the problems.
3. Developing alternative solutions to the problems.
4. Selecting the best alternative,
5. Implementation of the decision.
6. Follow – up and feedback of results of decisions taken.

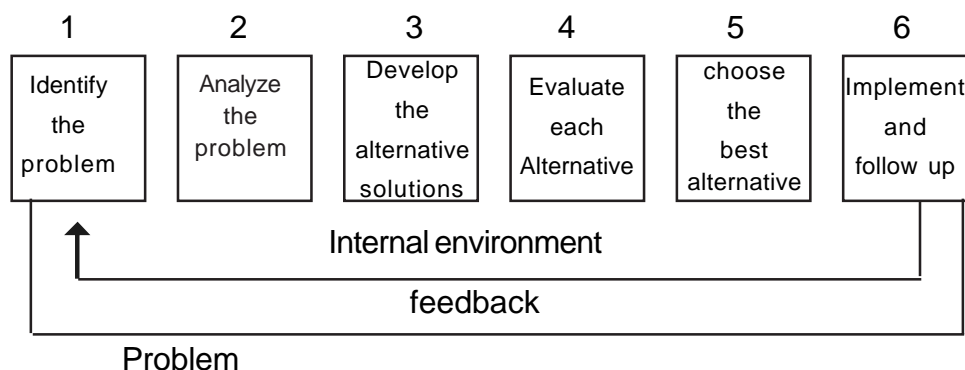


Figure 9.1 Decision making process

The arrows indicate constant process of feedback and evaluation during each step of decision making process.

1. Identifying the problem:

The first step towards making a decision over a problem is to identify the problem. The whole process of decision making depends upon this step. Just as doctor identifies a disease by looking at the symptoms, in the similar way, a manager identifies a problem and just like a correct diagnosed disease is half treated, similarly, a well identified problem, means a half way to making correct decision. while identifying a problem,

a manager has to take into consideration regarding 'what is the actual situation' and 'what is the actual situation' and 'what the situation should be'. The difference between these two only gives rise to any problem for e.g.; if workers in an organization seem to restrict the production at some point that is sub-optimal, the problem may lie in defective incentive scheme or defective working conditions or their apprehension that if they produced more, their jobs will be retained and some people shall have to go. Therefore, while identifying a problem a manager has to be a diagnost.

2. Analyzing the Problem:

After defining the problem, the next step is the systematic analysis of the available data. After recognizing the problem, the actual cause behind the problem is to be acquired and this can be done by analyzing the problem. Information accuracy, proper classification of data and analysis of facts and figures can be obtained by information system and databases. Only relevant facts should be secured for analysis. Following guidelines should be followed to classify the problems:-a) Nature of decision whether strategic or routine. B) Impact of decision. C) Period or time available d) strategic factor relevant to the decision.

3. Developing alternative solution:

After having defined and analyzed the problems, a systematic search for development of alternative solutions to a problem should be made. The main purpose of finding alternative solutions is to make the best decision after a careful consideration of the most desirable course of action in the circumstances of the case. Understanding the situation is an important element in decision making. Various alternative solutions are evaluated, positive and negative sides are weighed and this is compared with other alternatives various scientific and mathematical methods are adopted for this purpose.

4. Evaluate each Alternative:

After developing the alternatives, in order to select the best alternative, one have to evaluate the available alternatives. The related merits and limitations of each alternative are compared. The element of risk has to be weighed against the expected gains in each alternative. The alternative selected should maximize the results in terms of existing objectives.

5. Choose the best alternative :

Selecting the best alternative requires a manager to balance the conflicting objectives. For the purpose of selecting the best alternative, Peter Druker, an eminent thinker, as provided a useful criterion. That is whenever a manager has to select from among the various alternative the best solution he has to take into consideration the following

- a) Manager should weigh risk of each alternative.
- b) Manager should analyze each alternative in terms of inputs required and output or gains that shall be accrued. And obviously, that alternative which requires less input and gives better results shall be chosen.
- c) It is very essential that a correct decision is made within the time. If the time is not strictly taken into consideration, a good decision would also prove to be fruitless. The decisions that are to be taken urgently depend more upon the managers' discretion, instinct and past experience.
- d) The method to be applied, technique to be used, data to be collected, etc all depend upon the resources available. The resources may be physical, financial or human resources. A decision-maker however must try and make the most optimum use of the available resources.

6. Implementation and Follow – up of the decision:

The follow up system is essential to modify a decision to accordingly **suit** the existing situations. It is desirable to establish follow-up procedures to evaluate the decisions executed. A follow – up system will ensure the realization of objectives. A manager after implementing decision must seek feedback regarding the effectiveness of the decision made. A periodic progress report in this regard may be obtained. And while assessing a periodic report, if a manager recognizes his mistake, he should not hesitate to revert his decision.

9.5 CONDITIONS OF DECISION MAKING

A manager takes decisions every now and then. There are many factors that determine the circumstances in which decision is to be made. A manager sometimes is certain and sometimes uncertain about his decisions. Sometimes there are risky situations, conflicting and competitive situations. There are four conditions in which a manager has to perform the task of Decision making.

These are: -

- 1) Decision making under certainty.
- 2) Decision making under uncertainty.
- 3) Decision making under risk.
- 4) Decision making under conflict/ competition.

1) Conditions of Certainty:

Here, **all elements** of problem situation are known

This requires: -

- i) More than one strategy.
- ii) More than one state of nature.
- iii) Awareness of relevant outcomes.
- iv) Probability of distribution of outcomes.

2) Condition of uncertainty:

Future course of events cannot be predicted with cent percent certainty. Probability theory provides a manager to ascertain the future events. Problems are estimated on the basis of past experiences.

3) Conditions of Risk:

Some of the pre-requisites for decision making under risk are: -

- i) Comparison of expected values of different strategies is made
- ii) A repetitive experiment which may or may not be valid for some business problems and situations are assumed.
- iii) The expected value criterion does not take into account the quality of risk.

4) Conditions under conflict / competition:

In this case, manager has to make decisions in such a situation where there exists a clash of interest of competitive firms and the decision maker of each party has to consider the actions of his opponents and take decision that minimizes losses and / or maximizes gains.

CHECK YOUR PROGRESS:

1. Define the term Decision- making,
2. What is a decision? Elaborate the decision – making process.
3. Describe the various criteria for Decision making.
4. Explain the Decision making technique in condition of
 - a) Certainty b) Uncertainty c) Risk.

9.6 MANAGEMENT BY OBJECTIVES

Management by objectives (M.B.O) is an instrument by which managers can improve their performance and increase their effectiveness. M.B.O provides a workable framework to the manager within which he can make decisions which are in the best interest of the organization. The concept decision which are in the best interest of the organization. The concept of M.B.O was developed by Peter F. Drucker during the fifties for effective goal setting and performance appraisal. M.B.O lays emphasis

on results, emphasis on teamwork, human relations and a regular review system. To achieve success with M.B.O, it is necessary to have the top management's full support and commitment, a time frame for implementation, training of people who would be involved in the process and a proper understanding of role of M.B.O.

9.6.1 DEFINITIONS:

1) According to koontz and O'Donnell,

"MBO is comprehensive managerial, system that integrates many key managerial activities in a systematic manner, consciously directed towards the effective and efficient achievement of organizational objectives".

2) W.J. Reddin:

"MBO is the establishment of objective areas and effective standards for management positions and the periodic conversions of these into measurable time – bound objectives, linked, vertically and horizontally with future planning."

3) J.W Humble:

"MBO is a dynamic system which seeks to integrate the company's needs to clarify and achieve its profit and growth goals with the manager's need to contribute and develop himself. It is a demanding and rewarding style of managing a business".

On the basis of the above definitions it may be said that MBO is the process where superior and subordinates identify specific measurable goals, assess the contribution of every individual and integrate the individuals with the organization.

9.6.2 FEATURES OF M.B.O

- 1) Periodic review system held every three, six or twelve months.
- 2) Aim is to review the performance against the objectives of the organization
- 3) M.B.O should be infused with a performance appraisal system.
- 4) MBO is wider both in the concept and application than a system of performance appraisal.
- 5) MBO focuses on initiating future corrective actions.
- 6) MBO stresses wider delegation of authority, creation of responsibility and fixing accountability for effective performance and getting results.

Figure 9.6.1 Shows a system of performance review in an organization where the MBO approach is followed.

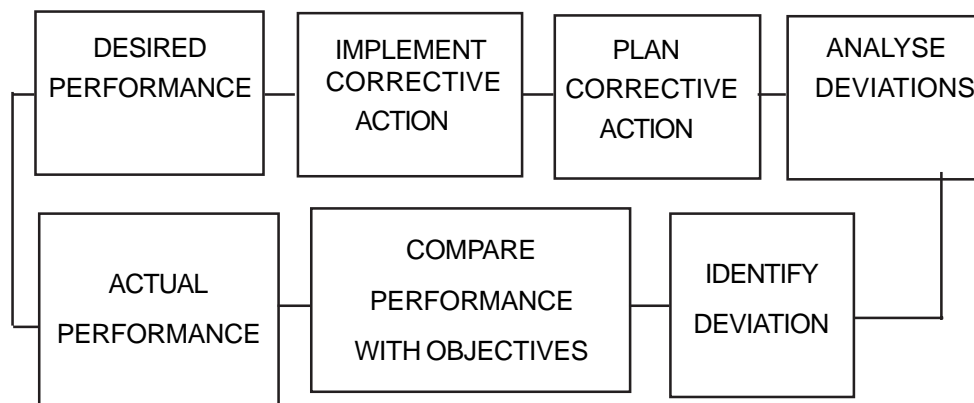


Figure 9.6.1 System for Performance Review

9.6.3 BENEFITS OF M.B.O

- 1) Management by objectives gives a clear sense of direction and allows the subordinates to operate under greater freedom.
- 2) Management team concentrates on the important task of reduction in costs and harnessing opportunities.
- 3) The subordinates are motivated to pledge or promise to deliver given set of results.
- 4) It stimulates organizational change and provides a framework and guidelines for planned change, enabling the top Management to initiate, plan, direct and control the direction and speed of change.
- 5) MBO promotes coordinated behavior of the various groups in the organization.
- 6) MBO leads to adoption of managerial self – control which in turn helps to promote higher performance goals and broader vision.
- 7) MBO assists in the fixation of definite and qualified objectives from the level of the enterprise to the level of the individual manager.
- 8) MBO offers definite standards of performance for a just and meaningful appraisal of the contributions of various units and managers.
- 9) MBO motivates subordinates, strengthens superior- subordinate relationship, and provides an objective appraisal method.
- 10) MBO shows in managerial effectiveness as a central value in the entire organization. This shows up in all the decisions which each manager makes and the overall performance is improved.

9.6.4 LIMITATION OF MBO

- 1) There is generally lack of training and knowledge a part of the supervisor in implementing the programme.

- 2) MBO approach is pressure oriented, time consuming and costly. It generates paper work, there is problem of communication overload and increased costs by introducing unnecessary administrative system.
- 3) The managers have number of doubts about the purpose of MBO, appraisal of management performance, benefit of the organization and participants.
- 4) There is lack of participation and follow up on part of the superiors as well as subordinates and the importance of MBO may be underestimated.
- 5) MBO may introduce inflexibility in the organization
- 6) There is a need to check the tendency to overlook the long – run objectives and to put emphasis on short run objectives on part of the managers.
- 7) Sometimes the managers get frustrated and feel overburdened when the organizational goals are vague and the result is an utter chaos.

9.7 SUMMARY

Planning involves projecting the future course of action for the business as a whole and also for different sections within it. Planning is thus a preparatory step for actions and helps in bridging the gap between present & future. Planning is an intellectual process and signifies use of a rational approach to solution of the problem.

Decision making is selective in nature. The basic objective of decision - making is to alter the goal and it is for this purpose only that the decisions are made. The intention behind decision – making is nothing but goal oriented i.e. for achieving certain goal or purpose. It is more to attain attainment of desired result or goal.

MBO means change. MBO involves people who have their own fixed ideas, attitudes, values and conception which can make the MBO implementation a complex affair.

9.8 SUGGESTED READING /REFERENCES / BOOKS

- 1) Kalyani Iyer Paranjpe, Business studies – Management and human Resources Development, Himalaya Publishing. House, Mumbai, 2000.
- 2) P.C. Pardeshi, Management and Human Resource Development, Sheth Publications Pvt Ltd, Mumbai, 2000.
- 3) Suresh Sachdeva M.L. Mourya, Management Concepts and Practices, Y.K. Publishers, Agra, 2004.

9.9 QUESTIONS

- 1) Discuss the nature and scope of planning in business management.
- 2) “Planning is the essence of management”. Discuss.
- 3) Explain in brief the various steps involved in planning.
- 4) What are the various techniques used by a group leader while making group decisions?
- 5) What are the different steps involved in the process of management by objective?
- 6) Why should an organization go for MBO? Discuss the main benefits of MBO.
- 7) Discuss the weakness and limitations of MBO.



ORGANIZATION STRUCTURE

UNIT STRUCTURE

| | |
|------|---|
| 10.0 | Objectives |
| 10.1 | Introduction |
| 10.2 | Meaning and Importance of Organization Structure |
| 10.3 | Types of Organisation |
| 10.4 | Decentralization |
| 10.5 | Delegation of Authority |
| 10.6 | Relationship between Authority and Responsibility |
| 10.7 | Summary |
| 10.8 | Questions |

10.0 OBJECTIVES

After studying this unit, the students should be able to:

- Discuss the concept of organization structure.
- Explain the components of organization structure.
- Analyze the dimensions of organization structure.
- Discuss the model of organization designs.
- Explain the determinants of organizational effectiveness.

10.1 INTRODUCTION

In an organization, a number of activities are performed. These activities are required to be coordinated. Organization structure is designed for division of tasks, grouping of activities and coordinating and controlling the tasks of the organization. It involves the proper arrangement of activities assigned to most suitable candidate and to help him in achieving organization objectives. Well designed organization structure facilitates the smooth functioning of the organization.

10.2 MEANING AND IMPORTANCE OF ORGANISATION STRUCTURE

10.2.1 MEANING AND DEFINITION:

In other words Organizational Structure refers to manner in which individual and groups of individual are arranged in respect of work performed and position held.

F. Kart and S. Rosenweign defines, "It (structure) is the established pattern of relationship among the components or parts of an organization." Organization structure in this sense refers to the network of relationships among individuals and positions in an organization.

10.2.2 IMPORTANCE OF ORGANIZATION STRUCTURE:

The organization structure contributes to the efficient functioning of organization in the following ways:

1. Establish Authority Relationships:

Organization structure allocates authority and responsibility. It specifies the role of each individual and accountability of result.

2. Communication Pattern:

Organization structure provides the patterns of communication and coordination between individuals and group and departments. People who have joint problems to solve often need to share information.

3. Identify Decision Centres:

Organization structure determines the location of centres of decision making in the organization.

4. Proper Balancing:

Organization structure creates the proper balance and emphasizes on coordination of group activities. Activities of comparable importance might be given, roughly equal levels in the structure to give them equal emphasis.

5. Stimulating Creativity:

Sound organization structure stimulates creative thinking and initiative among organizational members by providing well defined patterns of authority. Everybody knows the area where he specializes and where his efforts will be appreciated.

6. Encouraging Growth:

An organization structure provides the framework within which an enterprise functions. If it is flexible, it will help in meeting challenges and creating opportunities for growth. A sound organization structure facilitates

growth of the enterprise by increasing its capacity to handle increased level of activity.

7. Making use of Technological Improvements:

A sound organization structure which is adaptable to change can make the best possible use of latest technology. If necessary it will modify the existing pattern of authority responsibility relationships in the wake of technological improvements.

10.3 TYPES OF ORGANIZATION STRUCTURE

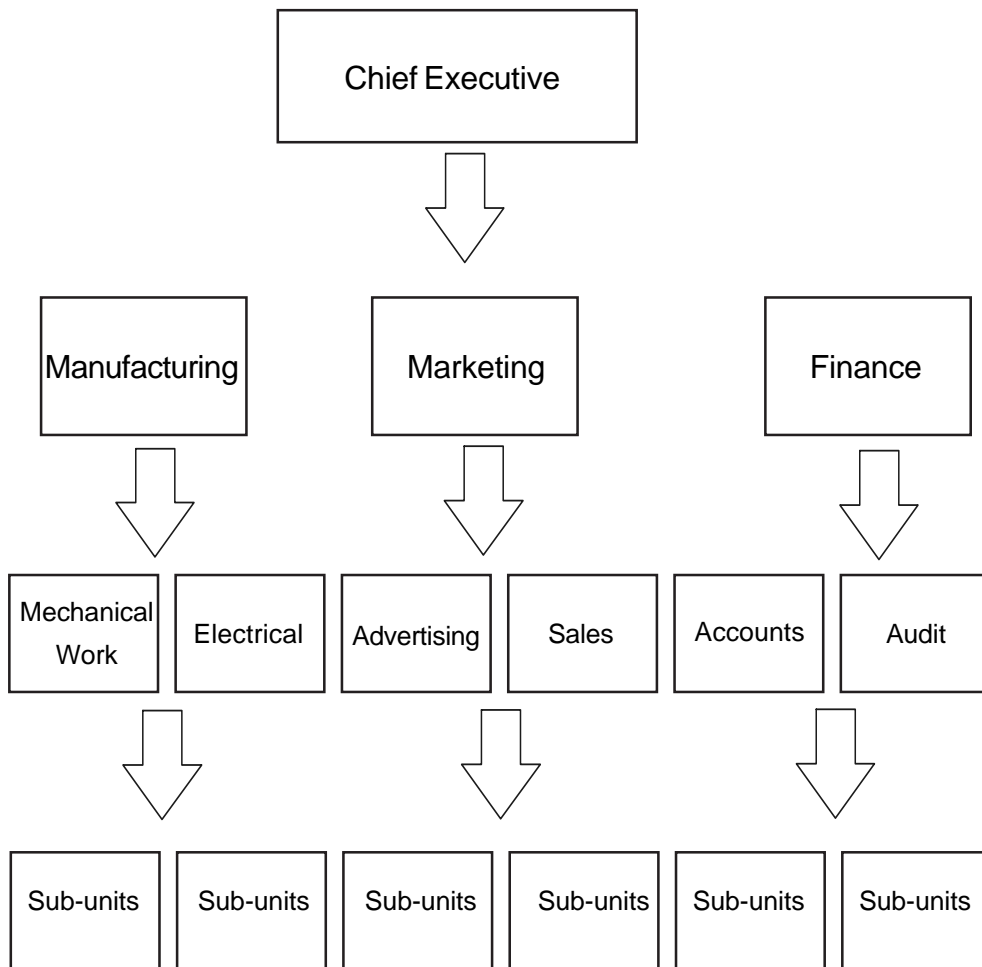
10.3.1 FUNCTIONAL STRUCTURE:

When units and sub-units of activities are created in organization on the basis of functions, it is known as functional structure. Thus, in any industrial organization, specialized functions like manufacturing, marketing, finance and personnel constitute as separate units of the organization and Sub-units. All activities connected with each such function are placed in the same unit. As the volume of activity increases, sub-units are created at lower levels in each unit and the number of persons under each manager at various levels gets added. This results in the interrelated positions taking the shape of a pyramid.

The main advantage of the functional structure of organization is that there is functional specialization in each unit, which leads to operational efficiency of people engaged, and the organization as a whole derives the benefit of specialized operations. The heads of the functional units are in direct touch with the chief executive who can sort out inter-functional problems, if any, and also coordinate the interrelated functions.

The chief executive is also able to be in direct touch with lower level subordinates and thereby have full knowledge of the state of affairs in the organization.

However, while the functional arrangement may be well suited to small and medium size organizations, it is incapable of handling the problems of an organization as it grows in size and complexity. Problems of subunits at lower levels do not receive adequate attention of higher level managers while some of the activities tend to be over-emphasized.

Functional Structure Chart :

Functional units become unwisely and difficult to manage when there are diverse kinds of activities performed in large number of sub-units. Personal contact between superiors and subordinates become rare, and flow of communication is slow leading to problems of coordination and control.

10.3.2 FLAT ORGANIZATION STRUCTURE:

A flat organizational structure has few levels of management between executives and employees. The rationale behind such organizations is to make employees more productive by giving them greater input in the decision-making process. The organizational structure is best suited to small companies and enterprises.

Most of the larger companies have a number of layers between the actual workers and upper management. This can sometimes make getting

anything done at the customer level somewhat cumbersome because the floor salesperson has to go through a number of different channels in order to make any changes or sometimes even provide the customer with the sought after answers. However for the smaller organizations allowing the staff to have the authority to make those on-the-spot decisions can go a long way towards promoting positive customer interactions.

Features:

Flat organizational structures have fewer levels of management between top executives and workers. Hospitals use this organizational structure because doctors are well-trained employees that need to make quick decisions due to the nature of their job.

Function:

These organizations are designed to reduce bureaucracy and make employees more productive by encouraging employee involvement to make decisions and resolve problems. Communication flows more freely and easily between managers and employees allowing for more rapid responses.

Benefits:

The flat organizational structure has three basic benefits: communication, flexibility, and degree of supervision. There is greater communication between management and employees. Flat organizational structures also eliminate middle management allowing for quicker decision-making. Organizations using this structure can save money by eliminating middle management positions.

The flexibility to make decisions on an as needed basis means the company will be better able to serve its customers. Customers won't necessarily have to wait while the staffs' hunts down a manager who then has to hunt down a supervisor before a decision could be made. The staff member would be able to take care of the customer immediately.

Finally, the flat organization structure is a bottom-up approach and relies on having highly qualified, competent staff which frequently equates to happier workers and low turnover rates. There are also fewer upper management employees which can result in an increased profit margin.

| Advantages | Disadvantages |
|--|--|
| <ul style="list-style-type: none"> • More/Greater communication between management and workers. • Better team spirit. • Less bureaucracy and easier decision making. • Fewer levels of management which includes benefits such as lower costs as managers are generally paid more than worker. | <ul style="list-style-type: none"> • Workers may have more than one manager/boss. • May limit/hinder the growth of the organisation. • Structure limited to small organisations such as partnerships, co-operatives and some private limited companies. • Function of each department/ person could be blurred and merge into the job roles of others. |

This structure can be applied in: Restaurants, Universities, Law Firms, Hospitals and Internet Marketing Companies etc.

10.3.3 VERTICAL ORGANIZATION STRUCTURE:

It is the most simple and most basic form of organization. It is characterized by units of the enterprise at all levels of the vertical leadership system from top to bottom, pyramid shape. Vertical organizational structure means a strict top down or bottom up structure. It is a hierarchically structured organization where all management activities are controlled by a centralized management staff. This traditional type of organization often develops strong bureaucratic control over all organizational activities.

Vertical organizational structure is derived from the competitive nature of the animal world. A competition for finite resources creates a hierarchical structure in which the most powerful point has the greatest access to resources and distributes those resources based on his discernment of need. This system sustains itself by keeping some positions of authority and other positions of service to that authority. This hierarchical structure is the oldest we have, with organized societies of people and animals alike falling into this shape.

Typically, a rigid top down vertical organizational structure has been a favored form for many business and other type organizations. In such an organization, the chain of command is usually very important and

breaking it is considered very wrong. In faster moving, dynamic conditions, a vertical organizational structure can become very inefficient, for example, requiring decisions to slowly go through many people along the vertical chain of command before actions can be made by those who need permission to act.

Vertical organizational structures also tend to create boundaries between departments or branches in a larger organization, because for a person down one branch must go up the chain of command on his branch and then down the chain of command on the other branch in order to interact with someone down the chain of command on a different branch.

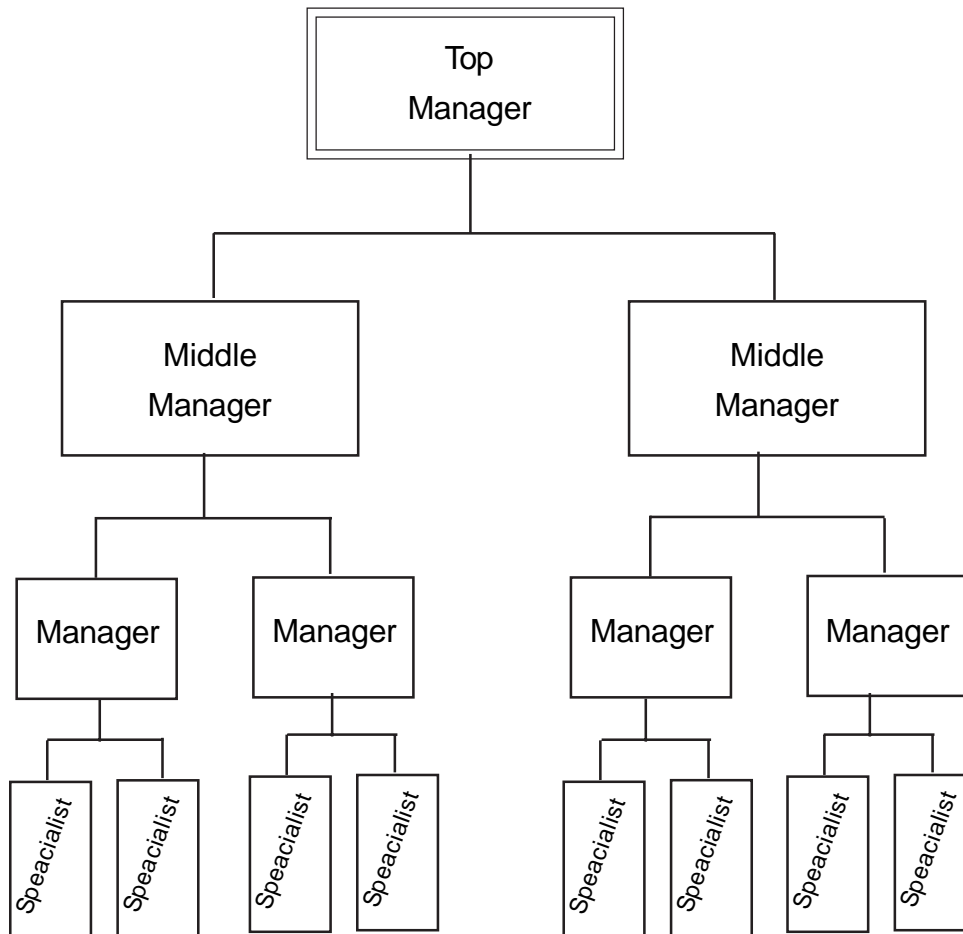
Vertical organization is a business management style in which few people are in charge at the top. This model is hierarchical and relies upon levels of authority and layers of personnel. It is common in many business models because it can be an efficient way of achieving goals and organizing personnel.

Vertical organizational structure operates with few in positions of great power at the top and many in multiple levels of varying power. For instance, the CEO of a business is in a position of almost exclusive power, while middle management has significantly limited reach with regard to decision making. Most power executed at the middle level is a continuation of reach of power from the top.

• **Characteristics of Vertical organizational structure:**

- (1) The organization of each one of its direct subordinate executives have direct authority.
- (2) Everyone in the organization only to his immediate superior responsible for or reporting.
- (3) A competent person within its jurisdiction has absolute authority or complete authority. Namely, the competent departments under the jurisdiction of officers of all operational activities of the exercise of decision-making power, command and supervisory power.

• **Vertical Structure Chart**



10.3.4. MATRIX ORGANIZATION STRUCTURE:

All companies, regardless of the products or services offered, have some form of organization in order to be able to function. The type of organization utilized often depends on the type of company and what or how many products or services are being offered to its customers.

The most common organizational structure is the functional model with the president in charge and numerous other supervisors reporting directly to him/her with levels of employees under them.

The matrix organizational structure is one of the newer methods for running a company and is based more on teams than on individual departments. This configuration combines the functional organization with more of a product organization. A product organization is based directly on the manufacturing of a specific product by different groups within the company.

In the matrix organizational structure the upper echelon are the top managers- usually consisting of a president/CEO, vice president, and any general managers. Next will be an arrangement of units which may

be determined by geographic locations (i.e. US branch, European branch, or other branch). Within each of these branches there will be a project manager who reports directly to someone in the upper management group.

The branches may have their own human resources, accounting, and sales departments. However, with the matrix organization structure these departments do not work separately from each other as they do in the functional approach. Instead, they work as teams across the departments to develop the product(s) and service(s) offered by the company overall.

It helps to think of this arrangement in terms of a company which produces two primary products: apples and oranges. This means there would be an apples sales department, an apple customer service department, and an apple accounting department. There would also be the same configuration for oranges (i.e. an orange sales department, an orange customer service department, and an orange accounting department).

Members of the apple departments would work together to promote and ensure the quality of the apples while the members of the orange departments would work together to do the same for the oranges. None of them would work in isolation; instead there'd be more of a lattice overlapping the various departments for a common goal.

Each team would report to a functional manager on their progress. The functional manager would then report up to the project manager who, like we've already mentioned, reports to the vice president and/or general manager.

Some of the benefits of the matrix organizational structure include the fact that having people across department boundaries working together for a common goal means reduced costs in terms of having to bring in outside help. There are usually fewer issues that arise among various departments because they are all working in conjunction with one another.

Additionally, because the teams bring different talents and skills to the group there is more sense of shared authority and responsibility. Each member is expected to carry out their tasks and the group works together as a whole to ensure success. This also means that the stress is disbursed among the team members so that no one individual has to carry the weight of responsibility alone.

As with any business structure, there is no one right organization. Whether or not the matrix organization structure would be right for your business is going to be dictated by the products, services, and size of your operation.

• **Main Features of Matrix Organizational Structure:**

1. **Balance Structure:** It is the combination of functional organization and project structure to make better utilization of resources
2. **Functional Managers:** They are marketing, finance, R&D. Production manager etc. They will have to use how they can assist the project managers without affecting their routine work.
3. **Project Manager:** He has to think and decide how functional staff can be utilized for the completion of the project by developing better coordination.
4. **Functional Staff:** They are under the control of functional managers and project managers. They have to take additional responsibilities.
5. **Large Business Organization:** This structure can be suitable in big business forms; having engineering and research projects.
6. **Importance of training:** Proper training of staff and manager is necessary for effective communication and better completion of work.
7. **Authority Flow Horizontally and Vertically:** Functional managers issue notices vertically for routine completion of work and project manager issue orders horizontally for completing the project.
8. **Facilitates specialization:** The areas of work are clearly distributed between the project and functional managers. As project managers look after planning aspect of the project, functional managers are concerned with the technical aspect of the project.

• **Advantages of Matrix Organizational Structure:**

1. **Motivation:** The staff members of functional department get more satisfaction and motivation due to change in the nature of work for various new projects. Otherwise due to monotonous nature of job employees get fed up and lose interest in the job.
2. **Better Coordination and Control:** This organization structure helps in maintaining co-ordination between the two types of jobs vertically and horizontally. This helps in achieving certain targets by using available resources and provides better control of organization.
3. **Better Utilization of Resources:** When C.E.O., Departmental managers and project managers meet together and make integrated plan, this helps in maintaining optimum utilization of resources and increasing organizational efficiency.
4. **Most suitable to present Environment:** In the present business environment different opportunities arise in the market. Every organization should be ready to exploit these opportunities. This requires most flexible organization structure for which matrix

organization is most suitable. The business firm should develop need based organization structure.

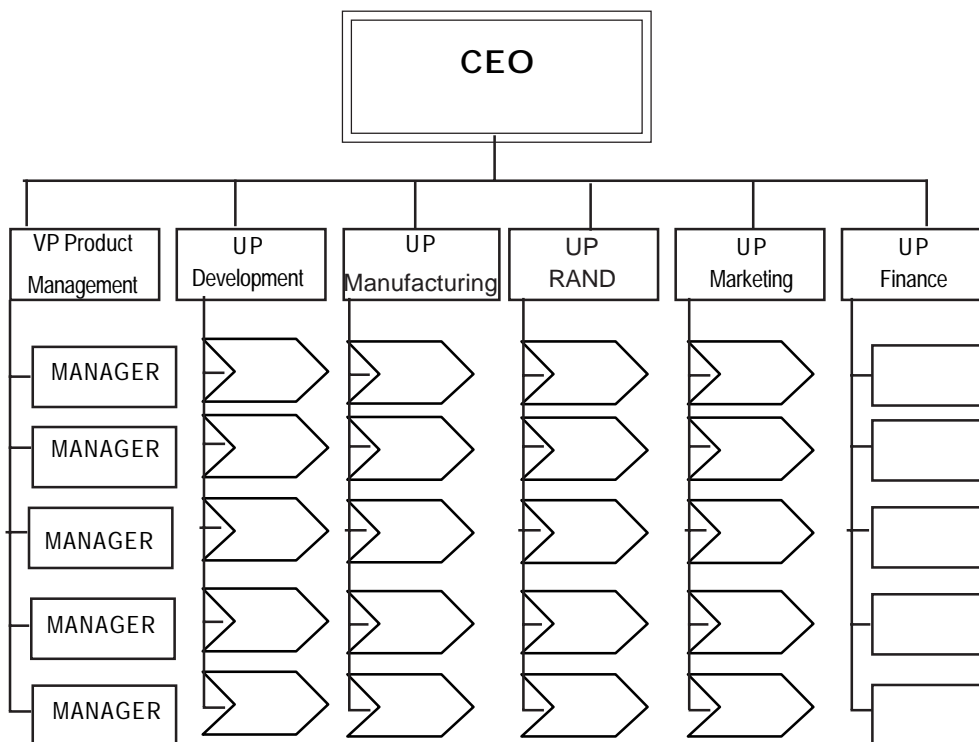
5. **Efficiency:** Due to the motivation employees get interest in the new type of job of various projects. For this they don't mind devoting extra time and efforts. This increases the organization's efficiency, profitability and provides better payment to employees also.
6. **Development of Skill:** Sometimes new projects require certain skills which existing employees do not possess. So they go for training program for the development of the new skills. This provides opportunity for quick promotion and better remuneration.
7. **Opportunity for growth and expansion:** The opportunities for the growth of employees as well as the business organization are available. This may also provide the opportunities for merger, acquisition, outsourcing, off shoring etc.
8. **Inter departmental co-operation:** This organization structure cannot work without the co-operation of all the departments and employees of each department. This helps in changing attitudes of management and employees. Thus they have better relations and effective communication. As a result new work culture can be developed in the business enterprise.

• **Limitations of Matrix Organizational Structure:**

1. **Lack of unity of Command:** In this type of organization structure the employees will have dual command. They receive orders from two bosses simultaneously. This is against the principle of unity of command.
2. **Heavy Investment:** This type is only suitable in large business houses with heavy investments, technology and large number of employees. Small firms cannot think of such type of structure.
3. **Lack of Co-operation:** Sometimes due to ego factor functional manager may not co-operate with project manager. This may be due to the conflict of the work and the preference for the work.
4. **Communication Problem:** This type of organization will only work when there is effective communication horizontally and vertically. For this purpose CEO should play an important role otherwise the system will not work.
5. **Complex Organization:** Two types of organization structure are combined together which brings in complexity. There may be difficulty in clearly defining authority, responsibility and importance of project work.

6. **Power Conflict:** Due to lack of unity of command power conflict may arise. The functional staff will take the benefit of it in passing the buck. This may spoil the whole structure.
7. **Extra pressure of work:** The functional staff is always under pressure to complete the work in time. This may be against motivation and result in losing the interest in work.
8. **Difficulty in Management:** The ultimate responsibility of designing and maintaining the organization structure lies on the shoulder top management. Therefore they face maximum difficulty in solving all the problems of matrix organization.

• **Chart of Matrix Organizational Structure**



CHECK YOUR PROGRESS:

1. "Properly designed organization can help in improving team work and productivity". Discuss.
2. Draw the Functional Structure chart and explain it.
3. "Vertical organizational structure means a strict top down or bottom up structure". Explain.
4. Explain the Matrix Organizational Structure by presenting the chart.

10.4 DECENTRALIZATION

10.4.1 MEANING:

Decentralization is a systematic delegation of authority at all levels of management and in all of the organization. In a decentralization concern, authority is retained by the top management for taking major decisions and framing policies concerning the whole concern. Rest of the authority may be delegated to the middle level and lower level of management.

The degree of **centralization and decentralization** will depend upon the amount of authority delegated to the lowest level. **According to Allen**, "Decentralization refers to the systematic effort to delegate to the lowest level of authority except that which can be controlled and exercised at central points".

Decentralization is not the same as delegation. In fact, decentralization is all extension of delegation. Decentralization pattern is wider in scope and the authorities are diffused to the lowest most level of management. Delegation of authority is a complete process and takes place from one person to another. While decentralization is complete only when fullest possible delegation has taken place. For example, the general manager of a company is responsible for receiving the leave application for the whole of the concern. The general manager delegates this work to the personnel manager who is now responsible for receiving the leave applicants. In this situation delegation of authority has taken place. On the other hand, on the request of the personnel manager, if the general manager delegates this power to all the departmental heads at all level, in this situation decentralization has taken place. There is a saying that "Everything that increases the role of subordinates is decentralization and that decreases the role is centralization". Decentralization is wider in scope and the subordinate's responsibility increases in this case. On the other hand, in delegation the managers remain answerable even for the acts of subordinates to their superiors.

10.4.2 IMPLICATIONS/ ADVANTAGES OF DECENTRALIZATION:

1. There is less burden on the Chief Executive as in the case of centralization.
2. In decentralization, the subordinates get a chance to decide and act independently which develops skills and capabilities. This way the organization is able to process reserve of talents in it.
3. In decentralization, diversification and horizontal can be easily implanted.

4. In decentralization, concern diversification of activities can place effectively since there is more scope for creating new departments. Therefore, diversification growth is of a degree.
5. In decentralization structure, operations can be coordinated at divisional level which is not possible in the centralization set up.
6. In the case of decentralization structure, there is greater motivation and morale of the employees since they get more independence to act and decide.
7. In a decentralization structure, co-ordination to some extent is difficult to maintain as there are lot many department divisions and authority is delegated to maximum possible extent, i.e., to the bottom most level delegation reaches. Centralization and decentralization are the categories by which the pattern of authority relationships became clear. The degree of centralization and de-centralization can be affected by many factors like nature of operation, volume of profits, number of departments, size of a concern, etc. The larger the size of a concern, a decentralization set up is suitable in it.

10.4.3 DISTINCTION BETWEEN DELEGATION AND DECENTRALIZATION:

Decentralization can be called as extension of delegation. When delegation of authority is done to the fullest possible extent, it gives use to decentralization.

10.5 DELEGATION OF AUTHORITY

10.5.1 MEANING AND DEFINITION

| Basis | Delegation | Decentralization |
|----------------------|--|--|
| Meaning | Managers delegate some of their function and authority to their subordinates. | Right to take decisions is shared by top management and other level of management. |
| Scope | Scope of delegation is limited as superior delegates the powers to the subordinates on individual bases. | Scope is wide as the decision making is shared by the subordinates also. |
| Responsibilit | Responsibility remains of the managers and cannot be delegated | Authority with responsibility is |

| Basis | Delegation | Decentralization |
|---------------------------|---|--|
| | | delegated to subordinates. |
| Freedom of Work | Freedom is not given to the subordinates as they have to work as per the instructions of their superiors. | Freedom to work can be maintained by subordinates as they are free to take decision and to implement it. |
| Nature | It is a routine function | It is an important decision of an enterprise |
| Need | Delegation is important in all concerns whether big or small. | Decentralization becomes more important in large concerns and it depends upon the decision made by the enterprise, it is not compulsory. |
| Grant of Authority | The authority is granted by one individual to another. No enterprises can work without delegation. | Authority with responsibility is delegated to subordinates. |
| Degree | Degree of delegation varies from concern to concern and department to department. | Decentralization is total by nature. It spreads throughout the organization i.e. at all levels and all functions |
| Process | Delegation is a process which explains superior subordinates relationship. | It is an outcome which explains relationship between top management and all other departments. |

| | | |
|--------------------------|---|---|
| Essentiality | Delegation is essential of all kinds of concerns | Decentralization is a decisions function by nature. |
| Significance | Delegation is essential for creating the organization | Decentralization is an optional policy at the discretion of top management. |
| Withdrawal | Delegated authority can be taken back. | It is considered as a general policy of top management and is applicable to all departments |
| Freedom of Action | Very little freedom to the subordinates | C o n s i d e r a b l e freedom |

A manager alone cannot perform all the tasks assigned to him. In order to meet the targets, the manager should delegate authority. Delegation of Authority means division of authority and powers downwards to the subordinate. Delegation is about entrusting someone else to do parts of your job. Delegation of authority can be defined as subdivision and sub-allocation of powers to the subordinates in order to achieve effective results.

Definition:

According to F. C. Moore, “Delegation means assigning works to the other and giving them authority to do so.” Delegation does not relinquish the responsibility of the delegator.

10.5.2 COMPONENTS OF DELEGATION:

1. Authority - in context of a business organization, authority can be defined as the power and right of a person to use and allocate the resources efficiently, to take decisions and to give orders so as to achieve the organizational objectives.. Authority is the right to give commands, orders and get the things done. The top level management has greatest authority. Authority always flows from top to bottom. It explains how a superior gets work done from his subordinate by clearly explaining what is expected of him and how he should go about it. Authority should be accompanied with an equal amount of responsibility. Delegating the authority to someone else doesn't imply escaping from accountability. Accountability still rest with the person having the utmost authority.

2. Responsibility - is the duty of the person to complete the task assigned to him. A person who is given the responsibility should ensure that he accomplishes the tasks assigned to him. Responsibility without adequate authority leads to discontent and dissatisfaction among the person. Responsibility flows from bottom to top. The person held responsible for a job is answerable for it.

3. Accountability - means giving explanations for any variance in the actual performance from the expectations set. Accountability cannot be delegated. For example, if 'A' is given a task with sufficient authority, and 'A' delegates this task to B and asks him to ensure that task is done well, responsibility rest with 'B', but accountability still rest with 'A'. The top level management is most accountable. Accountability, in short, means being answerable for the end result.

10.5.3 PROCESS OF DELEGATION:

Delegation of authority is the base of superior-subordinate relationship, it involves following steps:-

1. Assignment of Duties – The delegator first tries to define the task and duties to the subordinate. He also has to define the result expected from the subordinates. Clarity of duty as well as result expected has to be the first step in delegation.

2. Granting of authority – Subdivision of authority takes place when a superior divides and shares his authority with the subordinate. It is for this reason; every subordinate should be given enough independence to carry the task given to him by his superiors. The managers at all levels delegate authority and power which is attached to their job positions. The subdivision of powers is very important to get effective results.

3. Acceptance of the assignment — In this stage of delegation process, the subordinate has to accept or reject the task assigned to him in the first stage along with the authority given in the second stage. If the delegates refuse, the delegator has to make fresh plan of delegation or may consider some other subordinate who is capable and is willing to accept the assignment. On the other hand, the process of delegation will move to the fourth and the last stage, if the first delegates accept the assignment of work accompanying the authority.

4. Creating Responsibility and Accountability – The delegation process does not end once powers are granted to the subordinates. Responsibility is said to be the factor or obligation of an individual to carry out his duties in best of his ability as per the directions of superior. Responsibility is absolute and cannot be shifted. Accountability, on the

others hand, is the obligation of the individual to carry out his duties as per the standards of performance. Therefore, it is said that authority is delegated, responsibility is created and accountability is imposed. Accountability arises out of responsibility and responsibility arises out of authority. Therefore, it becomes important that with every authority position an equal and opposite responsibility should be attached.

Therefore every manager, i.e., the delegator has to follow a system to finish up the delegation process. Equally important is the delegate's role which means his responsibility and accountability is attached with the authority over to here.

Delegation of authority is a process in which the authority and powers are divided and shared amongst the subordinates. When the work of a manager gets beyond his capacity, there should be some system of sharing the work. This is how delegation of authority becomes an important tool in organization function. Through delegation, a manager, in fact, is multiplying himself by dividing/multiplying his work with the subordinates.

10.5.4 IMPORTANCE OF DELEGATION:

The importance of delegation can be justified by:

1. Through delegation, a manager is able to divide the work and allocate it to the subordinates. This helps in reducing his work load so that he can work on important areas such as - planning, business analysis etc.

2. With the reduction of load on superior, he can concentrate his energy on important and critical issues of concern. This way he is able to bring effectiveness in his work as well in the work unit. This effectivity helps a manager to prove his ability and skills in the best manner.

3. Delegation of authority is the ground on which the superior-subordinate relationship stands. An organization functions as the authority flows from top level to bottom. This in fact shows that through delegation, the superior-subordinate relationship become meaningful. The flow of authority is from top to bottom which is a way of achieving results.

4. Delegation of authority in a way gives enough room and space to the subordinates to flourish their abilities and skill. Through delegating powers, the subordinates get a feeling of importance. Delegation motivates and also helps to break monotony. Delegation of authority is not only helpful to the subordinates but it also helps the managers to develop their talents and skills. Since the manager get enough time through delegation to concentrate on important issues, their decision-making gets strong and in a way they can flourish the talents which are required in a manager.

5. Delegation of authority is help to both superior and subordinates. This, in a way, gives stability to a concern's working. With effective results, a concern can think of creating more departments and divisions flow working. This will require creation of more managers which can be fulfilled by shifting the experienced, skilled managers to these positions. This helps in both virtual as well as horizontal growth which is very important for a concern's stability.

Therefore, from the above points, we can justify that delegation is not just a process but it is a way by which manager multiples himself and is able to bring stability, ability and soundness to a concern.

10.5.5 PRINCIPLES OF DELEGATION:

There are a few guidelines in form of principles which can be a help to the manager to process of delegation. The **principles of delegation** are as follows: -

1. Principle of result excepted- suggests that every manager before delegating the powers to the subordinate should be able to clearly define the goals as well as results expected from them. The goals and targets should be completely and clearly defined and the standards of performance should also be notified clearly. For example, a marketing manager explains the salesmen regarding the units of sale to take place in a particular day, say ten units a day have to be the target sales. While a marketing manager provides these guidelines of sales, mentioning the target sales is very important so that the salesman can perform his duty efficiently with a clear set of mind.

2. Principle of Parity of Authority and Responsibility- According to this principle, the manager should keep a balance between authority and responsibility. Both of them should go hand in hand. According to this principle, if a subordinate is given a responsibility to perform a task, then at the same time he should be given enough independence and power to carry out that task effectively. This principle also does not provide excessive authority to the subordinate which at times can be misused by him. The authority should be given in such a way which matches the task given to him. Therefore, there should be no degree of disparity between the two.

3. Principle of absolute responsibility- This says that the authority can be delegated but responsibility cannot be delegated by managers to his subordinates which means responsibility is fixed. The manager at every level, no matter what is his authority, is always responsible to his superior for carrying out his task by delegating the powers. It does not means that he can escape from his responsibility. He will always remain responsible

till the completion of task. Every superior is responsible for the acts of their subordinates and are accountable to their superior therefore the superiors cannot pass the blame to the subordinates even if he has delegated certain powers to subordinates example if the production manager has been given a work and the machine breaks down. If repairmen are not able to get repair work done, production manager will be responsible to CEO if their production is not completed.

4. Principle of Authority level- This principle suggests that a manager should exercise his authority within the jurisdiction / framework given. The manager should be forced to consult their superiors with those matters of which the authority is not given that means before a manager takes any important decision, he should make sure that he has the authority to do that on the other hand, subordinate should also not frequently go with regards to their complaints as well as suggestions to their superior if they are not asked to do. This principle emphasizes on the degree of authority and the level upto which it has to be maintained.

CHECK YOUR PROGRESS

1. "Decentralization is not the same as delegation." Explain.
2. Define the following terms
 1. Authority
 2. Responsibility
 3. Accountability

10.6 RELATIONSHIP BETWEEN AUTHORITY AND RESPONSIBILITY

Authority is the legal right of person or superior to command his subordinates while accountability is the obligation of individual to carry out his duties as per standards of performance Authority flows from the superiors to subordinates, in which orders and instructions are given to subordinates to complete the task. It is only through authority, a manager exercises control. In a way through exercising the control the superior is demanding accountability from subordinates. When the marketing manager directs the sales supervisor for 50 units of sale to be undertaken in a month, if the above standards are not accomplished, it is the marketing manager who will be accountable to the chief executive officer. Therefore, we can say that authority flows from top to bottom and responsibility flows from bottom to top. Accountability is a result of responsibility and

responsibility is result of authority. Therefore, for every authority an equal accountability is attached.

Difference between Authority and Responsibility

| Authority | Responsibility |
|--|--|
| It is the legal right of a person or a superior to command his subordinates. | It is the obligation of subordinate to perform the work assigned to him. |
| Authority is attached to the position of a superior in concern. | Responsibility arises out of superior – subordinate relationship in which subordinate agrees to carry out duty given to him. |
| Authority can be delegated by a superior to a subordinate | Responsibility cannot be shifted and is absolute |
| It flows from top to bottom. | It flows from bottom to top. |

10.7 SUMMARY

Organizational Structure refers to manner in which individual and groups of individual are arranged in respect of work performed and position held. Organizational structure refers to the way that an organization arranges people and jobs so that its work can be performed and its goals can be met. When a work group is very small and face-to-face communication is frequent, formal structure may be unnecessary, but in a larger organization decisions have to be made about the delegation of various tasks. Thus, procedures are established that assign responsibilities for various functions. It is these decisions that determine the organizational structure.

Different companies have different organization structures.

Flat organization structure- It is also known as **horizontal organization**. It refers to an organizational structure with few or no levels of intervening management between staff and managers. This kind of flat organization structure is preferred when the company or organization has many parallel departments which are more or less equal to each other and specialized. Here the departmental head has to be a technically knowledgeable person and must have the necessary competence to drive the entire department. He may have empowered work groups working for him with a group leader heading each team to help him out. The next

higher level could be a vice-president level with all department heads reporting directly to him. An example of a flat structure is an university where each department is headed by a head of the department and all such heads report directly to the dean. This structure is generally possible only in smaller organizations or individual units within larger organizations.

Vertical organization Structure- is a hierarchically structured organization where all management activities are controlled by a centralized management staff. This traditional type of organization often develops strong bureaucratic control over all organizational activities.

Functional structure- this kind of organizational structure classifies people according to the function they perform in their professional life or according to the functions performed by them in the organization. The organization chart for a functional based organization consists of Vice President, Sales department, Customer Service Department, Engineering or production department, Accounting department and Administrative department. As a whole, a functional organization is best suited as a producer of standardized goods and services at large volume and low cost. Coordination and specialization of tasks are centralized in a functional structure, which makes producing a limited amount of products or services efficient and predictable.

Matrix Structure- This is a structure, which is a combination of function, and product structures. This combines both the best of both worlds to make an efficient organizational structure. This structure is the most complex organizational structure. Matrix forms of management can be regarded (arguably) as an early form of 'network' structure. They focus on project teams, bringing skilled individuals together from different parts of the organization. Individuals were made responsible both to their line manager and the project manager involved. Before the advent of network technology, many matrix organizations were dogged by duplication and confusion: the 'matrix muddle'. One advantage of a matrix structure is that it facilitates the use of highly specialized staff and equipment.

Decentralization also called departmentalization. It is the policy of delegating decision-making authority down to the lower levels in an organization, relatively away from and lowers in a central authority. A decentralized organization shows fewer tiers in the organizational structure, wider span of control, and a bottom-to-top flow of decision-making and flow of ideas. Decentralization has three general benefits: (1) It encourages motivation and creativity; (2) it allows many minds to work simultaneously on the same problem; and (3) it accommodates flexibility and individualization.

Delegation of authority - In any organization no individual can perform all duties and accomplish all tasks by himself. It is physically

impossible for a single individual to look after the affairs of a large business. His skill lies in his ability to get things done through others. As an organization grows in size and the manager's job increases beyond his personal capacity, his success lies in his ability to multiply himself by training his subordinates and sharing his authority and responsibility with them. The only way he can achieve more is through delegation - through dividing his work load and sharing responsibilities with others. The sharing of power or authority with another for the performance of certain tasks and duties is known as delegation of authority. Delegation has a number of benefits. Good delegation saves you time, develops you people, grooms a successor, and motivates. When managers streamline their workload, they increase the amount of time available for essential managerial tasks. The staff feels motivated and more confident, and stress level decrease across the workforce.

10.8 QUESTIONS

1. What is Organization Structure? Define Organization Structure? Explain the importance of Organization Structure.
2. Write a note on Flat Organization Structure and Vertical Organization Structure.
3. Bring out the difference between Flat Organization Structure and Vertical Organization Structure.
4. Discuss the modern Matrix Organization Structure.
5. What are the advantages and disadvantages of Matrix Organization Structure?
6. What is Decentralization and what are its benefits?
7. Explain in detail the concept of Delegation of Authority.
8. Distinguish between Decentralization and Delegation.
9. Write a note on Relationship between Authority and Responsibility



MASLOW, HERZBERG AND MACGREGOR'S THEORY OF MOTIVATION

UNIT STRUCTURE

- 11.0 Objectives
- 11.1 Introduction
- 11.2 Definitions
- 11.3 Maslow's Need Hierarchy Theory
- 11.4 Herzberg's two factor theory
- 11.5 McGregor's theory of motivation
- 11.6 Summary
- 11.7 References
- 11.8 Questions

11.0 OBJECTIVES

After studying the unit the students will be able to

- Understand the significance of theories of motivation
- Compare and understand the similarities and differences of the theories.
- Know the relevance and application of all the theories

11.1 INTRODUCTION

The success or failure of any business enterprise depends on the performance of people (Human resource) associated with it. Performance is determined by ability, knowledge and motivation. Thus, one of the most important functions of a manager is to motivate people to make their optimum contribution to the achievement of organizational goals. The word motivation is derived from the word 'motive', which means to move or to activate. Thus, motivation is the task of making the work force act in the desired manner to achieve the set goals.

Motivation is a productivity factor in industry. It is the sum total of managerial science. While trying to motivate employees towards the accomplishment of enterprise objectives, the manager attempts to make work satisfactory for the people. Motivation means persuading subordinate to work with zeal and interest and cooperate for achieving the objective of the organization. The important task of the manager is to motivate so that they may direct their efforts towards the accomplishment of organizational goals.

Motivation is a management function dealing with sentiments and emotions of people. It ensures fair remuneration and it gains momentum under able supervision.

Motivation may be achieved by:

- a) Providing financial opportunities to authorities.
- b) Helping in discipline
- c) Helping set examples for subordinates
- d) keeping morale high
- e) Satisfying the need of the employee.

11.1.1 CONCEPT OF MOTIVATION:

“Motivation” is a term derived from the word ‘motive’. ‘Motive’ makes a person active in a particular way. Motive is an inner impulse causing man to action. A person works to satisfy his needs. Hence, the human needs are the cause of action and motivation is a process of causing the man realizes these needs. Motivating employees is a direct responsibility of every business manager. Motivation is more effective and direct when based upon individual incentives rather than group incentives. Motivation can be achieved through a) Providing, security and a congenial work environment b) Monetary incentives c) Making the workers participate in the decision making process.

11.2 Definitions

11.2.1 DEFINITIONS

1) Edwin B. Flippo- ‘Motivation is the process of attempting to influence others to do your will through the possibility of gain or reward’.

2) W.G. Scott – ‘Motivation means a process of stimulating people to action, to accomplish the desired goals.

3) Michael J. Jucius – Motivation is the act of stimulating someone or oneself to get a desired course of action or push the right button to get desired results.

4) Rosenz Weig and F.K. Kast – ‘Motivation is an inspiration process which impels the members of the team to accomplish the desired goals’.

5) Koontz and O’Donnel – ‘Motivation is a general term applying to the entire class of drives, desires, needs, wishes and similar forces that induce an individual or a group to work’

6) McFarland – ‘Motivation refers to the way in which urges, drives, desires, aspirations, strivings or needs’ direct, control or explain the behaviour of human beings’.

6) Berelson and Steiner – “Motivation is an inner state that energizes, activates or moves and directs or channels behaviours towards goals”.

7) Dubin – “Motivation is the complex of forces starting and keeping a person as work in organization.

8) Vance – “Motivation implies any emotion or desire which conditions one’s will that the individual is properly led into action”.

9) Control Shaartle – “Motivation is a reported urge or tension to move in a given direction or to achieve a certain goal.”

From the above definitions it may be said that motivation is concerned with attributing causes to and reasons for behaviour. Motivation is also concerned with both impulsive and deliberate behaviour and with relating a person’s internal dynamics to external circumstances.

11.2.2 THEORIES OF MOTIVATION

Theories of motivation are nothing but a series of continuing experiments undertaken in various industrial undertakings in the international business scene. These experiments have proved that by giving various monetary and non – monetary incentives to the workers / employees, business enterprises could be benefitted. Management consultants like A.H. Maslow, Douglas McGregor, Edwin Flippo, Herzberg, Victor Vroom, and others have advocated the need for motivating the workers. The neo- classical theorists have very strongly emphasized on the human relations approach to management.

11.3 MASLOW’S NEED HIERARCHY THEORY

11.3.1 THEORY

Abraham Maslow in the year 1953 propounded one of the most popular and widely cited theories of motivation as “Need Hierarchy Theory”. He was the pioneer in contributing to a systematic scheme of need hierarchy. According to him, the behaviour of an individual is

determined by his strongest need at a particular moment. He defined a person's effectiveness as a function of matching man's opportunity with the appropriate position of hierarchy of needs. Maslow has given the need priority and it has gained wide acceptance in the management and organizational behaviour. The needs which are not satisfied motivate the behaviour. The needs, once satisfied, cease to be a motivating force. These needs have a certain priority, which can be arranged in the order of preference, or priority.

There are certain perceived needs of the employees and when they join an organization they somehow believe that the needs can be better satisfied by doing so. Thus, they have a perceived expectation from the organization they are working in. If the perceived needs are satisfied according to their expectation, they feel satisfied and motivated. On the other hand, if there is a gap between these, they slowdown or refuse to work.

The basic human needs identified by Maslow are set in a hierarchy and can be arranged from lower to the higher set self Actualization as shown in figure 11.1

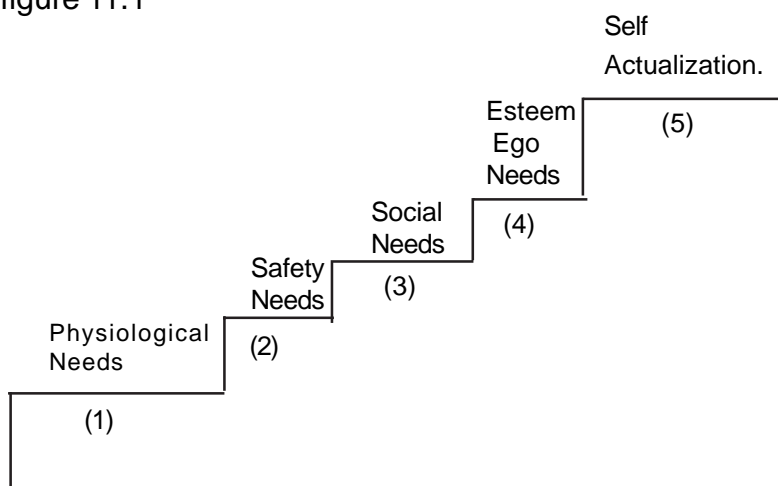


Figure 11.1

Maslow's Hierarchy of Needs –

- i) Physiological Needs
- ii) Safety Needs
- iii) Social Needs (Love Needs)
- iv) Esteem Needs
- v) Self – Actualization Needs

i) Physiological Needs:

These needs are biological, and are basic for human survival, and include the need for food, shelter, clothing, water, air, sleep etc.

These needs must be satisfied to maintain life and give satisfaction. These needs dominate, when all needs are unsatisfied. These needs have the highest strength. Physiological needs lie at the lowest level of the hierarchy of needs. When these basic needs are not satisfied, the higher needs for status and self – fulfillment have little significance. Once they are satisfied, the basic needs **cease** to be important in motivating individuals. In underdeveloped countries, physiological needs remain powerful motivators. These needs are satisfied by providing adequate financial compensation to employees, like salary, fringe benefits and bonus for efficiency.

ii) Safety Needs:

Safety needs include protection from physical harm, ill – health, economic disaster and avoidance of the unexpected. These are security needs. Physical security implies the freedom from bodily threat and financial security is concerned with the security on the job etc. When physiological needs of a man are reasonably fulfilled, needs at the next higher level begin to dominate man's behaviour. Safety needs are important in an formal organizational structure where in the workforce usually exists on dependent relationships. An individual feels threatened if the top management attempts to weaken the trade union, and social groups with whom he is associated on a daily basis. Safety needs exist as powerful motivation upto a certain level only. If an individual is provided with extensive security and restrictions, it can lead to loss of initiative and creativity on his part.

iii) Social Needs:

Social needs refer to needs of love, affection, sense of belonging, acceptance, friendship and social security. Every individual aspires to be loved by others, to be associated with others and to get affection from his group members. Deprived of this thing, man wants them as internally as a hungry man wants food. Therefore, social norms and needs become an important motivator of behaviour.

Groups exist in informal organizational structures. Under proper working conditions, a **cohesive** group can be more effective than an equal number of individual. In the interest of the organization, managers and top boss encourage the formation of constructive groups.

iv) Esteem or ego needs:

These needs represent a person's concern for feeling important and getting respect from others. These needs include self – respect, self – confidence, competence, knowledge and autonomy, status, prestige, power and recognition. Ego needs become powerful motivators only when

all the three lower order needs are reasonably satisfied. Ego needs relating to status can be satisfied through promotion and giving status symbols or tokens to deserving individuals. Ego needs relating to self-esteem can be satisfied by opportunities being generated to undertake challenging tasks. The achievement of these tasks must be formally recognized by the top management in an organization.

v) Self – Actualization needs :

Self – actualization needs include fulfillment of one's potential and growth as a person. These are the highest levels of needs in the hierarchy as evolved by Maslow. It is the desire to become what one is capable of becoming, achieving one's own potential for self – development. In any business enterprise, a person trying to satisfy the needs would like to accept challenges and look for new opportunities for personal growth. If the employees are provided with a chance to participate in management talks, their need for self – actualization can be partly satisfied. The management should encourage and reward creativity of the workforce/ subordinates. Whenever possible, the workforce should be allowed sufficient freedom to work in his own way. This would guarantee individual growth and development in the work force.

According to Abraham Maslow, if lower level needs are satisfied, they cease to be a motivating factor and higher level needs emerge. This cycle is repeated till the highest level needs are satisfied.

11.3.2 CRITICISM:

The major criticism of Maslow's theory is that it fails to take individual differences into account. According to critics, man's behaviour at any time is guided by multiplicity of motives. However, one or two motives in any situation may be prepotent where others may be of secondary importance. Further, critics argue that Maslow's need hierarchy does not provide a complete understanding of human motivation or the means to motivate people, it does provide an excellent starting point for understanding the human behaviour.

The theory has been criticized on the following grounds:

- 1) There is lack of direct cause and effect relationship between need and behaviour
- 2) This is only an empirical theory, which is not scientifically tested.
- 3) The theory fails to cover some motivating factors like perception, experience, expectation etc.
- 4) It does not take differences among individuals into account. The dominant needs are different in different individuals.

However, inspite of these limitations, the identification of basic needs has become very popular and acclaimed by the business world to solve the problems of the labour force and understand their behaviour at the work place, which has a direct impact on the quality and quantity of output.

CHECK YOUR PROGRESS:

- 1) What is concept of motivation?
- 2) Explain 'Maslow's hierarchy of human needs'. What is the significance of Maslow's theory of motivation?

11.4 HERZBERG'S TWO – FACTOR THEORY

11.4.1 THEORY :

Frederick Herzberg produced a new and exciting theory of motivation in 1960s. This is also known as the two – factor theory or Motivation Maintenance Model. Herzberg sets out his concept of man's basic needs in his famous motivation – hygiene theory. It was observed from the study that good feelings were related to the intrinsic or job content factors such as achievement, advancement, giving of responsibility and the potential for growth. Since these factors contribute to good feelings and stimulate people for better performance these are described as the motivators. Further, it was also observed that bad feelings about the job were related to context factors such as company, policy, administration and supervision, working condition, pay increase, job security, interpersonal relation with subordinates and status situation. Context factors are also known as extrinsic or hygienic factors. The two – factor theory reinforces the belief that motivators are the source of job satisfaction as well as effective role behaviour. Since hygiene factors are found related to job dissatisfaction management should not attempt to motivate people through these factors. Intrinsic factors on the other hand, are positively related to job – satisfaction and thus deserve close management attention.

Herzberg's motivation factors are shown as in Figure 11.2

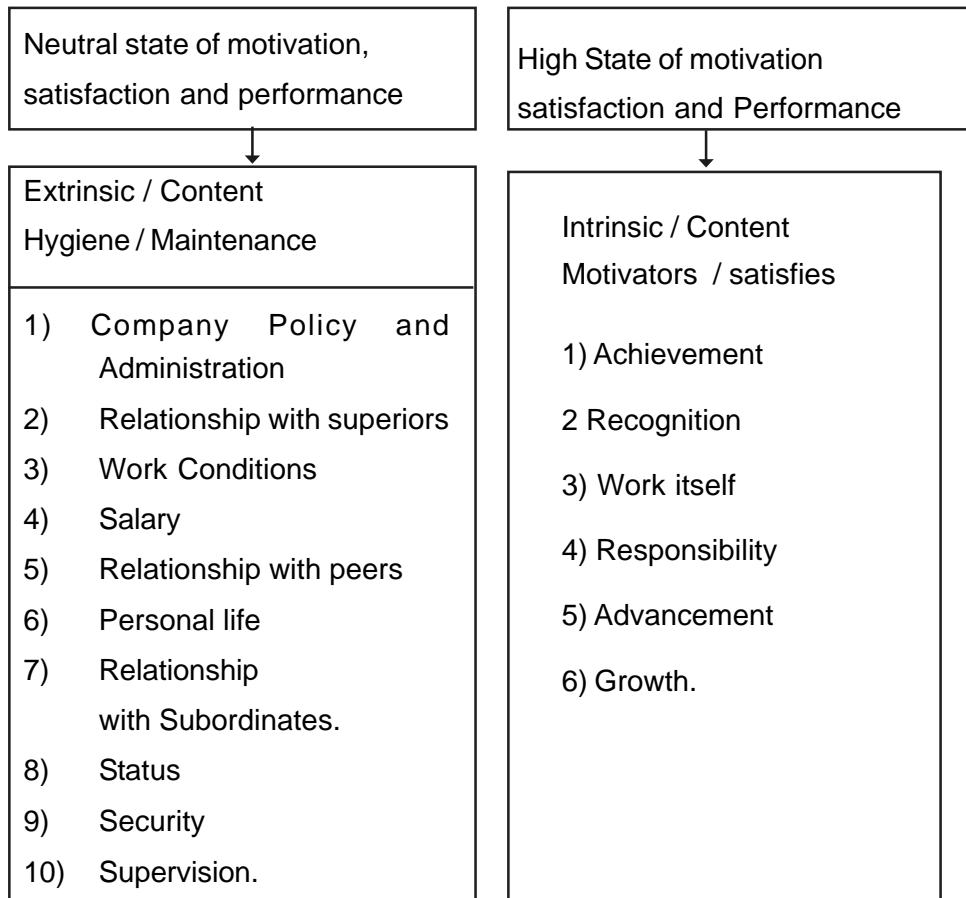


Figure 11.2

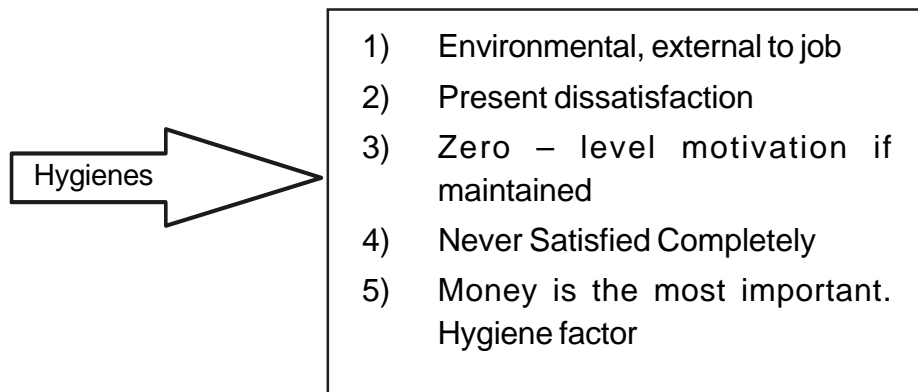


Figure 11.3

The hygiene factors are shown in Figure 11.3

The following proportion of motivation hygiene (M – H) theory are: -

- i) The factors producing job satisfaction are separate and distinct from those that lead to job dissatisfaction
- ii) The factors that lead to job satisfaction (the motivators) are achievement, recognition, work itself, responsibility and advancement.
- iii) The dissatisfies (hygiene factors) such as company policy and administration, supervision inter personal relations working conditions and salary contribute very little to job – satisfaction.

11.4.2 HYGIENE OR MAINTENANCE FACTORS:

- 1) Status
- 2) Technical aspects of supervision.
- 3) Inter personal relationship with supervisors.
- 4) Inter personal relationship with peers.
- 5) Interpersonal relationship with subordinates.
- 6) Company policy and administration.
- 7) Salary or pay.
- 8) Job security.
- 9) Working conditions.
- 10) Personal life.

• Motivators

- 1) Growth
- 2) Advancement
- 3) Achievement
- 4) Recognition
- 5) Responsibility
- 6) Challenging work.

11.4.3 MERITS AND DEMERITS OF THE THEORY:

- 1) The theory focus directly on work and gives importance to the content of the job in work motivation
- 2) Economic motivation and off – the – job and around the job need satisfaction are de – emphasized by Herzberg.
- 3) According to Herzberg, one important way to increase intrinsic job satisfaction is through job enrichment.

• **Demerits**

- 1) According to the critics the conclusions of the theory are based on small sample, which is not representative of human nature.
- 2) Job satisfaction and dissatisfaction are two opposite points.
- 3) This model of motivation – maintenance is based on two-factor theory of motivation and job satisfaction.
- 4) The model does not give sufficient emphasis to the motivating qualities of pay, status and interpersonal relations.
- 5) The categorization of factors into motivators and hygienes (Maintenance) requires not only the respondent's accuracy of reports about self, but also the interpretation of the rarer which vitiates the results.

CHECK YOUR PROGRESS:

- 1) State and explain Herzberg's Two – Factor Theory.
- 2) Distinguish between Maslow's and Herzberg's Theories of Motivation.

11.5 MCGREGOR'S THEORY OF MOTIVATION

The management's action of motivating human beings in the organization, according to Douglas McGregor, involves certain assumptions, generalizations and hypothesis relating to human behaviour and human nature. These assumptions may be neither, consciously crystallized, nor overtly stated, however, these serve the purpose of predicting possible human behaviour. The basic assumptions about human behaviour may differ considerably because of the complexity of factors influencing this behaviour. McGregor has characterized these assumptions in two observed points 'Theory X' and 'Theory Y'.

According to McGregor human behaviour is based on three assumptions needs. They must be persuaded, rewarded, punished, controlled, their activities must be directed. This is management's task. We often sum it up by saying that management consist of getting things done through other people.

- 4) The average man is by nature, inherently disliking work and avoid it, if he can.
- 5) He lacks ambition, dislikes responsibility, prefers to be led by others.
- 6) He is inherently self – centered, indifferent to organizational needs.
- 7) He is by nature resistant to change.

8) He is not very bright.

The First three assumptions deal with managerial actions and the last five with human nature. These assumptions about human nature are negative in their approach. Theory X is a traditional approach of management based on the old time assumptions about worker's behaviour. This theory believes that a –

- 1) Behaviour is caused.
- 2) Behaviour is motivated.
- 3) Behaviour is goal oriented.

11.5.1 THEORY X AND THEORY Y :

Theory X is the conventional approach of management based on traditional assumptions about human behaviour. The assumptions of theory X is as follows: -

1) Management is responsible for organizing the elements of productive enterprises – money, materials, equipment, people – in the interest of economic ends.

2) With respect to people, this is a process of directing their efforts, motivating them, controlling their actions, modifying their behaviour to fit the needs of the organization.

3) Without this active intervention by management, people would be passive, even resistant to organization. Manager should use coercive methods and exercise tight control over employees to achieve organizational goals; Moreover, it is presumed that decision – making is the exclusive right of the management and workers have to follow the decisions made by the managers. Managers subscribing to these views about human nature attempt to structure, control and closely supervise their employees.

They also feel that control is most appropriate for dealing with irresponsible & immature employees. However, these assumptions about human nature are changing gradually due to changes in the management philosophy, and working trends in individual organizations etc.

After he established the shortcomings of theory X, McGregor suggested a different theory of managing people known as theory Y. The main assumptions of Theory Y are: -

1) Man is not inherently passive or resistant to organizational objectives.

2) Incentive, threat, or external control is not the only means of motivating people to work for organizational objectives.

3) “The motivation, the potential for development, the capacity for assuming responsibility, the readiness to direct behaviour towards organizational objectives are all present in people. Management does not put them there. It is the responsibility of management to make it possible for people to recognize and develop these human characteristics for themselves”

4) Under proper organizational conditions and methods of operation man will exercise self- control towards achieving his own goals and those of the organization.

Theory Y is modern approach to management. According to this theory, managers attempt to help their employees to develop and mature by exposing them to progressively less external control. This theory is more democratic in nature. It aims at creating opportunities, removing obstacles, providing guidance etc. It recognizes the interdependence of the leader and reflects the current scientific understanding of people at work. Theory Y emphasizes integrative leadership, where a manager will be more of a coach and counsellor. Shifting to theory Y is not a easy task and therefore it needs to be applied gradually in a phased manner.

11.5.2 DISTINGUISH BETWEEN – THEORY X AND THEORY Y :

The differences between Theory X and Y can be shown as follows:-

1) In theory X, most people have little capacity for creativity while in theory Y, the capacity for creativity is distributed in the population.

2) Theory X applies to illiterate and unskilled workers while theory Y applies to educated and skilled people who occupy higher status in organization.

3) Theory X emphasizes control, coercion and punishment while theory Y emphasizes growth, autonomy and reward .

4) In theory X people are lazy, lack ambition, like to be led and are motivated strictly by personal economic concerns. In theory Y, people by nature enjoy work, want to do well and are motivated by self-control and self-development.

CHECK YOUR PROGRESS:

1) Distinguish between – Theory X and Theory Y.

11.6 SUMMARY

When the concept of economic development and society was accepted some thinkers and writers emphasized only on the satisfaction of physiological, psychological and safety needs. These turned into basic constituents of motivation model. However, with the changes in the value system and social set up, higher order needs start dominating the life of human beings and these needs thereafter replaced lower order need, constituents of the motivation model.

Similarly assumptions under Theory X were being reflected by assumption under Theory Y, which was seen in the managerial styles and techniques. Theory X emphasized democratic and supportive leadership styles, McGregor's assumption were based on Maslow's need hierarchy model. Frederick Herzberg's theory was a complement to need hierarchy concept but had its own limitations.

Today, there is emphasis on management by objectives management by integration and self – control, supportive management, decentralization, job enrichment etc. These techniques are applicable in the organization where self – motivated, self – controlled, mature & responsible people work.

11.7 REFERENCES AND BOOKS

- 1) N.G. Kale, Human Resource Management, Vipul Prakashan, Mumbai 2003
- 2) K. Aswathappa, Human Resource and Personnel Management: Text and cases, 3rd edition, Tata McGraw Hill Publishing Company Limited, New Delhi, 2003.
- 3) Suresh Sachdeva, M.L. Mourya, Management concepts and Practices, Y.K. Publishers, Agra, 2004 (First edition).

11.8 QUESTIONS

- 1) A theory of motivation recognizes that an individual works to fulfill a variety of needs". Examine Critically.
- 2) Discuss the difference between intrinsic and extrinsic rewards. Discuss how Herzberg's motivational factors are primarily intrinsic.
- 3) Compare the Maslow's and Herzberg's models with regard to similarities and differences.
- 4) Theory X and Theory Y are concerned with the nature of people", How does the job situation affect the application of this theory?



McClelland's Achievement Motivation, Blanchard's situation leadership Theory

UNIT STRUCTURE

- 12.0 Objectives
- 12.1 Introduction
- 12.2 McClelland's theory of Achievement Motivation
- 12.3 Blanchard's Situation leadership theory
- 12.4 Criticisms of the theory
- 12.5 Reference and Books
- 12.6 Questions

12.0 OBJECTIVES

After studying the unit the students will be able to

- Make acquaint students from the contemporary theories.
- Understand the application of these and activities.
- Understand the relevance, attributes of values of motivational and leadership theories.
- Check the application of theories in practical.

12.1 INTRODUCTION

Contemporary theories of motivation represent the current “state of art” in explaining employee motivation. Also called the three needs theory, the Achievement Motivation theory was advocated by David. C. McClelland and his associates. It was in the late 1940s that McClelland and his friends began to study the three needs that motivate human behaviour i.e. power, affiliation and achievement. The theory envisages that each person has a need for all the three, but that people differ in the degree to which the various needs motivate their behaviour.

The need to achieve is a personality characteristic. It is also one of three needs as being important in organizational settings for understanding motivation.

12.2 MCCLELLAND'S THEORY OF ACHIEVEMENT MOTIVATION

12.2.1 THEORY:

David McClelland's theory of needs focuses on three needs:

- 1) Achievement
- 2) Power
- 3) Affiliation

They are defined as follows:

1) Need for achievement:

The drive to excel to achieve in relation to a set of standards, to strive to succeed.

2) Need for power:

The need to make others behave in away that they would not have behaved otherwise.

3) Need for affiliation:

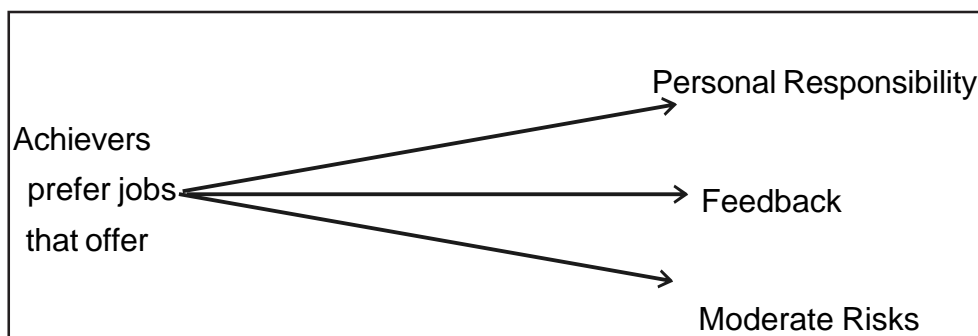
The desire for friendly and close interpersonal relationships. As described previously, some people who have a compelling drive to succeed are striving for personal achievement rather than the rewards of success per se. They have a desire to do something better or more efficiently than it has been done before. This drive is the achievement need (n Ach.) From research into the achievement need, McClelland found that high achievers differentiate themselves from others by their desire to do things better. They seek situations where they can attain personal responsibility for finding solutions to problems, where they can receive rapid feedback on their performance so they can tell easily whether they are improving or not, and where they can set moderately challenging goals. High achievers are not gamblers they dislike succeeding by chance. They prefer the challenge of working at a problem and accepting the personal responsibility for success or failure rather than leaving the outcome to chance or the actions of others. Importantly, they avoid what they perceive to be very easy or very difficult tasks. High achievers perform best when they perceive their probability of success, that is, where they estimate that they have a fifty-fifty chance of success. They dislike gambling with high odds because they get no achievement satisfaction from happen stance success. Similarly, they dislike low odds. (High probability of success) because then there is not challenge to their skills. They like to set goals that require stretching themselves a little. When there is an approximately equal chance of success or failure, there is the optimum

opportunity to experience feelings of accomplishment and satisfaction from their efforts.

The need for power (n Pow.) is the desire to have impact, to be influential and to control others. Individuals high in nPow enjoy being “in charge”, strive for influence over others, prefer to be placed into competitive and status,-oriented situations, and tend to be more concerned with prestige and gaining influence over others than with effective performance.

The third need isolated by McClelland is affiliation (n Aff). This need has received the least attention from researchers. Affiliation can be viewed as a type of need the desire to be liked and accepted by others. Individuals with a high affiliation motive strive for friendship, prefer cooperative situations rather than competitive ones and desire relationships involving a high degree of mutual understanding.

Relying on an extensive amount of research some reasonably will supported predictions can be made based on the relationship between achievement need and job performance. Although less research has been done on power and affiliation needs there are consistent findings here two.



(Fig. 12.1 Matching Achievers and Job)

As shown in Figure 9.1, individuals with a high need to achieve prefer job situations with personal responsibility, feedback, and an intermediate degree of risk. When these characteristics are prevalent high achievers will be strongly motivated. The evidence consistently demonstrates for instance, that high achievers are successful in entrepreneurial activities such as running their own businesses and managing a self-contained unit within a large organization.

Second, a high need to achieve does not necessarily lead to being a good manager, especially in large organizations. People with a high achievement need are interested in how well they do personally and not in influencing others to do well High-n Ach Salespeople do not necessarily

make good sales managers, and the good general manager in a large organization does not typically have a high need to achieve.

Third, the needs for affiliation and power tend to be closely related to managerial success. The best managers are high in their need for power and low in their need for affiliation. In fact, a high power motive may be a requirement for managerial effectiveness. Of course, what is the cause and what is the effect is arguable. It has been suggested that a high power need may occur simply as a function of One's level in a hierarchical Organization. The latter argument proposes that the higher the level an individual rises to in the organization, the greater is the incumbent's power motive. As a result, powerful positions would be the stimulus to a high power motive.

Lastly, employees have been successfully trained to stimulate their achievement need. If the job calls for a high achiever, management can select a person with a high nAch or develop its own candidate through achievement training.

12.2.2 EVALUATION OF THE THEORY :

Like any other theory on motivation, Mc Clelland's theory too has been criticized the criticisms often being unfair. In the first place, the critics question whether motive's can be taught to adults. Considerable psychological literature suggests that the acquisition of motives normally occurs in childhood and is very difficult to change, once it has been established. McClelland however, counters that there is strong evidence from politics and religion to indicate that adult behaviour can be drastically altered in a relatively short time.

The Second criticism of this theory questions the contention that the needs are permanently acquired. Mc Clelland is the only theorist who argues that the needs can be changed socially through education or training. Opponents contend that the change may be only temporary. Similar to the one which occurs at an evangelistic meeting or a political rally. The third criticism relates to the methodology used by Mc Clelland and his associates to advocate the theory. These researchers used the famous Thematic Appreciation Test (TAT) of Murray as the basic tool to determine basic needs. While, projective techniques as TAT have many advantages over structured questionnaires, the interpretation of the responses is more subject to the researcher's bias.

On the plus side, it may be stated that the findings of McClelland highlight the importance of matching the individual and the job. Employees' with high achievement needs thrive on work that is challenging, satisfying, stimulating and complex. They welcome autonomy, variety, and frequent

feedback from supervisors. Employees with low achievement needs prefer situations of stability, security and predictability. They respond better to considerate supervision than to impersonal, high pressure supervision and look to the workplace and co-workers for social satisfaction. McClelland's research also suggests that managers can, to some extent, raise that achievement needs level of subordinates by creating the proper work environment permitting their subordinates a measure of independence, increasing responsibility and autonomy, gradually making task more challenging and praising and rewarding high performance. Thus, McClelland's work seems to have numerous practical applications at least, in the economic realm. It would appear that the current problem is to concentrate on the development of an environment that will support the desired need, be it affiliation, power or achievement, or to change the need to fit the environment.

12.3 BLANCHARD'S SITUATION LEADERSHIP THEORY

12.3.1 THEORY:

Situation leadership theory is one of the most widely practiced leadership theory of Paul Hersey and Ken Blanchard. It has been used as a major training device at Fortune 500 companies as Bank America, Caterpillar, IBM, Mobil oil and Xerox; it has also been widely accepted in all the military services.

Situational leadership is a contingency theory that focuses on the followers. Successful leadership is achieved by selecting the right leadership style, which Hersey and Blanchard argue is contingent on the level of the follower's maturity.

The essence of the theory is seen in figure given below.

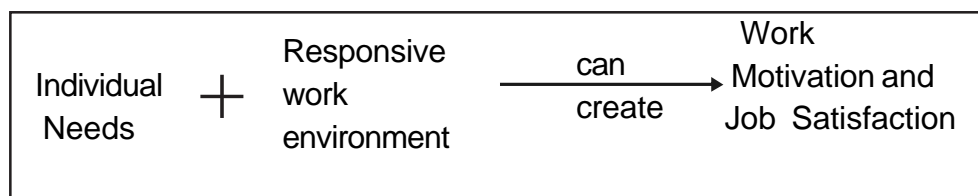


Figure 12.2

The emphasis on the followers in leadership effectiveness reflects the reality that it is they who accept or reject the leader. Regardless of what the leader does, effectiveness depends on the actions of his or her followers. This is an important dimension that has been overlooked or underemphasized in most leadership theories.

The term maturity, as defined by Hersey and Blanchard, is the ability and willingness of people to take responsibility for directing their own behavior. It has two components job maturity and psychological maturity. The first encompasses one's knowledge and skills. Individuals who are high in job maturity have the knowledge, ability and experience to perform their job tasks without direction from others. Psychological maturity relates to the willingness or motivation to do something. Individuals high in psychological maturity don't need much external encouragement, they are already intrinsically motivated.

Situational leadership uses the same two leadership dimensions that fielder identified: task and relationship behaviours. However, Hersey and Blanchard go a step further by considering each as either high or low and then combining them into four specific leadership styles, telling, selling, participating and delegating. They are described as follows:

- 1) Telling (high task- low relationship): The leader defines roles and tells people what, how, when and where to do various tasks. It emphasizes directive behaviour.
- 2) Selling (high task-high relationship) The leader provides both directive behaviour and supportive behaviour.
- 3) Participating (low task- high relationship) The leader and follower share in decision making with the main role of the leader being facilitating and communicating.
- 4) Delegating (low task-low relationship) the leader provides little direction or support. The final component in Hersey and Blanchard's theory is defining four stages of maturity.
 - 1) M1 People are both unable and unwilling to take responsibility to do something. They are neither competent nor confident.
 - 2) M2 People are unable but willing to do the necessary job tasks. They are motivated but currently lack the appropriate skills.
 - 3) M3 People are able but unwilling to do what the leader wants.
 - 4) M4 People are both able and willing to do what is asked to them.

Situational Leadership Model

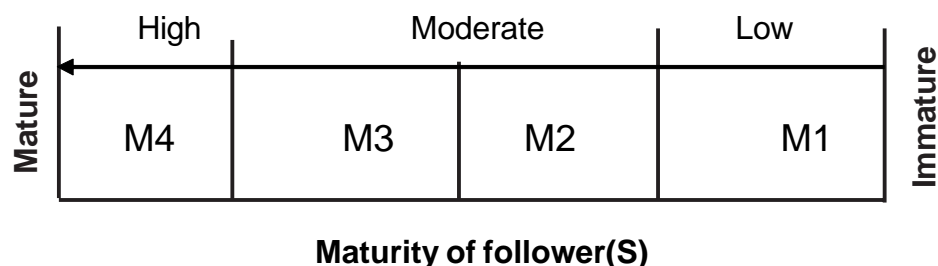


Fig 12.3

Figure 12.3 integrates the various components into the situational leadership model. As followers reach high levels of maturity, the leader responds by not only continuing to decrease control over activities, but also by continuing to decrease relationship behaviour as well. At stage M1, followers need clear and specific directions. At stage M2, both high task and high relationship behaviour is needed. The high task behaviour compensates for the followers lack of ability, and the high relationship behaviour tries to get the followers psychologically to “buy into” the leader’s desires. M3 creates motivational problems that are best solved by a supportive, nondirective, participative style. Finally, at stage M4, the leader doesn’t have to do much because followers are both willing and able to take responsibility.

12.3.2 CRITICISMS OF THE THEORY:

The situational theory suffers from following drawbacks:-

1) Emphasis on situational aspect:

The situational theory lays much emphasis on the situational aspect and overlooks, the qualities needed in a successful leader.

2) Qualities of a leader are overlooked:

Leadership is a subjective consideration in which qualities of head and heart of a leader play their role significantly. But this theory overlooks it. Need for affiliation as a dominant motive, derive satisfaction from social and interpersonal activities.

According to situational theory, leadership is the product of a situation in a particular group. It is assumed that the traits and skills which characterize a good leader will vary from group to group and from situations to situation. A leader in one situation is not necessarily a leader in another one, even in the same group various situation call for different responses. The same leader may display different personality traits to deal with diverse problems. So the situationist approach states that leadership phenomena are the products of situations in particular groups.

CHECK YOUR PROGRESS:

- 1) Write note on situational leadership.
- 2) Critically examine the Achievement – Motivation theory.
- 3) Describe the three needs isolated by Mc Clelland. How are they related to worker behaviour?

12.4 SUMMARY

McClelland's achievement theory is classified as content theory. The theory use individual needs to help in the understanding of job satisfaction and work behaviour. McClelland believes that the need for achievement can be learnt. Employees with a high need for achievement derive satisfaction from reaching their set goals. Succeeding at a task is important to the high achiever. Secondly the employees exhibiting the needs for power derive satisfaction from the ability to control others and thirdly the individuals exhibiting situations in particular groups. Thus, the approach does not believe that leaders are born but asserts that leaders are made. Thus executive training and development programmes are necessary for the development of future leaders. An effective leader, according to situational theory is who understands the facts of a situation and deals with them effectively.

12.5 REFERENCES AND BOOKS

- 1) K. Aswathappa, Human Resource and Personnel Management: Text and cases, 3rd Edition, Tata Mc Graw-Hill Publishing company Limited, New Delhi, 2002.
- 2) P.C. Pardeshi, Management and Human Resources Development Sheth Publishers Pvt. Ltd., Mumbai.2002
- 3) Stephen P. Robbins, Organizational Behaviour : Concepts, Controversies and Applications, Sixth Edition, Prentice-Hall of India Pvt. Limited, New Delhi, 1994.

12.6 QUESTIONS

- 1) Can some organizational problems get resolved using the McClelland's achievement motivation model and Blanchard's situational : Leadership model. What are the potential problems in using these theories?
- 2) Discuss the difficulties that are encountered when managers use motivation theories that rely on subjective employee responses.



MARKETING I

UNIT STRUCTURE

- 13.0 Objectives
- 13.1 Introduction
- 13.2 The Marketing Mix and 4 Ps
- 13.3 Product Policy
- 13.4 New Product Development
- 13.5 The Product Life Cycle
- 13.6 Summary
- 13.7 Questions

13.0 OBJECTIVES

After studying the unit the students will be able to

- To Elaborate the concept Marketing Mix relating to the four P's viz. Product, Price, Place and Promotion.
- To explain the Product Policy in relation to the environment.
- To understand the steps evolved in the process of developing a product for the market.
- To know the Product Life Cycle.
- To explain the Channels of Distribution.
- To understand Pricing as an important function of market.
- To know the importance of Advertising and Product Promotion Policies.
- To know the market and marketing tools continues marketing research.

13.1 INTRODUCTION

The term "marketing mix" became popularized after Neil H. Borden published his 1964 article, **The Concept of the Marketing Mix**. Borden began using the term in his teaching in the late 1940's after James Culliton had described the marketing manager as a "mixer of ingredients". The

ingredients in Borden's marketing mix included product planning, pricing, branding, distribution channels, personal selling, advertising, promotions, packaging, display, servicing, physical handling, and fact finding and analysis. E. Jerome McCarthy later grouped these ingredients into the four categories that today are known as the 4 P's of marketing, viz. product, price, place and promotion.

Marketing mix is an imperative concept in modern marketing and academically it is referred to as the set of controllable tools that the firm blends to produce the response it wants in the target market, so it consists of everything the firm can do to influence the demand for its product. The following diagram is helpful in determining the main ingredients of the four Ps in a marketing mix.

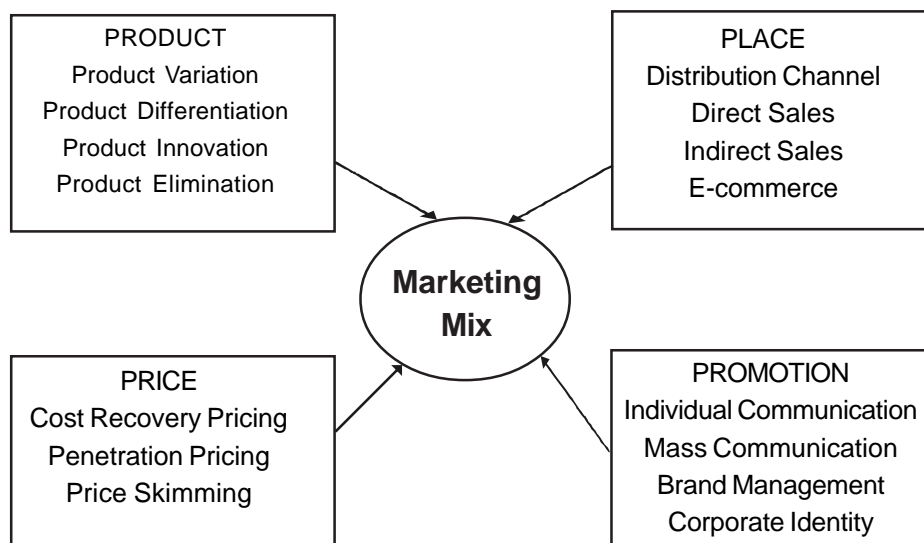


figure 13.1 Marketing Mix

13.2 THE MARKETING MIX AND 4 PS

13.2.1 CONCEPT OF MARKETING:

First let us understand the concept 'marketing': It is putting the right product, in the right place, at the right price, at the right time supported with right promotion.

It's simple! You just need to create a product that a particularly group of people want, put it on sale where same people visit regularly, at price level which matches the value they feel they get out of it; and do all that at a time they want to buy with advertising. Then you've got it made!

There's a lot of truth in this idea. However, a lot of hard work needs to go into finding out what customers want, and identifying where they do their shopping. Then you need to figure out how to produce the item at a price that represents value to them, and get it all to come together at the critical time.

But if you get just one element wrong, it can spell disaster. You could be left promoting a car with amazing fuel-economy in a country where fuel is very cheap; or publishing a textbook after the start of the new school year, or selling an item at a price that's too high – or too low – to attract the people you're targeting.

The marketing mix and the 4 Ps of marketing are often used as synonyms for each other. In fact, they are not necessarily the same thing. The 4Ps model is just one of many marketing mix lists that have been developed over the years and was first expressed in 1960 by E J McCarthy. Amongst the other marketing mix models have been developed over the years is Boom and Bitner's 7Ps, sometimes called the extended marketing mix, which include the first 4 Ps, plus people, processes and physical layout decisions. Another marketing mix approach is Lauterborn's 4Cs, which presents the elements of the marketing mix from the buyer's, rather than the seller's, perspective. It is made up of Customer needs and wants (the equivalent of product), Cost (price), Convenience (place) and Communication (promotion). Here, we will focus on the 4Ps model as it is the well-recognized, and contains the core elements of a good marketing mix.

When marketing their products firms need to create a successful mix of:

- the right product
- sold at the right price
- in the right place
- using the most suitable promotion.

13.2.2 PRODUCT:

The product is the central point on which marketing energy must focus. It is concerned with what the product means to the customer, like: What does the customer want from the product/service? What needs does it satisfy? What features does it have to meet these needs? How and where will the customer use it? What size(s), color(s), and so on, should it be? Etc.

Marketing therefore plays a key role in determining such aspects as:

- the appearance of the product - in line with the requirements of the market
- the function of the product - products must address the needs of customers as identified through <http://www.thetimes100.co.uk/theory/theory—market-research—315.php> market research.

The product range and how it is used is a function of the marketing mix. The range may be broadened or a brand may be extended for tactical reasons, such as matching competition or catering for seasonal fluctuations. Alternatively, a product may be repositioned to make it more acceptable for a new group of consumers as part of a long-term plan.

13.2.3 PRICING:

Pricing is basically setting a specific price for a product or service offered. Setting a price is not something simple. Normally it has been taken as a general law that a low price will attract more customers. It is not a valid argument as customers do not respond to price alone; they respond to value so a lower price does not necessarily mean expanded sales if the product is not fulfilling the expectation of the customers (Lazer, 1971).

Generally pricing strategy under marketing mix analysis is divided into two parts: price determination and price administration (ibid). Price determination is referred to as the processes and activities employed to arrive at a price for a product Price administration is referred to as the activities involved in fitting basic prices to particular sales situations such as geographic locale, functions performed by customers, position of distribution channel members, or special sales situations.

13.2.4 PLACEMENT:

Placement under marketing mix involves all company activities that make the product available to the targeted customer (Kotler and Armstrong, 2004). Based on various factors such as sales, communications and contractual considerations, various ways of making products available to customers can be used (Lazer, 1971). Companies such as Ford, Ferrari, Toyota, and Nissan use specific dealers to make their products available, whereas companies such as Nestle involve a whole chain of wholesaler retailers to reach its customers. On a general note, while planning placement strategy under marketing mix analysis, companies consider six different channel decisions including choosing between direct access to customers or involving middlemen, choosing single or multiple channels of distributions, the length of the distribution channel, the types of intermediaries, the numbers of distributors, and which intermediary to use based on the quality and reputation (Proctor, 2000)

13.2.5 PROMOTION:

Promotional strategies include all means through which a company communicates the benefits and values of its products and persuades targeted customers to buy them (Kotler and Armstrong, 2004). The best way to understand promotion is through the concept of the marketing

communication process. Promotion is the company strategy to cater for the marketing communication process that requires interaction between two or more people or groups, encompassing senders, messages, media and receivers (Lazer, 1971). Taking the example of Nokia, the sender of the communication in this case is Nokia, the advertising agency, or both; the media used in the process can be salesmen, newspapers, magazines, radio, billboards, television and the like. The actual message is the advertisement or sales presentation and the destination is the potential consumer or customer, in this case mobile phone users.

For example, a company like Kellogg's is constantly developing new breakfast cereals - the product element is the new product itself, getting the price right involves examining customer perceptions and rival products as well as costs of manufacture, promotion involves engaging in a range of promotional activities e.g. competitions, product tasting etc, and place involves using the best possible channels of distribution such as leading supermarket chains.

13.2.6 LIMITATIONS OF 4P'S MARKETING MIX:

The marketing mix framework was particularly useful in the early days of the marketing concept when physical products represented a larger portion of the economy. Today, with marketing more integrated into organizations and with a wider variety of products and markets, some authors have attempted to extend its usefulness by proposing a fifth P, such as packaging, people, process, etc. Today however, the marketing mix most commonly remains based on the 4 P's. Despite its limitations and perhaps because of its simplicity, the use of this framework remains strong and many marketing textbooks have been organized around it.

13.2.7 A SUMMARY TABLE OF THE MARKETING MIX:

The following table summarizes the marketing mix decisions, including a list of some of the aspects of each of the 4Ps.

Summary of Marketing Mix Decisions

| Product | Price | Place | Promotion |
|--------------------------|------------|--------------------|------------------|
| Functionality | List Price | Channel Members | Advertising |
| Appearance | Discounts | Channel Motivation | Personal |
| Quality | Allowances | Market Coverage | Selling |
| Packaging | Financing | Location | Public Relations |
| Brand | Leasing | Logistics | Message |
| Warranty Service/Support | Options | Service Levels | Media |
| | | | Budget |

Figure 13.2

CHECK YOUR PROGRESS:

1. What are the four P's of marketing mix?
2. What are the limitations of marketing mix?

13.3 PRODUCT POLICY

13.3.1 DEFINITIONS:

Product policy is generally understood to encompass any policy measure, be it of legal nature or not, aimed at influencing the composition and characteristics of movable objects with a view to decreasing their impact on the environment. "Product" may refer to individual chemicals or preparations, finished products, waste, and so on.

There is no legal definition, but several instruments may be brought under "product policy". Several types of measures may be brought under the meaning of "product policy". Environmental problems are in principle caused by the intrinsic physical characteristics of products (composition, recyclables) or by the way products are produced. There is, however, no single or agreed definition of product policy, nor there is an inventory of environmental problems related to products or even substances which are harmful to the environment. In general, known examples of product policy cover:

- Marketing and/or use restrictions, authorizations and registrations
- Standards and norms
- Testing and substitution requirements

- Economic instruments: taxes, charges, deposits, liability rules
- Selling, distribution and collection/recycling arrangements, such as take-back systems, advertisement restrictions, recycling quotas

The term “product”, is “any product – including in the context of providing a service – which is intended for consumers or likely, under reasonably foreseeable conditions, to be used by consumers even if not intended for them, and is supplied or made available, whether for consideration or not, in the course of a commercial activity, and whether new, used, or reconditioned”.

13.3.2 THE PRIMARY OBJECTIVES OF THE PRODUCT POLICY:

Timeliness: Strive to offer products/services which not only fulfill the current need but also will take care of the future need through constant innovation.

Reliability: Committed to produce and ensure accuracy, relevance and functionality of the products and services.

Ease of understanding and use: Design interactive products and services to meet usability standards and industry best practices.

Usefulness and practicality: Aim to inspire, motivate and support people to participate in the continuous evolution of the products and services so as to make it relevant at all times.

13.3.3 INTEGRATION OF PRODUCT POLICY:

In the current scenario an integrated policy for products will probably need to be based on a mixture of the instruments outlined below.

1) Getting the Prices Right:

Getting the prices right is probably the single most effective measure available to stimulate markets for greener products. The consumer is most likely to act if they can feel the advantage in their pocket. Suggestions like:

- differentiated taxation such as reduced VAT rates on eco-labeled products;
- an extension of the producer responsibility concept to new areas; and
- the use of state policy for Environmental Protection.

2) Stimulating Demand for Greener Products:

If consumers demand green products markets are likely to provide them. However to choose between different products, consumers need information which is easily accessible, understandable, relevant and credible.

3) Strengthening Green Production:

Once a product is put on the market, it is difficult to reduce its impacts. By focusing on their environmentally friendly design environmental impacts could be prevented. Possible ways to improve eco-design include:

- improving the generation and flow of life-cycle information;
- Encouraging eco-design guidelines; and
- integrating environmental considerations into the standardisation process;

In the process of attaining the above objectives the product policy should also try to incorporate and achieve the following:

- i. To intensify the development and marketing of cleaner products in order to reduce the total environmental impact from production, use and disposal of those products
- ii. To consolidate the competitiveness of trade and industry in a future market which increasingly will bring environment into focus and calls for cleaner products.
- iii. An evaluation of environmental policy that does not pose barriers for economic competitiveness or growth and is actually considered to be an important sales argument.

13.3.4 ENVIRONMENT INTEGRATED PRODUCT POLICY:

Today it is very important to develop product policy that takes care of the environment and therefore there is an urgency to develop product/process which adheres to set environmental standards and therefore the following guidelines can be suggested:

• Environmental guidelines:

These are designed to be an information tool and are intended to improve environmental decision-making. At the same time, they are intended to encourage suppliers to develop 'greener' products. The guidelines mainly target products with significant environmental impacts and describe the environmental issues that should be considered.

• Environmental product declarations:

Product declarations aim to provide information about the most significant environmental impacts of a product during its life-cycle but not necessarily to provide information about the environmentally 'best' or 'worst' products on the market.

- **Environmental manuals:**

Manuals are intended to provide information to final users about how to use, maintain and dispose of a product.

- **Establishment of product area panels:**

Establishing product area panels made up of relevant stakeholders within specific product groups. The stakeholders are given a free hand to establish a dialogue and to strengthen co-operation in order to facilitate the development and marketing of cleaner products.

All products cause environmental degradation in some way, whether from their manufacturing, use or disposal. Integrated Product Policy (IPP) seeks to minimise these by looking at all phases of a products' life-cycle and taking action where it is most effective. IPP attempts to stimulate each part of these individual phases to improve their environmental performance.

13.3.5 PRODUCT POLICY PRACTICE:

In the process of production to marketing care has to be taken to bring to the market eco-friendly products, this can be accomplished through the following steps

- Product development guidelines: containing developmental concepts and methods and criteria relating to component choice for use in product.
- International standards: mapping how environmental issues are incorporated in international standards
- Energy reduction: encouraging co-operation with research institutes and companies to set up a limited number of surveys and development projects aimed at demonstrating the relationship between competitiveness and energy reduction during use
- Recycling technology: to develop appropriate techniques and methods to increase the material recovery rate for electronics
- Communication with product developers: to raise the awareness of eco design, to assess training needs and develop training activities, to incorporate the product development guidelines into the higher education curriculum, to involve the media in spreading the message and to develop a web page with information on the environmental properties of components
- Public procurement: to examine the information and financial resource needs of public purchasers in buying environmentally friendly electronics

- Labeling: to develop a simple labeling scheme for household purchasers that gives comparable information on life-cycle impacts, including design (content of hazardous materials), use (energy consumption) and disposal (disassembly and recyclables potential)

13.3.6 PRODUCT RELATED MEASURES:

The approach followed at Community level in defining substances and products in relation to environmental protection is mirrored by the substantial product-related measures which have to be adopted or are in the process of being adopted so far which may include

1. Substances and preparations (Specific substances, such as plant production products, biocides,)
2. Product-related waste legislation (hazardous substances in electrical and electronic appliances, Sewage sludge)
3. Product-related water legislation and air-legislation (fuel quality,)
4. Product-related consumer's legislation (general product safety *producers shall be obliged to place only safe products on the market* –product liability;)
5. Product-related workers' protection legislation,
6. Product-related energy legislation
7. Eco-labelling

CHECK YOUR PROGRESS:

1. Explain the term Product Policy
2. How should a company go about integrating its product policy?
3. Suggest ways and means to introduce eco-friendly products
4. Write a short note on product related measures

13.4 NEW PRODUCT DEVELOPMENT

13.4.1 INTRODUCTION:

Innovation is the essence of all growth. This is especially true in marketing. In an age of technological advancements, change is a natural outcome — change in food habits, change in expectations and requirements. Any business has to be vigilant to these changes taking place in its environment. People always seek better products, greater convenience, newer fashion and more value for money.

A business firm has to respond to these dynamic requirements of its clientele and these responses take the shape of new products and new services. Through such a response, the firm reaps a good deal of benefits. New products become necessary from the profit angle too. Products that are already established often have their limitations in enhancing the profit level of the firm. Profits from products decline as they reach the maturity stage of their life cycle. Thus, it is necessary for business firms to bring in new products to replace old, declining and losing products.

New products become part and parcel of the growth requirements of the firm and in many cases, new profits come to the firm only through new products. New products can be broadly classified into two groups: new products arising out of technological innovations and new products arising out of marketing oriented modifications. The first group involves innovations leading to intrinsically new products with a new functional utility behind them. The second group involves mere marketing oriented innovations in existing products; it gives rise to new versions of the existing products.

New product development is one of the most important components of product policy and product management. Product lines and products are appraised and are positioned effectively. Brand decisions are taken wisely. For a higher level of growth, a firm has to look beyond its existing products. A progressive firm has to consider new product development as a cardinal element of its product policy.

Innovation is the essence of all growth. This is especially true in marketing. In an age of technological advancements, change is a natural outcome — change in food habits, change in expectations and requirements. Any business has to be vigilant to these changes taking place in its environment. People always seek better products, greater convenience, newer fashion and more value for money.

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arising out of marketing oriented modifications. The first group involves innovations leading to intrinsically new products with a new functional utility behind them. The second group involves mere marketing oriented innovations in existing products; it gives rise to new versions of the existing products.

13.4.2 STAGES OF NEW PRODUCT DEVELOPMENT:

1. Idea Generation:

Ideas for new products can come from the company's own research and development department, customers, competition, employees, sales people, independent inventors, and top management. One reason for conducting focus groups with customers is to hear about their problems with products and get ideas for new products. Top managers sometimes get together for brainstorming sessions in order to come up with ideas for new products. New product development starts with idea generation it is therefore very important to teach managers (the source for many ideas) to become creative thinkers.

2. Screening:

In this stage, ideas that are not technologically feasible or economically feasible are eliminated. Some ideas are eliminated because they do not fit the company's mission or objectives.

3. Business Analysis:

Techniques taught in finance such as the Net Present Value (NPV) method and breakeven analysis is used to determine whether the idea has the potential of making any money. You have to consider how much has to be invested in the idea to turn it into a viable product, the size of the potential market, and what kind of cash inflows can be expected from the product.

4. Concept Testing:

A concept test is used to test the idea of the product. Prospects are shown a drawing of the proposed product with a description which includes the price and advantages/disadvantages of the proposed product. Prospects are asked whether they would buy the product. Some firms use virtual reality for testing during the concept testing stage.

5. Product Test:

A sample of consumers try the product in their homes for several weeks and are then asked whether they would buy it. Ideally, the sample should be a representative sample but it usually is not. A firm might use an existing panel of consumers. There are a number of companies (you can find them on the Internet) that recruit consumers to join panels with the promise that they will be sent new products to try out and rate.

In the computer field, beta testing of software is a type of product test. New software is sent to people who use that type of computer program. The beta testers are told to use the software for a few months and indicate any problems.

6. Market Test:

There are two major kinds of test markets:

a) Conventional (traditional) test market :

The product is introduced in small cities. Most test markets are conducted in two or three cities and last about ten months or so. One additional purpose of the test market is to test various marketing strategies (e.g., different ways of positioning a product). One thing you want to see is the trial rate (the percentage of people trying the new product) and the repurchase rate (what percentage buys it a second time). One danger of a test market is that the competition can steal your ideas by monitoring the results of your test market.

b) Simulated test market (STM) :

An STM is conducted by a research firm and there is total confidentiality. STMs are sometimes conducted in shopping malls. Consumers are invited to evaluate new television programs. Of course, the television programs include commercials; at least one of the commercials is for the product being test marketed. Consumers are then invited to “shop” in a room that is set up to look like a supermarket. Those consumers who purchase the product being tested will be called several days later and asked whether they would purchase the product again. One problem with a STM is that it cannot be used to predict trade response (the reaction of wholesalers and retailers to the new product). A simulated test market is far less expensive than a conventional test market.

7. Review and Revision:

The results of the above are studied by management and a marketing strategy is determined.

8. Commercialization:

The new product is introduced in the market.

CHECK YOUR PROGRESS:

1. An organization needs to keep on innovating and developing new product for the market and its own continuity in business. Justify this statement.
- 2 Enumerate on the various stages of product development.
3. Write a short note on market test. .

13.5 THE PRODUCT LIFE CYCLE

13.5.1 THE PRODUCT LIFE CYCLE (PLC):

Is based upon the biological life cycle. For example, a seed is planted (introduction); it begins to sprout (growth); it shoots out leaves and puts down roots as it becomes an adult (maturity); after a long period as an adult the plant begins to shrink and die out (decline).

In theory it's the same for a product. After a period of development it is introduced or launched into the market; it gains more and more customers as it grows; eventually the market stabilises and the product becomes mature; then after a period of time the product is overtaken by development and the introduction of superior competitors, it goes into decline and is eventually withdrawn.

However, most products fail in the introduction phase. Others have very cyclical maturity phases where declines see the product promoted to regain customers.

A product's life cycle (PLC) can be divided into several stages characterized by the revenue generated by the product. The graph below represents various stages of PLC:

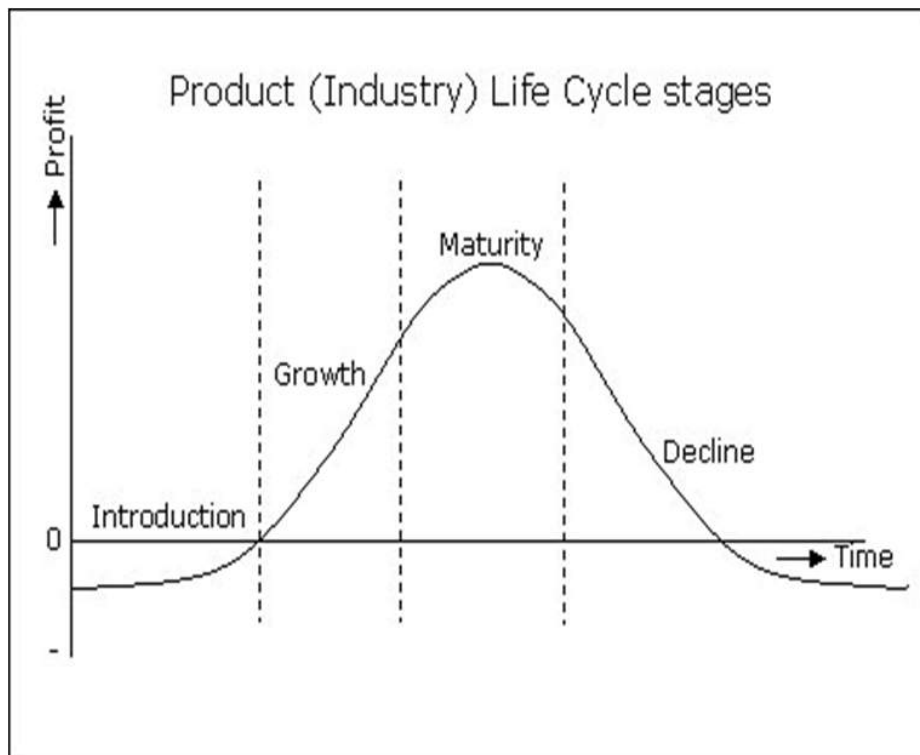


Figure 13.3

The life cycle concept may apply to a brand or to a category of product. Its duration may be as short as a few months for a fad item or a

century or more for product categories such as the gasoline-powered automobile.

Product development is the incubation stage of the product life cycle. There are no sales and the firm prepares to introduce the product. As the product progresses through its life cycle, changes in the marketing mix usually are required in order to adjust to the evolving challenges and opportunities.

1. Introduction Stage :

When the product is introduced, sales will be low until customers become aware of the product and its benefits. It is possible that substantial research and development costs have been incurred in getting the product to this stage. In addition, marketing costs may be high in order to test the market, undergo launch promotion and set up distribution channels. Advertising costs typically are high during this stage in order to rapidly increase customer awareness of the product and to target the early adopters. These higher costs coupled with a low sales volume usually make the introduction stage a period of negative profits.

During the introduction stage, the primary goal is to establish a market and build primary demand for the product. The following are some of the marketing mix implications at the introduction stage:

- *Product* - one or few products, relatively undifferentiated
- *Price* - Generally high, assuming a skim pricing strategy for a high profit margin as the early adopters buy the product and the firm seeks to recoup development costs quickly. In some cases a penetration pricing strategy is used and introductory prices are set low to gain market share rapidly.
- *Distribution* - Distribution is selective and scattered as the firm commences implementation of the distribution plan.
- *Promotion* - Promotion is aimed at building brand awareness. Samples or trial incentives may be directed toward early adopters. The introductory promotion also is intended to convince potential resellers to carry the product.

Products at this stage have to be carefully monitored to ensure that they start to grow. Otherwise, the best option may be to withdraw or end the product.

2. Growth Stage :

The Growth Stage is characterised by rapid growth in sales and profits. Profits arise due to an increase in output (economies of scale) and possibly better prices.

The growth stage is a period of rapid revenue growth. Sales increase as more customers become aware of the product and its benefits and additional market segments are targeted. Once the product has been proven a success and customers begin asking for it, sales will increase further as more retailers become interested in carrying it.

At this stage, it is cheaper for businesses to invest in increasing their market share as well as enjoying the overall growth of the market. Accordingly, significant promotional resources are traditionally invested in products that are firmly in the Growth Stage. The marketing team may expand the distribution at this point. When competitors enter the market, often during the later part of the growth stage, there may be price competition and/or increased promotional costs in order to convince consumers that the firm's product is better than that of the competition.

During the growth stage, the goal is to gain consumer preference and increase sales. The marketing mix may be modified as follows:

- *Product* - New product features and packaging options; improvement of product quality.
- *Price* - Maintained at a high level if demand is high, or reduced to capture additional customers.
- *Distribution* - Distribution becomes more intensive. Trade discounts are minimal if resellers show a strong interest in the product.
- *Promotion* - Increased advertising to build brand preference.

3. Maturity Stage :

The maturity stage is the most profitable. This is the time when most profit is earned by the market as a whole. While sales continue to increase into this stage, they do so at a slower pace. Because brand awareness is strong, advertising expenditures will be reduced. It is in this stage that competition is most intense as companies fight to maintain their market share. Competition may result in decreased market share and/or prices. The competing products may be very similar at this point, increasing the difficulty of differentiating the product. The firm places effort into encouraging competitors' customers to switch, increasing usage per customer, and converting non-users into customers. Sales promotions may be offered to encourage retailers to give the product more shelf space over competing products. Any expenditure on research and development is likely to be restricted to product modification and improvement and perhaps to improve production efficiency and quality.

During the maturity stage, the primary goal is to maintain market share and extend the product life cycle. Marketing mix decisions may include:

- *Product* - Modifications are made and features are added in order to differentiate the product from competing products that may have been introduced.
- *Price* - Possible price reductions in response to competition while avoiding a price war.
- *Distribution* - New distribution channels and incentives to resellers in order to avoid losing shelf space.
- *Promotion* - Emphasis on differentiation and building of brand loyalty. Incentives to get competitors' customers to switch.

4. Decline Stage :

Eventually sales begin to decline as the market is shrinking and eventually gets saturated, the product becomes technologically obsolete, or customer tastes change. If the product has developed brand loyalty, the profitability may be maintained longer. Unit costs may increase with the declining production volumes and eventually no more profit can be made.

At this stage, great care has to be taken to manage the product carefully; the firm generally has three options:

- Maintain the product in hopes that competitors will exit. Transfer production to a cheaper facility; sell the product into other, cheaper markets. Reduce costs and find new uses for the product.
- Harvest it, reducing marketing support and coasting along until no more profit can be made.
- Discontinue the product when no more profit can be made or there is a successor product.

The marketing mix may be modified as follows:

- *Product* - The number of products in the product line may be reduced. Rejuvenate surviving products to make them look new again.
- *Price* - Prices may be lowered to liquidate inventory of discontinued products. Prices may be maintained for continued products serving a niche market.
- *Distribution* - Distribution becomes more selective. Channels that no longer are profitable are phased out.
- *Promotion* - Expenditures are lower and aimed at reinforcing the brand image for continued products.

13.5.2 LIMITATION OF THE PRODUCT LIFE CYCLE CONCEPT:

The term "life cycle" implies a well-defined life cycle as observed in living organisms, but products do not have such a predictable life and the specific life cycle curves followed by different products vary substantially.

Not all products go through each stage. Some go from introduction to decline. It is not easy to tell which stage the product is in. Consequently, the life cycle concept is not well-suited for the forecasting of product sales. Furthermore, critics have argued that the product life cycle may become self-fulfilling. The decisions of marketers can change the stage, for example from maturity to decline by price-cutting. For example, if sales peak and then decline, managers may conclude that the product is in the decline phase and therefore cut the advertising budget, thus precipitating a further decline.

Nonetheless, the product life cycle concept helps marketing managers to plan alternate marketing strategies to address the challenges that their products are likely to face. It also is useful for monitoring sales results over time and comparing them to those of products having a similar life cycle.

13.5.3 EXAMPLES

Set out below are some suggested examples of products that are currently at different stages of the product life-cycle:

| INTRODUCTION | GROWTH | MATURITY | DECLINE |
|--------------------------------|------------------------------|--------------------|----------------------|
| Third generation mobile phones | Portable DVD Players | Personal Computers | Typewriters |
| E-conferencing | Email | Faxes | Hand written letters |
| All-in-one racing skin-suits | Breathable synthetic fabrics | Cotton t-shirts | Shell Suits |
| personal identity cards | Smart cards | Credit cards | Cheque books |

Figure 13.4

13.6 Summary

The main objective of all manufactures of products and providers of services is ultimately to sell their products and services to the customer to his satisfaction. To attain this objective one needs to understand the various gourmet of marketing which includes marketing mix, product policy, product development process, product life cycle, channels of distribution, pricing policies to be adopted, necessary adverting and product promotion techniques all this supported with marketing research.

Marketing Mix :

Marketing mix is an important tool in the hands of the manufacturer to market their products and services to the consumer. It is accepted that the combination of P's viz. price, place and promotion in the right proportion will help the marketer to achieve its goals i.e. short term, medium term and long term. This is a continuous process throughout the life cycle of the product/services.

The Product Policy :

The product policies need to be environment and customer oriented. The changing global scenario demands that development of products need to adhere to international standards. Products need to be both environmental friendly and customer friendly. The customer wants products that are reasonably price, the best quality and supported with constant after sales services. The awareness of global warming among the mass have accelerated the process of developing green products.

New Product Development :

Developing a new product for the market is not an easy task. The process is both tedious and lengthy. The consumer should always be the centre of focus, throughout the process. Right from the start, i.e. generation of idea to the stage of commercialization of the product the manufacturer should take care that both the consumer and the organization should benefit. It has to be a win-win situation.

The Product Life Cycle :

Similarly to the biological life cycle of a living organism the product also undergoes such stages while in the market. The main four stages are introduction, growth, maturity and decline. At various stages there is a need to re-organize the strategy related to price distribution and promotion.

13.7 Question

1. Explain the term marketing and marketing mix.
2. What are the four P's of marketing mix?
3. Explain in detail the four P's of marketing mix.
4. What are the limitations of marketing mix?
5. Justify the importance of marketing mix for the success of a product
6. Explain the term Product Policy.
7. What are the primary objectives of Product Policy?
8. How should a company go about integrating its product policy?
9. How do we go about developing an environment friendly product policy?

10. Suggest ways and means to introduce eco-friendly products.
11. Enumerate on the various stages of product development.
12. Explain the term market test.
13. Write a short note on product related measures.
14. Explain the concept of product life cycle with a diagram.
16. Discuss in detail the various stages of product life cycle with appropriate examples.
17. Write a note on the limitations of product life cycle.



MARKETING II

UNIT STRUCTURE

- 14.0 Objectives
- 14.1 Meaning and Definition of channels of distribution.
- 14.2 Functions of a Distribution Channels
- 14.3 The Principal Types of Distribution System
- 14.4 Pricing
- 14.5 Advertising and Product promotion policies
- 14.6 Marketing Research
- 14.7 Summary
- 14.8 Questions

14.0 OBJECTIVES

After studying this unit the students will be able to:

- Explain the meaning of channels of distribution.
- Identify different channels of distribution.
- Describe the functions of wholesalers and retailers.
- Distinguish between wholesalers and retailers.
- Identify different types of retail trade.

14.1 MEANING AND DEFINITION OF CHANNELS OF DISTRIBUTION

You know that the main purpose of trade is to supply goods to the consumers living in far off places. As goods and services move from producer to consumer they may have to pass through various individuals. Most businesses use third parties or **intermediaries** to bring their products to market. They try to forge a “distribution channel” which can be defined as:

“All the organisations through which a product must pass between its point of production and consumption.”

Intermediaries are specialists in selling. They have the contacts, experience and scale of operation which means that greater sales can be achieved than if the producing business tried running a sales operation itself.

Let us take an example to understand. A farmer in Nagpur has an orange orchard. Once the oranges are ripened he sells the oranges to an agent of Mumbai. The agent collects the apples from Nagpur, packs them, and sells them to a wholesaler at Mumbai. The wholesaler then distributes them to various retail fruit vendors throughout Mumbai by selling smaller quantities. Finally, we purchase oranges from those vendors as per our requirement. Thus, we find that while coming from the producer at Nagpur, the product reaches the consumers by passing through several hands like an agent, a wholesaler and a retailer. All these three are called middlemen.

14.2 FUNCTIONS OF A DISTRIBUTION CHANNEL

The main function of a distribution channel is to provide a link between production and consumption, distribution channel perform many key functions:

- i. **Information:** Gathering and distributing market research and intelligence - important for marketing planning
- ii. **Promotion:** Developing and spreading communications about offers
- iii. **Contact:** Finding and communicating with prospective buyers
- iv. **Matching:** Adjusting the offer to fit a buyer's needs, including grading, assembling and packaging
- v. **Negotiation:** Reaching agreement on price and other terms of the offer
- vi. **Physical distribution:** Transporting and storing goods
- vii. **Financing:** Acquiring and using funds to cover the costs of the distribution channel
- viii. **Risk taking:** Assuming some commercial risks by operating the channel (e.g. holding stock)

14.3 THE PRINCIPAL TYPES OF DISTRIBUTION SYSTEM

Normally goods and services pass through several hands before they come to the hands of the consumer for use, this is called indirect channel. But in some cases producers sell goods and services directly to

the consumers without involving any middlemen in between them, which can be called as direct channel. So there are two types of channels, one direct channel and the other, indirect channel.

14.3.1. Direct Channel:

In this channel, producers sell their goods and services directly to the consumers. There is no middleman present between the producers and consumers. The producers may sell directly to consumers through door-to-door salesmen and through their own retail stores. For example, Bata India Ltd, HPCL, Liberty Shoes Limited has their own retail shops to sell their products to consumers.

14.3.2. Indirect Channel

If the producer is producing goods on a large scale, it may not be possible for him to sell goods directly to consumers. As such, he sells goods through middlemen. These middlemen may be wholesalers or retailers. The involvement of various middlemen in the process of distribution constitutes the indirect channel of distribution.

There are many indirect channels like:

- i. Producer Agent Wholesaler Retailer Consumer,
- ii. Producer Wholesaler Retailer Consumer
- iii. Producer Agent Consumer
- iv. Producer Wholesaler Consumer and
- v. Producer Retailer Consumer

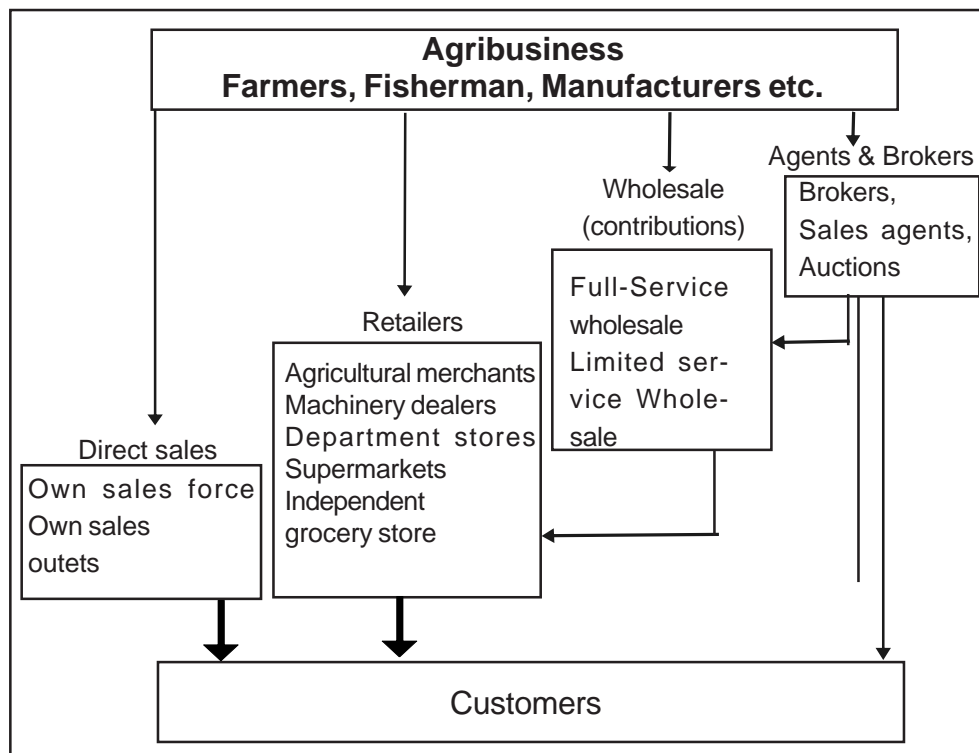


Figure 14.1

14.3.3 Wholesalers and Retailers:

Wholesalers and retailers are important middlemen who generally facilitate flow of goods from the producers to the consumers. Let us study in details about them.

a) Wholesalers:

Wholesalers make marketing systems more efficient by buying a variety of products, in fairly large quantities, and selling these items on to other businesses that require relatively small quantities of a variety of goods. Wholesalers may service consumer and/or industrial retail outlets. For instance, fruit and vegetable wholesalers often sell to grocery stores (consumer) and hotels, hospitals, schools, prisons, etc. (industrial). Some wholesalers offer a full-service i.e. they perform all the distribution functions such as selling, pre-delivery inspection (in the case of machinery), technical advice, extension of credit, storage, and delivery. Other wholesalers provide only a limited service. An example would be cash-and-carry wholesalers who require customers to collect the goods and to pay cash. Patrons of cash-and-carry wholesalers are usually compensated for the lower service levels by lower prices.

• Characteristics of Wholesalers:

The followings are the characteristics of wholesaler:

- i. Wholesalers buy goods directly from producers or manufacturers.
- ii. Wholesalers buy goods in large quantities and sells in relatively smaller quantities.
- iii. They sell different varieties of a particular line of product. For example, a wholesaler who deals with paper is expected to keep all varieties of paper, cardboard, card, etc.
- iv. They may employ a number of agents or workers for distribution of products.
- v. Wholesalers need large amount of capital to be invested in his business.
- vi. They generally provide credit facility to retailers.
- vii. He also provides financial assistance to the producers or manufacturers.
- viii. In a city or town they are normally seen to be located in one particular area of the market. For example, you can find cloth merchants in one area, book publishers and sellers in one area; furniture dealers in one area etc.

• Functions of Wholesalers:

The primary functions performed by the wholesalers are as follows:

- i. He assembles varieties of goods from different producers. In case of agricultural goods, he collects small quantities of goods from numerous small-scale producers and store in his godown.
- ii. He stores the assembled goods in proper warehouse till the goods are sold. Warehousing or storing of goods fills up the time gap between the production and consumption.
- iii. He distributes the assembled goods to the retailer or to the consumer directly. He thus helps in the dispersion process of marketing.
- iv. He helps in the transportation of goods form the place of production to his godown and to the retailer.
- v. He provides financial assistance to the retailers by supplying products on credit.
- vi. He helps in proper grading of goods as per quality, size and colour.
- vii. He involves all the risks associated with the ownership as he makes bulk purchases and makes arrangement for assembling and warehousing.

b) Retailers:

The word retailer has been derived from the French word “Retail” which means to sell in small quantities, rather than in gross. A retailer is a person who purchases a variety of goods in small quantities from different wholesalers and sells them to the ultimate consumer. He is the last link in the chain of distribution from the producer to the consumer.

• Characteristics of Retailer:

The followings are some of the essential characteristics of a retailer:

- i. He is regarded as the last link in the chain of distribution.
- ii. He purchases goods in large quantities from the wholesaler and sell in small quantity to the consumer.
- iii. He deals in general products or a variety of merchandise.
- iv. He develops personal contact with the consumer.
- v. He aims at providing maximum satisfaction to the consumer.
- vi. He has a limited sphere in the market.

• Functions of Retailer:

Retailers perform a number of functions. These are:

- i. The retailer buys a variety of products from the wholesaler or a number of wholesalers. He thus performs two functions like buying of goods and assembling of goods.
- ii. The retailer performs storing function by stocking the goods for a consumer.

- iii. He develops personal contact with the consumers and gives them goods on credit.
- iv. He bears the risks in connection with Physical Spoilage of goods and fall in price. Besides he bears risks on account of fire, theft, deterioration in the quality and spoilage of goods.
- v. He resorts to standardization and grading of goods in such a way that these are accepted by the customers.
- vi. He makes arrangement for delivery of goods and supply valuable market information to both wholesaler and the consumer.

• **Types of Retail Trade:**

You will be surprised to know that starting from hawkers and street traders, to super bazaars, departmental stores and multiple shops, all undertake retail-trading business in our country. We can classify this retailing business into two categories

- a. Small-scale retail trade; and
- b. Large-scale retail trade.

a) Small-scale Retail Trade:

There are varieties of retailers engaged in small scale retail trading. They can be classified as:

- (i) Itinerant Retailing
- (ii) Fixed Shop Retailing

I. Itinerant Retailing:

Itinerant retailing is a type of small-scale retail trade in which retailers move around and sell a variety of items directly to the consumers. They do not have a fixed shop where they can sell. Examples: vendors selling newspapers, peanuts, bangles, toys etc. in buses and trains; selling fruits and vegetables in your locality using a cart, selling ice-cream, namkeens etc. on a cycle, selling rice, earthen pots or even carpets by using a cart, etc.

II. Fixed Shop Retailing:

Here the retailers sell goods and services from a fixed place known as 'shop'. These shops are usually located at market places or commercial areas or near residential localities. These shops normally deal with a limited variety of goods. The goods are stored as well as displayed in the shops. On the basis of the type of goods which the fixed shops deal in, we can classify this form of retailing as :

- a. General store or variety store
- b. Single line store
- c. Specialty store.

14.3.5 Distinction between Wholesaler and Retailer:

Let us find out these differences between the Wholesaler and Retailer

| Wholesaler | Retailer |
|---|---|
| Buys goods in large quantities | Buys goods in small quantities. |
| Buys goods directly from producers | Generally buys goods from the wholesalers |
| Deals with limited variety of goods. | Deals with wide range of products. |
| Requires more capital to start Sell goods for resale purpose | Requires less capital to start and run business Sell goods for consumption. |
| No direct contact with consumers | Direct contact with consumer. |
| No special attention is given to consumers | In order to attract the attention of customers retailers give more attention to decoration of shop. |

14.3.5 Sales agents and brokers:

Sales agents and sales brokers are distinguished from the other types of channel member already described in that they do not take title to the goods. The role of agents and brokers is to facilitate distribution by bringing buyers and sellers together. Sales agents often have close relations with particular growers/processors/manufacturers and contract to sell on their behalf in return for a commission.

Brokers, on the other hand, earn a commission for informing buyers of possible sellers and informing sellers of possible buyers. Clients use the services of a broker intermittently since their supply of the product to the market is intermittent.

14.3.6 Auctions:

Auctions are frequently used to transfer ownership of agricultural commodities. The system involves bringing prospective buyers and sellers together under the auspices of an independent auctioneer. The auctioneer is an employee of the organisation managing the auction market. Neither the auctioneer nor his/her employer participates in buying or selling the commodity on their own account. The auction company makes its profits from facilitating the purchase and sale of the commodity. The auctioneer

invites bids for specific lots with the produce being sold to the highest bidder. Auction selling makes prices transparent since all of the buyers and sellers present hear the bids and are therefore aware of prevailing price levels.

CHECK YOUR PROGRESS:

1. What is meant by Channels of Distribution?
2. Give four examples of services that are distributed through the direct channels.
3. Give any four characteristics of retailers.
4. What is meant by 'itinerant retailing'?
5. State any five differences between wholesalers and retailers.
6. Explain any two functions of wholesaler.

14.4 PRICING

14.4.1 MEANING:

Pricing is the process of determining what a company will receive in exchange for its products. Pricing factors are manufacturing cost, market place, competition, market condition and quality of product. The effective price is the price the company receives after accounting for discounts, promotions, and other incentives.

Pricing is the manual or automatic process of applying prices to purchase and sales orders, based on factors such as: a fixed amount, quantity break, promotion or sales campaign, specific vendor quote, price prevailing on entry, shipment or invoice date, combination of multiple orders or lines, and many others. Automated systems require more setup and maintenance but may prevent pricing errors.

14.4.2 THE DIFFERENT PRICING STRATEGIES :

The different pricing strategies which can be adopted by the firm are explained below: -

1. Psychological pricing :

When the seller wants the consumers to respond on the emotional basis and have a psychological impact it is termed as Psychological Pricing. The seller here will consider the psychology of price and the positioning of price within the market place. Ultimately, you must take into consideration the consumer's perception of your price.

- Classic example – Rs.99 instead of Rs.100.
- Links with value pricing – high value goods priced according to what consumers THINK should be the price

2. Skimming:

The practice of 'price skimming' involves charging a relatively high price for a short time where a new, innovative, or much-improved product is launched onto a market.

The objective with skimming is to "skim" off customers who are willing to pay more to have the product sooner; prices are lowered later when demand from the "early adopters" falls. The main objective of employing a price-skimming strategy is, to benefit from high short-term profits (due to the newness of the product) and from effective market segmentation.

3. Predatory pricing:

Is a pricing strategy used by an established firm to eliminate competition from equally efficient firms, and secure a monopoly position in a previously competitive market.

A firm practicing predatory pricing lowers its price below cost and maintains it there until equally efficient competitors are forced to incur unsustainable losses and exit the market. The firm then raises its price to a monopoly level in order to recoup its lost profits.

Predatory pricing requires high barriers to entry. If firms are able to enter the market easily, then each time the incumbent increases its price this will attract new entrants into the market, forcing the incumbent to drop its price again.

4. Penetrating:

This strategy is used for new products/services trying to penetrate the market, or existing products/services entering new markets, by offering initial low prices. Such low prices will attract the customer and through continued use and purchase, they may not be discouraged by any future price increases and remain loyal to the product/service.

In other words, the initial low price that you offer may not even cover all associated costs, but when you increase the price in the future, it will compensate for the loss you made or any profits you missed out on.

For example, the first two or three editions of a monthly magazine may be offered at, say, Rs.50, but after this the magazine price increases to, say, Rs.100. Because most people will have found interest in the first editions of the magazine, they are likely to continue buying the magazine in the future.

5. Cost-plus pricing :

Set the price at your production cost, including both cost of goods and fixed costs at your current volume, plus a certain profit margin. For example, a book cost Rs.30/- in raw materials and production costs at current sales volume, fixed costs come to Rs.30 per unit. Your total cost is Rs.60/ per unit. You decide that you want to operate at a 20% markup, so you add Rs.12/ ($20\% \times \text{Rs}50$) to the cost and come up with a price of Rs.72/ per unit. So long as you have your costs calculated correctly and have accurately predicted your sales volume, you will always be operating at a profit.

6. Promotional pricing :

Is typically used when new products are being introduced to the market or to retain the existing one. It can also be used to stimulate demand for products or services with lagging demand. Some examples of promotional pricing are: **special event pricing, rebate programs, low or no-interest finance, buy one get one free etc** The promotional pricing strategy has been over-used in the retail markets and buyers have developed a healthy skepticism about the reality of the 'deal'.

7. Premium pricing :

(also called prestige pricing) Is the strategy of consistently pricing at, or near, the high end of the possible price range to help attract status-conscious consumers. A few examples of companies which partake in premium pricing in the marketplace include Rolex and Bentley. People will buy a premium priced product because:

- They believe the high price is an indication of good quality;
- It authenticates their success and status

8. Product Line Pricing:

Pricing different products within the same product range at different price points. An example would be a video manufacturer offering different video recorders with different features at different prices. The greater the features and the benefit obtained the greater the consumer will pay. This form of price discrimination assists the company in maximising turnover and profits.

9. Target pricing :

The selling price of a product is calculated to produce a particular rate of return on investment (ROI) for a specific volume of production. For example, let's assume that your company has \$10,000 invested in the company. Your expected sales volume is 1,000 units in the first year. You want to recoup all your investment in the first year, so you need to make

\$10,000 profit on 1,000 units, or \$10 profit per unit, giving you again a price of \$60 per unit.

10. Competition pricing:

A pricing strategy that is based upon what the competition does. It is a price set by a company for a product to compete with another company's pricing. The seller uses prices of competing products as a benchmark instead of considering own costs or the customer demand. Production and distribution costs are ignored to drive demand towards another brand. This method of pricing can cause a long-term decrease in product perception and decrease a product's value for future profits.

11. A loss leader :

Is a product that has a price set below the operating margin. This results in a loss to the enterprise on that particular item, but this is done in the hope that it will draw customers into the store and that some of those customers will buy other, higher margin items. A classic example is that of razor blades. Companies like Gillette essentially give their razor units away for free, knowing that customers will have to buy their replacement blades, which is where the company makes all of its profit.

12. Value-based pricing :

Price your product based on the value it creates for the customer. This is usually the most profitable form of pricing, if you can achieve it. The most extreme variation on this is "pay for performance" pricing for services, in which you charge on a variable scale according to the results you achieve. Let's say that your widget above saves the typical customer \$1,000 a year in, say, energy costs. In that case, \$60 seems like a bargain - maybe even *too* cheap. If your product reliably produced that kind of cost savings, you could easily charge \$200, \$300 or more for it, and customers would gladly pay it, since they would get their money back in a matter of months. However, there is one more major factor that must be considered.

13. Price discrimination :

Involves charging different prices for your product/service at certain times, or to different types of customers. Offering higher interest rate to senior citizen by banks is an example of price discrimination also a seller may offer its service/product cheaper to loyal customers, say, those that have been trading for more than a year.

14. Price lining :

Is the use of a limited number of prices for all your product offerings. This is a tradition started in the old five and dime stores in which everything

cost either 5 or 10 cents. Its underlying rationale is that these amounts are seen as suitable price points for a whole range of products by prospective customers. It has the advantage of ease of administering, but the disadvantage of inflexibility, particularly in times of inflation or unstable prices.

14. Bundle Pricing:

The seller bundles a group of products at a reduced price. The technique is often used to sell products that are complementary to a main product. For buyers, the overall cost of the purchase shows a savings compared to purchasing each product individually. For example, a camera retailer may offer a discounted price when customers purchase both a digital camera and a how-to photography DVD that is lower than if both items were purchased separately. In this example the retailer may promote this as: "Buy both the digital camera and the how-to photography DVD and save 25%."

15. Limit Pricing:

Limit pricing occurs when a firm with low costs sets prices above its own costs, but below a potential competitor's costs. This can discourage new firms from entering the market, but may not force existing competitors out of the market. Limit pricing may require tacit collusion from all or most existing firms. Limit pricing may only discourage entry by less efficient firms. So even though limit pricing may deter new entry, it does not necessarily hurt customers or reduce social welfare.

CHECK YOUR PROGRESS:

1 Discuss the various pricing strategies that a company can adopt for their product.

14.5 ADVERTISING AND PRODUCT PROMOTION POLICIES

14.5.1 ADVERTISING:

Advertising is only one element of the promotion mix, but it often considered prominent in the overall marketing mix design as it is highly visibility.

• Definition

The American Marketing Association, Chicago, has defined advertising as “any form of non-personal presentation or promotion of ideas, goods or services, by a identified sponsor.”

From the above definition the following is clear:

- i. Advertisement is a MESSAGE to large groups.
- ii. It is in the form of NON-PERSONAL COMMUNICATION.
- iii. It persuades the GENERAL PUBLICS to purchase the goods or services, advertised.
- iv. It is PAID FOR by advertiser to publisher.
- v. Advertising messages are IDENTIFIED with the advertiser.

Advertising includes the following forms of messages: The messages are carried in-

- i. Newspapers and magazines;
- ii. On radio and television broadcasts;
- iii. Circular of all kinds, (whether distributed by mail, by person, thorough tradesmen, or by inserts in packages);
- iv. Dealer help materials,
- v. Window display and counter – display materials and efforts;
- vi. Store signs, motion pictures used for advertising,
- vii. Novelties bearing advertising messages and Signature of the advertiser.

• Advertising Objectives

There are three main objectives of advertising, it seeks to inform, persuade or remind the target audience

i. Inform: It seeks to tell the market about the product, explain how the product works, provide information on pricing, and build awareness of both the product and the company.

ii. Persuade: Here objectives are to encourage the target audience to switch brands, make the purchase, and create a preference in the market for the product as opposed to its competition.

iii. Remind: Advertising is used to maintain interest and awareness of a well established product in the market, often in the latter stages of its product life cycle. It is often used at the Point-of-Purchase to remind consumers of the brand.

• Advantages of advertising

- i. It helps number of marketing activities.
- ii. It is a technique of sales promotion.

- iii. Sales volume is increased by advertising.
- iv. It helps and supports the salesman in selling the products.
- v. Consumer knowledge about the product is increase by advertising.
- vi. It helps the consumer to save their time in purchases.
- vii. It helps the manufacturer sell their products.
- viii. It helps quick selling which leads to more production at less cost.
- ix. The relation between wholesalers and retailers is improved through advertising.
- x. Advertising introduces new products, stimulates markets regarding the existing product and creates repeated sales

• **Benefits to Manufacturers:**

- i. It increases sales volume. On the one hand, it reduces the cost of production and, on the other increases profits.
- ii. It helps easy introduction of products into the markets.
- iii. It helps to create an image and reputation not only of the product but also of the advertiser.
- iv. Retail price maintenance is possible.
- v. It helps to establish a direct contact between manufacturers and consumers.

• **Benefits to Wholesalers and Retailers:**

- i. Easy sale of the products is possible since consumers are aware of the product and its quality.
- ii. It increases the rate of the turnover of stock.
- iii. It supplements the selling activities.
- iv. The reputation credited is shared by the wholesalers and retailers alike.
- v. It enables them to have product information.

• **Benefits to Consumers:**

- i. Advertising stresses quality and very often prices. This forms an indirect guarantee to the consumers. Further more; large scale production assured by advertising enables the seller to sell the product at a lower cost.
- ii. It provides an opportunity to the customers to compare the merits and demerits of various substitute products.
- iii. This is perhaps the only medium through which consumers could know the varied and new uses of a product.
- iv. Modern advertisements are highly informative.

- **Benefits to Salesmen:**

- i. Introducing the product is made easy.
- ii. Advertising prepares necessary ground for a salesman to begin his work. Hence sales efforts are reduced.
- iii. The contact established with the customer by a salesman is made permanent through advertising.
- iv. The salesman can weigh the effectiveness of advertising when he makes a direct contact with the customer.

- **Benefits to Community:**

- i. Advertising in general is educative in nature it brings to the greatest number of people actual knowledge concerning useful things;
- ii. Advertising leads to large scale production creating more employment opportunities.
- i. Advertising nourishes the consuming power of man. It creates wants for a better standing of living. It spurs individual exertion and greater production.

14.5.2 PRODUCT PROMOTION POLICIES:

Product Promotion Policy is one of the four elements of marketing mix. An organization involved in the process of making a product or service available for use of consumption by a consumer or business user needs to promote its product or services.

Product promotion can be undertaken in two different methods usually as a combination to generate sale, they are: Above The Line Promotion (ATL) and Below The Line Promotion (BTL).

- **Above the line promotion:**

ATL promotions are tailored for a mass audience, Promotion in the media (e.g. TV, radio, newspapers, Internet, Mobile Phones, and, historically, illustrated songs) in which the advertiser pays an advertising agency to place the ad. ATL promotions can establish brand identity, but they are also difficult to measure well.

- **Below the line promotion:**

“Below the line” promotion refers to forms of non-media communication or advertising, and has become increasingly important in the communications mix of many companies. E.g. sponsorship, product placement, endorsements, sales promotion, merchandising, direct mail, personal selling, public relations, trade shows. BTL promotions are targeted at individuals according to their needs or preferences. Much of this is intended to be subtle enough for the consumer to be unaware that promotion is taking place. BTL can actually lead to a sale and BTL

promotions are highly measurable, giving marketers valuable insights into their return-on-investment.

CHECK YOUR PROGRESS:

1. Justify the need for using advertising and promotion as a support for marketing a product.
2. In what way does an advertising benefit manufacturer, wholesalers, retailers, consumers, salesmen and the community?
3. Elaborate the different methods of Product promotion.

14.6 MARKETING RESEARCH

14.6.1 INTRODUCTION:

Managers need information in order to introduce products and services that create value in the mind of the customer. The goal of marketing research is to provide the facts and directions that will help managers to make their important marketing decisions.

14.6.2 MARKETING RESEARCH VS. MARKET RESEARCH:

These terms often are used interchangeably, but technically there is a difference.

‘Market’ research is simply research into a specific market. It is a very narrow concept. Marketing research is much broader. It not only includes ‘market’ research, but also areas such as research into new products, or modes of distribution such as via the Internet. Marketing research covers a wider range of activities; it can be applied to a variety of marketing problems.

14.6.3 DEFINITION:

“Marketing research is the function that links the consumer, customer, and public to the marketer through information - information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process. Marketing research specifies the information required to address these issues, designs the methods for collecting information, manages and implements the data collection process, analyzes, and communicates the findings and their implications.”

American Marketing Association (AMA).

14.6.3 THE MARKETING RESEARCH PROCESS :

Marketing research process involves following steps:

1. Define the problem: Never conduct research for things that you would 'like' to know. Make sure that you really 'need' to know something. The problem then becomes the focus of the research. For example, why are sales falling in New Delhi?

2. Select Research Design: It can be either any one of the three viz. exploratory research descriptive researches or causal research selected according to the objective of the research

3. Identify data types and sources: There are two main sources of data -primary and secondary. Primary research is conducted from scratch. It is original and collected to solve the problem in hand. Secondary research, also known as desk research, already exists since it has been collected for other purposes.

Primary data can be obtained by communication or by observation. Communication involves questioning respondents either verbally or in writing. Observation involves the recording of actions and is performed by either a person or some mechanical or electronic device. The questionnaire is an important tool for gathering primary data. The questionnaire should be tested thoroughly prior to conducting the survey.

Secondary data may be internal to the firm, such as sales invoices and warranty cards, or may be external to the firm such as published data or commercially available data. The government census is a valuable source of secondary data. Secondary data has the advantage of saving time and reducing data gathering costs. The disadvantages are that the data may not fit the problem perfectly and that the accuracy may be more difficult to verify for secondary data than for primary data.

4. Select a sampling method: Sampling is the process of selecting units (e.g., people, organizations) from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen. Sampling methods are classified as either *probability* or *non probability*. Probability methods include random sampling, systematic sampling, and stratified sampling. In non probability sampling, members are selected from the population in some nonrandom manner. These include convenience sampling, judgment sampling, quota sampling, and snowball sampling.

5. Deciding on the sample plan and size: This will depend on the objective of study. There is a tradeoff between sample size and cost. The larger the sample size, the smaller the sampling error but the higher the cost. While a larger sample size may reduce sampling error, it actually

may increase the total error. Sometimes, the entire population will be sufficiently small, and the researcher can include the entire population in the study. This type of research is called a census study.

Usually, the population is too large for the researcher to attempt to survey all of its members. A small, but carefully chosen sample can be used to represent the population. The sample reflects the characteristics of the population from which it is drawn.

6. Collection of Data: According to the decision of the type of data and the source, the necessary process of collection of data should be initiated.

7. Conduct analysis of the data: Before analysis can be performed, raw data must be transformed into the right format. First, it must be edited so that errors can be corrected or omitted. Various data analysis tools are available. They should be used as per the objective of the research.

8. Write your final report: This will contain charts, tables, and diagrams that will communicate the results of the research, and hopefully lead to a solution to your problem. Watch out for errors in interpretation.

The report often contains the following sections:

- Table of Contents
- List of illustrations
- Executive summary
- Research objectives
- Methodology
- Results
- Limitations
- Conclusions and recommendations
- Appendices containing copies of the questionnaires, etc.

14.6.4 CONCLUSION:

Marketing research by itself does not arrive at marketing decisions, nor does it guarantee that the organization will be successful in marketing its products. However, when conducted in a systematic, analytical, and objective manner, marketing research can reduce the uncertainty in the decision-making process and increase the probability and magnitude of success.

CHECK YOUR PROGRESS:

1. Define marketing research and clarify the difference between market research and marketing research.

2. Write a note on types of data.

14.7 SUMMARY

Channels of Distribution:

The product needs to reach the consumer, this can happen through various routes call as channels of distribution. The channels perform various functions like gathering of information, promotion, developing contacts, physical distribution and so on. Broadly speaking there are two types of channels i.e. direct and indirect. The indirect channel consist of

- i. Producer Agent Wholesaler Retailer Consumer,
- ii. Producer Wholesaler Retailer Consumer
- iii. Producer Agent Consumer
- iv. Producer Wholesaler Consumer and
- v. Producer Retailer Consumer

Pricing:

Price plays an important role in the success or failure of the product in the market. The different pricing strategies can be adopted by the firm according to the marketing scheme and pre-decided objectives. The pricing policies can be changed with the changing market scenario. Some of the pricing strategies are psychological pricing, skimming, predatory, penetrating, cost-plus, promotional, premium, product line, competitive, value base, loss leader, price discrimination, price lining, bundle and limit pricing.

Advertising and Product Promotion Policies:

Advertising and promotion helps to establish the products identity in the market. There has to be a balanced mix of both advertising and promotion which can help the product to get established in the market. In the initial stage of the introduction of the product the advertising and promotion cost is heavy, which in the long run spreads. It benefits all viz. the manufacturer, wholesaler, retailer, salesman, consumer and the community.

Marketing Research:

The steps involved in the process of marketing research are defining the problem, selecting research design, identifying data types and sources, selecting sampling method, deciding on the sample plan and

size, collection of data, conducting analysis of the data and prepare the final report.

Marketing research by itself does not arrive at marketing decisions, nor does it guarantee that the organization will be successful in marketing its products. However, when conducted in a systematic, analytical, and objective manner, marketing research can reduce the uncertainty in the decision-making process and increase the probability and magnitude of success.

14.8 QUESTIONS

1. Explain the different channels through which a product moves from producers to ultimate consumers.
2. Define wholesaler. How do they serve as an important link in the channel of distribution?
3. Explain the characteristics of retailers.
4. Explain the role of retailers in distribution of goods.
5. Distinguish between wholesalers and retailers.
6. Describe the different types of fixed shop retail trade.
7. Explain the functions of wholesaler.
8. Different pricing strategy is adopted for different situation in the market, justify with examples.
9. Define advertising and give its objectives
10. Justify the need for using advertising and promotion as a support for marketing a product.
11. Explain the various product promotion policies.
12. Explain the steps involved in the process of marketing research.



Human Resources Management

UNIT STRUCTURE

- 15.0 Objectives
- 15.1 Introduction
- 15.2 Meaning & Definition of Human Resource Management
- 15.3 Selection
- 15.4 Training and Appraisal
- 15.5 Compensation Administration
- 15.6 Summary
- 15.7 References and Books
- 15.8 Questions

15.0 OBJECTIVES

After studying this unit the student will be able to

- 1) Understand the nature, scope and objectives of human resource management.
- 2) Understand the nature of selection, identify the selection process and their implications
- 3) Understand the nature and Importance of training and identify the various inputs that should go into any such programme
- 4) Understand the nature of performance appraisal and describe different stages in the appraisal process
- 5) Understand the fundamentals of compensation administration

15.1 INTRODUCTION

Human Resource Management (HRM) is a management function that helps managers' recruit, select, train and develops members for an organization. HRM is concerned with the people's dimension in Organizations.

HRM is the latest nomenclature used to denote personnel management. HRM has four objectives namely

- i) Societal
- ii) Organizational
- iii) Functional
- iv) Personal

Ever since its inception in the 4th century BC (much earlier in other countries), the HRM functions have gone a long way and have assumed a professional status today.

Selection refers to the process of picking the right candidates from the pool of applications. Selection is significant as it has its impact on work performance and employee cost. It is generally done by the HR department often in consultation with the line managers.

Training activities is designed to impart specific skills, abilities and knowledge to employees. Training is confined to shop-floor workers. Skills, education, development, ethics, attitudinal changes and decision making skills must go into any programme of training.

Performance appraisal refers to the assessment of an employee's actual performance, behaviour on jobs, and his or her potential for future performance. Appraisal has several objectives but the main purposes are to assess training needs, to effect promotions and to give pay increases.

15.2 MEANING AND DEFINITION OF HUMAN RESOURCE MANAGEMENT

15.2.1 DEFINITIONS:

1) A series of integrated decisions that form the employment relationship, their quality contributes to the ability of the organizations and the employees to achieve their objectives.

2) Is concerned with the people dimension in management. Since every organization is made up of people, acquiring their services, developing their skills, motivating them to higher levels of performance and ensuring that they continue to maintain their commitment to the organization are essential to achieving organizational objectives. This is true, regardless of the type of organization government, business, education, health recreation or social action.

3) Management is the planning, Organizing, directing and Controlling of the procurement, development, Compensation, integration,

maintenance and separation of human resources to the end that individual organizational and social objectives are accomplished.

Thus HRM refers to a set of programmes, functions and activities designed and carried out in order to maximize both employee as well as organizational effectiveness.

15.2.2 SCOPE OF HRM:

The scope of HRM is indeed vast. All major activities in the working life of a worker from the time of his or her entry into an organization until he or she leaves-home under the purview of HRM. Specifically, the activities included are – HR planning, job analysis and design, recruitment and selection, orientation and placement, training and development, performance appraisal and job evaluation, employee and executive remuneration, motivation and communication, welfare, safety and health industrial relations and the like.

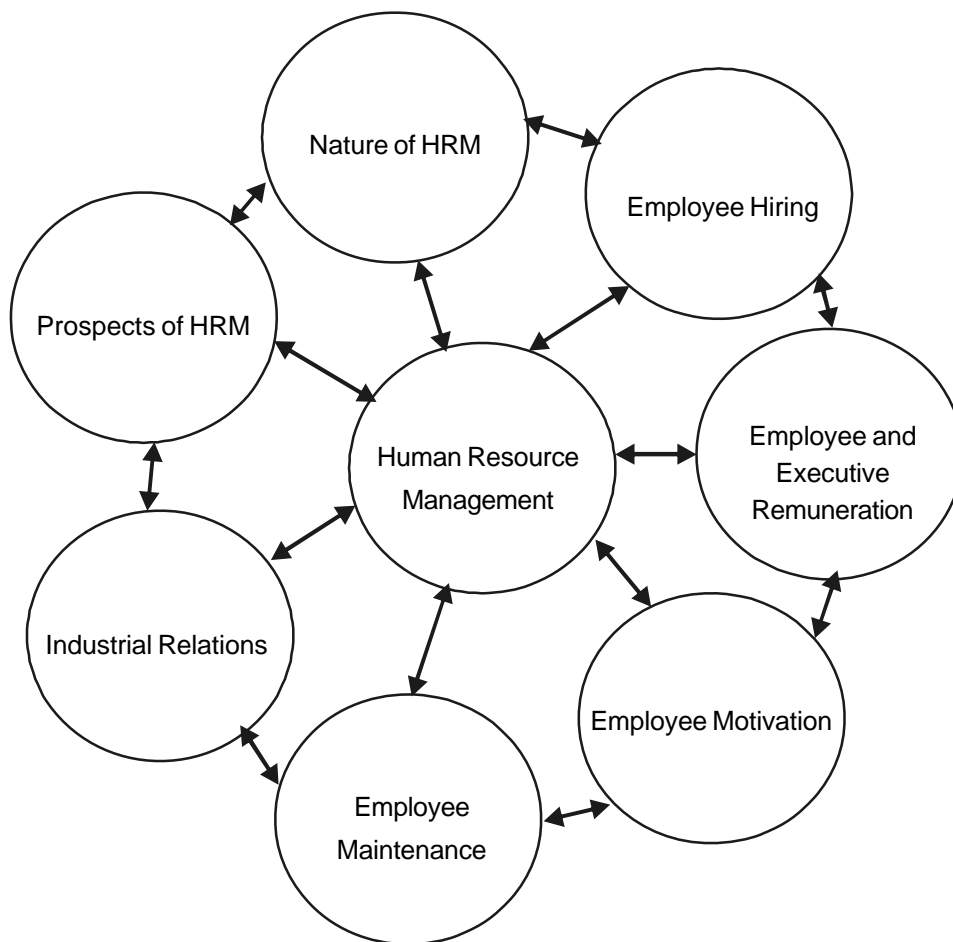


Fig 15.1 Scope of HRM

15.2.3 HRM MODEL:

As per Figure 15.2 given below, the HRM Model contains all HR activities. The Organizational goals are realized when these activities are

activated and Conducted effectively. The workforce produced in the organization is also competent and willing to take challenging tasks. There is a variable – environment which is influenced by several external and internal forces like economic, technological, political, legal, organizational and professional conditions.

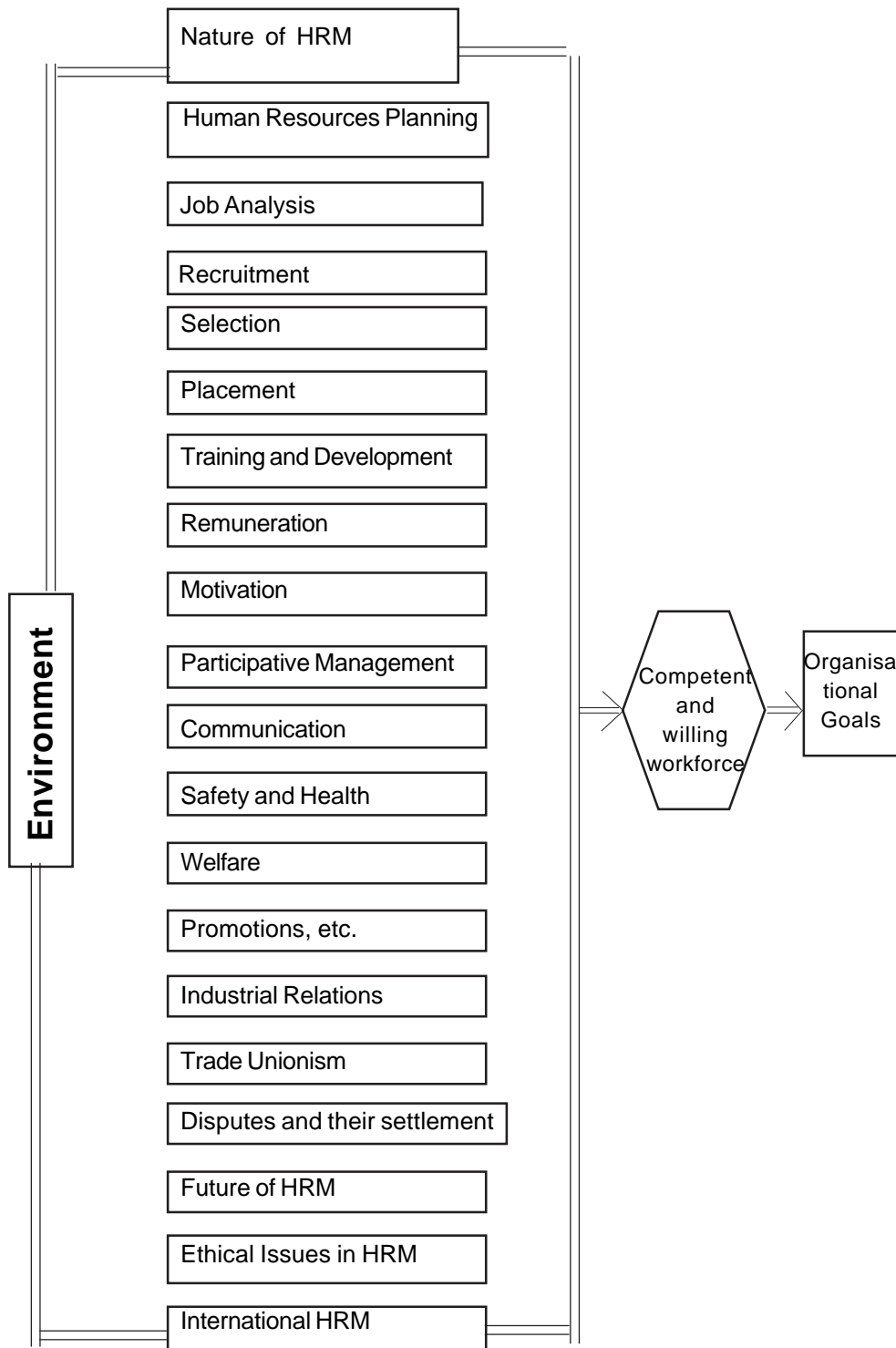


Fig 15.2 An HRM Model

15.2.4 HRM: FUNCTIONS AND OBJECTIVES:

The primary objective of HRM is to ensure the availability of a competent and willing workforce to an organization. Specifically, HRM objectives are four fold societal, organizational, functional and personal.

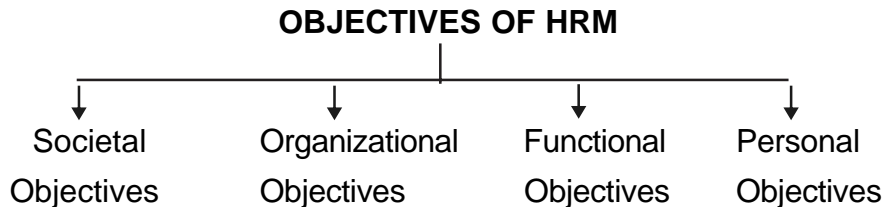


Figure 15.3 Objectives of HRM

1) Societal Objectives:

Every organization must use the resources for the benefit of the society in ethical and socially responsible ways to the needs and challenges of the society while minimizing the negative impact of such demands upon the Organization.

2) Organizational Objectives:

To recognize the role of HRM in bringing effectiveness to the Organization HRM is a means to assist the organization with its primary objectives.

3) Functional Objectives:

Contribution of the department, resource utilization, organizations demands and the level of Services offered by the department's must be created according to the functional objectives.

4) Personal Objectives:

It relates to helping employees achieve their personal goals, individual contributions, performance enhancement and satisfaction.

In order to realize the objectives, HRM needs to concentrate on some functions. There is a link between objectives and functions of management. Some functions help realize some specific objectives. Organizational objectives and functions are met by conducting HR planning, recruitment and selection, training and development and performance appraisal.

Figure 15.4 Depicts the interlink between HRM objectives and Functions

HRM Objectives and Functions

| HRM Objectives | Supporting Functions |
|------------------------------|---|
| 1) Societal Objectives | 1) Legal Compliance 2) Benefits 3) Union-management relations |
| 2) Organizational Objectives | 1) Human Resource Planning 2) Employee Relations 3) Selection 4) Training & Development 5) Appraisal 6) Placement 7) Assessment |
| 3) Functional Objectives | 1) Appraisal 2) Placement 3) Assessment |
| 4) Personal Objectives | 1) Training & Development 2) Appraisal 3) Placement 4) Compensation 5) Assessment |

Figure15.4

CHECK YOUR PROGRESS:

1) What is Human Resource Management? What are its functions and Objectives?

2) The challenge and role of HRM department is very important, still many times its status is not recognized and respected, if you are a HR manager, what role you will play to reverse the situation ?

15.3 SELECTION

15.3.1 MEANING & DEFINITIONS:

Selection is the process of selecting individuals out of many job applicants with necessary required qualifications and competent skills to fill jobs in the organization.

“It is the process of differentiating between applicants in order to identify and recruit those with a greater likelihood of success in a job.”

Recruitment and Selection are important steps in HR process and are used interchangeably. Recruitment refers to the process of identifying and encouraging prospective employees to apply for jobs. Selection is concerned with picking the right candidates from the pool of applicants. Recruitment is said to be positive in its approach as it seeks to attract as many candidates as possible. Selection on the other hand, is negative in its application in as much as it seeks to eliminate as many unqualified applicants as possible in order to identify the right candidates.

15.3.2 SELECTION PROCESS:

Selection is a length process, commencing from preliminary interview of the applicants and ending with the contract of employment. Figure 11.5 shows the selection process in a generalized way. Selection process differs among organizations and between different jobs in the same Organizations.

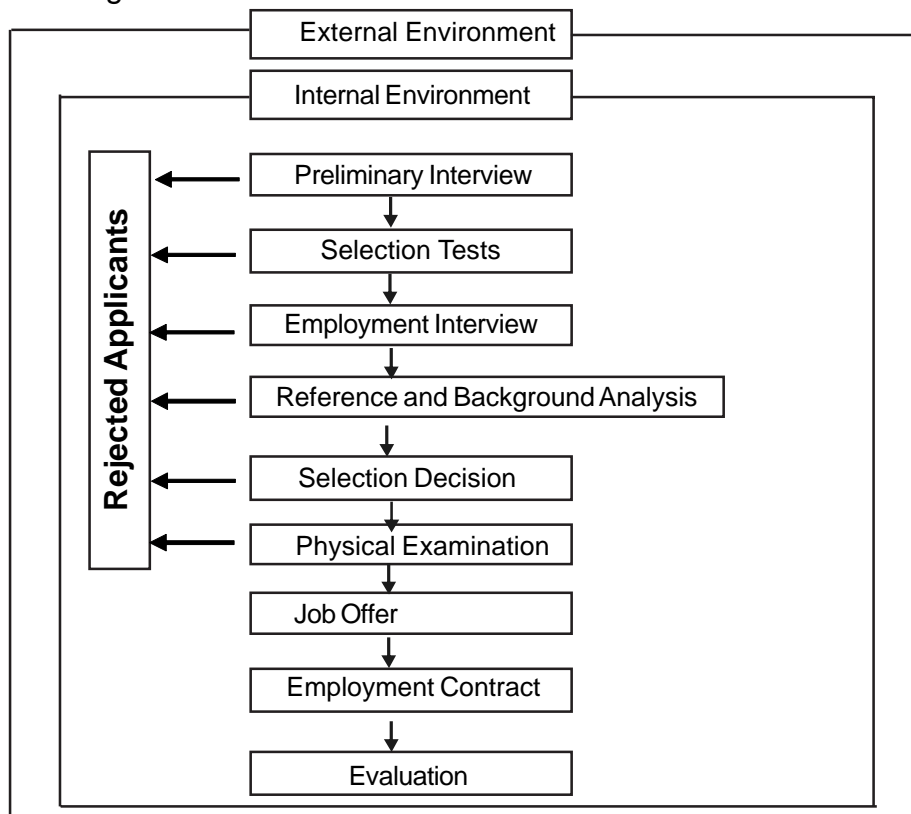


Figure15.5 Selection Process

Selection is influenced by several factors.

- i) Supply and demand of specific skills in the viz. labour market
- ii) Unemployment rate
- iii) Labour Market Conditions
- iv) Legal and Political Considerations
- v) Company's image
- vi) Company's Policy
- vii) HRP
- viii) Cost of Hiring

The last three constitute the internal environment and the remaining form the external environment of the selection process.

Selection Process Starts in the following order.

1) Preliminary Interview:

The applications are scrutinized to disqualify unsuitable applicants. This is followed by preliminary interview for eliminating unqualified applications. The aim of preliminary interview is to reject misfitting applicants.

2) Selection Tests:

Candidates who qualify the screening and preliminary interview are called for tests. Various tests are conducted to determine the applicant's ability, aptitude and personality of the candidate. Ability tests are conducted to check the candidate's performance tasks related to the job. Eg: A typing test given for a typist job. An aptitude test to check the candidate's potentials and learning skills given in a challenging area. Personality tests for measuring candidate's overall behavior, morale, spirit, attitude, biological behavior applied in work atmosphere. Medical tests to check the physical fitness of the candidate.

3) Employment Interview:

An Interview is conducted at the beginning and at the end of the selection process. Interview is formal in depth conversation conducted to evaluate the applicant's acceptability. Interviews are conducted to select unskilled managerial and professional employees.

The objectives of interviews is to

- i) Help obtain additional information about the candidates
- ii) General information about the company's policies, jobs, projects undertaken, products manufactured, market standing can be supplied to the candidates.
- iii) Company's image standing can be build among the candidates.

4) Reference and Background Analysis:

When the applicant reaches the fourth stage of the selection process successfully, the references are checked & verified to see the authenticity of the candidate. References and Backgrounds can be obtained from previous employers, known public figures, university professors and renewed persons. References can be testimonials. Recommendations, letters of reference or telephone references. References are formality and are seldom verified by the employer.

5) Selection Decision:

Selection Decision is most critical of all the steps. The final decision is made from among the candidates who pass & clear all tests, interviews and reference checks. The HR manager plays a crucial role in the final selection.

6) Physical Examination:

The candidate is required to undergo a physical fitness test. Physical examination tends to declare a candidate fit. Medical fitness test records are maintained in the statement and preserved in personnel records. The objective of the test is to check whether the candidate carries any infectious diseases, physical deformities, such test protect the employer from worker's compensation claims and help to select physically healthy and fit candidate.

7) Job Offer:

A Candidate is offered job through a letter of appointment. The letter contains date by which the candidate must join the organization. Appropriate time is given by the organization to the candidate to join the job.

8) Contracts of Employment:

Employment Contract is prepared by the organization by considering certain documents like attestation form, details about the Candidate and all authentic and attested photo copies. An employment agreement is prepared by the organization and signed by newly hired employees.

9) Evaluation of Selection Programme:

A periodic audit is conducted by competent and committed personnel who work independent of the HR department.

15.3.3 BARRIERS TO EFFECTIVE SELECTION:

Effectiveness of selection is subject to certain barriers due to some disparities. Competent and Committed candidates sometimes get effected due to such impediments like perception, fairness, validity, reliability and pressure.

i) Perception:

Every interviewer perceive candidates personality, behavior and qualifications differently. Perceptions are personalized.

ii) Fairness:

Candidates should not be discriminated on the basis of religion, region, race or gender. But many times Candidates are discriminated especially on the basis of caste religion. Even women candidates suffer due to such prejudices.

iii) Validity:

Validity test are conducted to check the performance level of the candidate. But this test is not everything to predict job success accurately. This test can only comparatively differentiate candidates as to who is bright and who is not.

iv) Reliability:

A reliability test is not sufficient to predict job performance, it has its own limitation.

v) Pressure:

Many times pressure is brought by politicians, bureaucrats relatives, friends and powerful people to select their recommended candidate. Therefore due to compulsion & force a wrong candidate is appointed.

CHECK YOUR PROGRESS:

- 1) Explain the meaning of selection.
- 2) What factors influence the selection process?

15.4 TRAINING AND APPRAISAL

Successful Candidates placed on the jobs need training to perform their duties effectively. Workers must be trained to operate machines, reduce scrap and avoid accidents. It is not only the workers who need training, supervisors, managers and executives also need to be developed in order to enable them to grow and acquire maturity of thought and action. Training constitutes an ongoing process in any organization.

Training refers to the imparting of specific skills, abilities, knowledge to an employee. A formal definition of training is:-

It is any attempt to improve current or future employee performance by increasing an employee's ability to perform through learning, usually by changing the employee's attitude or increasing his or her skills and

knowledge. The need for training is determined by the employee's performance deficiency. Training refers to the process of imparting specific skills. For example, an employee who undergoes training is presumed to have had some formal education. Furthermore, no training programme is complete without an element of education. Training programmes seek to broaden and develop the individual through education. Organizations consider elements of both education and training while planning their training programmes.

Elements of both education and training are assumed to be a part of the organizational training programme.

An organization's goals can be achieved only when people put in their best efforts and to ascertain whether an employee has shown his or her best performance is appraised by the organization through employee assessment.

Appraisal may be understood as the assessment of an individual's performance in a systematic way, the performance being measured against such factors as job knowledge, quality and quantity of output, initiative, leadership abilities, supervision, dependability, co-operative judgment, versatility, health and the like.

Appraisal is the systematic evaluation of the individual with respect to his or her performance on the job and his or her potential for development.

15.4.1 INPUTS IN TRAINING:

Any training programme must contain inputs which enable the participants to gain skills, learn theoretical concepts and help acquire vision to look into the distant future. In additions to these, there is a need to impart ethical orientation, emphasis on attitudinal changes and stress upon decision making and problem-solving abilities.

i) Skills :

Training is imparting skills to operate machines and use other equipment with least damage and scrap. This is basic skill without which the Operator will not be able to function. There is also the need for motor skills related to physical activities. Interpersonal skills like people skills are needed to understand oneself and others better and act accordingly.

ii) Education:

It is to teach theoretical concepts and develop a sense of reasoning and judgment.

iii) Development:

It is less skill oriented but stresses on knowledge. Knowledge about business environment, management principles and techniques, human

relations, specific industry analysis and the like is useful for better management of a company.

iv) Ethics:

There is need for imparting greater ethical orientation to a training programme. Ethics are largely ignored in businesses. Unethical practices abound in marketing, finance and production functions in an organization.

v) Additional Changes:

Attitudes represent feelings and beliefs of individuals towards others. Attitudes affect motivation, satisfaction and job commitment. Negative attitudes need to be converted into positive attitudes. Attitudes must be change so that employees feel committed to the organization, are motivated for better performance, and derive satisfaction from their jobs and the work environment.

vi) Decision Making and problem solving skills:

It has focus on methods and techniques for making organizational decisions and solving work-related problems. Learning related to decision making and problem solving skills seeks to improve trainees abilities to define and structure problems, collect and analyze information, generate alternative solutions and make a optimal decision among alternatives.

15.4.2 IMPORTANCE OF TRAINING:

Training contributes to employee stability in at least two ways. Employees become efficient after undergoing training. Efficient employees contribute to the growth of the organization. Growth renders stability to the workforce. Trained employees tend to stay with the organization. Training makes the employees versatile in operations. Well-trained employees can contribute to the prosperity of an enterprise. Accidents, scrap and damage to machinery and equipment can be avoided or minimized through training. Even dissatisfaction, complaints, absenteeism, and turnover can be reduced if employees are trained well. Future needs of employees will be met through training programmes. Training also serves as an effective source of recruitment. Training is an investment in HR with a promise of better returns in future.

15.4.3 APPRAISAL:

Appraisal is a formal, structured system of measuring and evaluating an employee's job related behaviours and outcomes to discover how and why the employee is presently performing on the job and how the employee can perform more effectively in the future so that the employee, organization and society all benefit.

Data relating to assessment of employees are recorded, stored and used for several purposes. The main purposes of employee assessment are:

- i) To effect promotions based on competence and performance
- ii) To confirm the services of probationary employees upon their completing the probationary period satisfactorily.
- iii) To assess the training needs of employees
- iv) To decide upon a pay raise where regular pay scales have not been fixed
- v) To let the employees know where they stand in so far as their performance is concerned and to assist them with constructive criticism and guidance for the purpose of their development.
- vi) To improve communication. Performance appraisal provides a format for dialogue between the superior and the subordinate, and improves understanding of personal goals and concerns. This can also have the effect of increasing the trust between the rater and the ratee.
- vii) Finally, performance appraisal can be used to determine whether HR programmes such as selection, training and transfers have been effective or not.

Broadly, performance appraisal serves four objective-

- i) Developmental uses
- ii) Administrative uses / decisions
- iii) Organizational maintenance/Objectives
- iv) Documentation purposes

• **Appraisal Process:**

Each step in the process is crucial is arranged logically. The process is somewhat idealized. Many organizations make every effort to approximate the ideal process, resulting in first –rate appraisal system. Unfortunately, many others fail to consider one or more of the steps and, therefore, have less effective appraisal system.

1) Objectives of Appraisal:

Objectives of appraisal include effecting promotions and transfers, assessing training needs, awarding pay increases. The emphasis is to correct the problems. These objectives are appropriate as long as the approach in appraisal is individual.

2) Establish Job Expectations:

The second step in the appraisal process is to establish job expectations. This includes informing the employee what is expected of

him or her on the job. Normally, a discussion is held with his or her superior to review the major duties contained in the job description. Individuals should not be expected to begin the job until they understand what is expected of them.

3) Design an appraisal programme:

Designing an appraisal programme poses several questions which need answers. They are:

- a) Formal versus informal appraisal
- b) Whose performance is to be assessed
- c) Who are raters
- d) What problems are encountered
- e) How to solve the problems
- f) What should be evaluated
- g) When to evaluate and
- h) What methods of appraisal are to be used.

4) Performance Interview:

Once appraisal is made, the raters discuss and review the performance of the ratees (employees). The employees get the feedback about their performance. Performance interview has three goals

- i) To change behavior of employees whose performance does not meet organizational requirements or their own personal goals.
- ii) To maintain the behavior so that they will be continued.
- iii) To recognize superior performance behavior so that they will be continued.

5) Use of Appraisal Data:

The final step in the appraisal process is the use of evaluation data. The HR department use the data generated through performance appraisal. The data is used to reward thee employees. It can be also used for remuneration administration, employee training and development programmes, promotion, transfer and lay-off, HR planning and Grievance handling programme.

Appraisal Process

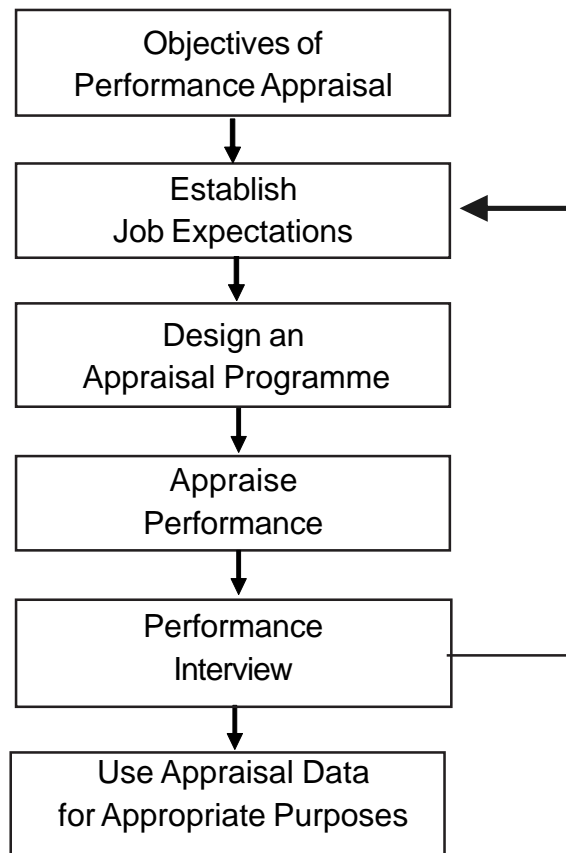


Fig 15.6 Performance Appraisal Process

CHECK YOUR PROGRESS:

- 1) Explain the need of training in an organization
- 2) Is training an ongoing process?
- 3) Is appraisal a need to evaluate the performance of employees?

15.5 COMPENSATION ADMINISTRATION

Employee benefits and services include any benefits that the employee receives in addition to direct remuneration. The financial remuneration comprises both direct as well as indirect elements.

Fringes embrace a broad range of benefits and services that employees receive as part of their total compensation package – pay or direct compensation – is based on critical job factors and performance. Benefits and services however are indirect compensation because they are usually extended as a condition of employment and are not directly related to performance.

Compensation benefits include disability and workers Compensation benefits are also offered to employees. Employers contribute funds to assist workers who are ill or injured and cannot work owing to occupational injury or ailment. These benefits are regulated by the workmen's compensation Act.

Compensation administration is legally protected and proclaims right of the worker over the employer to claim for any compensation benefit due to him/her on pretext of injury, accident or any hazard that take place accidentally or incidentally in the organization.

Compensation administration is a technically arranged process and gives full protection to employees to exercise authentic right over the organization based on critical reasons and performance for instance: A worker in a factory working on the machine which is not maintained or serviced regularly, mishandled and wilfully neglected by the floor supervisor or the ultimate subordinate or senior of the employees may result into a mishap or accident of the worker where there are possible chances of the employee to loose his limb or hand or any part of his body. Compensation package is the best way out the organization can provide benefit to the employee where any accident happens on the duty.

Compensation administration is worked out on the basis of the situation, condition, method and other critical factors resulting in accidents in the organization.

15.6 Summary

Human Resource Management includes processes related to development of employees/persons to their fullest level exploring their potentials to the maximum. Competencies or Capabilities of a person is calculated on the basis of several factors which are:

- 1) Technical and Managerial related to knowledge, Attitudes and skills.
- 2) Human and Conceptual factors related to knowledge, Attitudes and skills as well.

Human Resources are managed by developing their talents on the job by providing them training and improving their skills by appraising their performance. Training mechanism results in development of competence. Further right candidates are selected through scientific selection method and put to task. There are legally provided benefits depending on the job of the employees they perform in the form of compensation administration.

15.7 References and Book

- 1) K. Aswathappa, Human Resources & Personal Management: Text & cases, 3rd Edition, Tata McGraw Hill Publishing Company Limited, New Delhi, 2002.
- 2) P.C.Pardeshi, Management and Human Resource Development, Sheth Publishers Pvt Ltd, Mumbai 2002
- 3) Stephen Robbins, Organizational Behavior: Concepts, Controversies & Application, Sixth Edition, Prentice-Hall of India Pvt. Ltd. New Delhi, 1994.

15.8 Questions

- 1) Define Human Resource Management. Explain the HRM Model.
- 2) Explain the Barriers to effective selection.
- 3) Explain the appraisal process.
- 4) Is compensation administration a relevant method of offering compensation benefits to employees?
- 5) Write a note on Compensation administration.



