

UNIT- I

LESSON 1

MANAGERIAL ECONOMICS

STRUCTURE

- 1.1 INTRODUCTION
- 1.2 OBJECTIVES
- 1.3 NATURE OF MANAGERIAL ECONOMICS
 - 1.3.1 Managerial Economics is a Science
 - 1.3.2 Managerial Economics requires Art
 - 1.3.3 Managerial Economics for administration of organisation
 - 1.3.4 Managerial economics is helpful in optimum resource allocation
 - 1.3.5 Managerial Economics has components of micro economics
 - 1.3.6 Economics has components of macro economics
 - 1.3.7 Managerial Economics is dynamic in nature
- 1.4 IMPORTANCE
- 1.5 SCOPE OF MANAGERIAL ECONOMICS
- 1.6 ROLE OF MANAGERIAL ECONOMICS
- 1.7 SUMMARY
- 1.8 SELF ASSESSMENT QUESTIONS
- 1.9 SUGGESTED READINGS

1.1 INTRODUCTION

The science of Managerial Economics has emerged only recently. With the growing

variability and unpredictability of the business environment, business managers have become increasingly concerned with finding rational and ways of adjusting to an exploiting environmental change. The problems of the business world attracted the attentions of the academicians from 1950 onwards. Managerial economics as a subject gained popularity in the USA after the publication of the book “Managerial Economics” by Joel Dean in 1951.

Managerial Economics can be defined as amalgamation of economic theory with business practices so as to ease decision-making and future planning by management. Managerial Economics assists the managers of a firm in a rational solution of obstacles faced in the firm’s activities. It makes use of economic theory and concepts. It helps in formulating logical managerial decisions. The key of Managerial Economics is the micro-economic theory of the firm. It lessens the gap between economics in theory and economics in practice. Managerial Economics is a science dealing with effective use of scarce resources. It guides the managers in taking decisions relating to the firm’s customers, competitors, suppliers as well as relating to the internal functioning of a firm. It makes use of statistical and analytical tools to assess economic theories in solving practical business problems. Study of Managerial Economics helps in enhancement of analytical skills, assists in rational configuration as well as solution of problems. While microeconomics is the study of decisions made regarding the allocation of resources and prices of goods and services, macroeconomics is the field of economics that studies the behaviour of the economy as a whole (i.e. entire industries and economies).

The following figure tells the primary ways in which Managerial Economics correlates to managerial decision-making.

1.1.2 DEFINITION:

Managerial economists have defined managerial economics in a variety of ways:

According to E.F. Brigham and J. L. Pappas, Managerial Economics is “The application of economic theory and methodology to business administration practice.”

Christopher Savage and John R. Small: “Managerial Economics is concerned with business efficiency”.

Milton H. Spencer and Lonis Siegelman define Managerial Economics as “The integration

of economic theory with business practice for the purpose of facilitating decision making and forward planning by management.”

In the words of Me *Nair and Meriam*, “Managerial Economics consists of the use of economic modes of thought to analyse business situations.”

D.C. Hague describes Managerial Economics as “A fundamental academic subject which seeks to understand and analyse the problems of business decision making.”

In the opinion of *W.W. Haynes* “Managerial Economics is the study of the allocation of resources available to a firm of other unit of management among the activities of that unit.”

According to *Floyd E. Gillis*, “Managerial Economics deals almost exclusively with those business situations that can be quantified and dealt with in a model or at least approximated quantitatively.”

1.2 OBJECTIVES

The objectives of this lesson is:

- To understand the concept of managerial economics.
- To know the scope and importance of managerial economics.

1.3 NATURE OF MANAGERIAL ECONOMICS

Managers study managerial economics because it gives them insight to reign the functioning of the organisation. If manager uses the principles applicable to economic behaviour reasonably, then it will result in smooth functioning of the organisation.

1.3.1 Managerial Economics is a Science

Managerial Economics is an essential scholastic field. It can be compared to science in a sense that it fulfills the criteria of being a science in following sense:

- Science is a Systematic body of Knowledge. It is based on the methodical observation. Managerial economics is also a science of making decisions with regard to scarce resources with alternative applications. It is a body of knowledge that determines or observes the internal and external environment for decision making.
- In science any conclusion is arrived at after continuous experimentation. In

Managerial economics also policies are made after persistent testing and trailing. Though economic environment consists of human variable, which is unpredictable, thus the policies made are not rigid. Managerial economist takes decisions by utilising his valuable past experience and observations.

- Science principles are universally applicable. Similarly policies of Managerial economics are also universally applicable partially if not fully. The policies need to be changed from time to time depending on the situation and attitude of individuals to those particular situations. Policies are applicable universally but modifications are required periodically.

1.3.2 Managerial Economics requires Art

Managerial economist is required to have an art of utilising his capability, knowledge and understanding to achieve the organizational objective. Managerial economist should have an art to put in practice his theoretical knowledge regarding elements of economic environment.

1.3.3 Managerial Economics for administration of organisation

Managerial economics helps the management in decision making. These decisions are based on the economic rationale and are valid in the existing economic environment.

1.3.4 Managerial economics is helpful in optimum resource allocation

The resources are scarce with alternative uses. Managers need to use these limited resources optimally. Each resource has several uses. It is manager who decides with his knowledge of economics that which one is the preeminent use of the resource.

1.3.5 Managerial Economics has components of micro economics

Managers study and manage the internal environment of the organization and work for the profitable and long-term functioning of the organisation. This aspect refers to the micro economics study. The managerial economics deals with the problems faced by the individual organization such as main objective of the organisation, demand for its product, price and output determination of the organisation, available substitute and complimentary goods, supply of inputs and raw material, target or prospective consumers of its products etc.

1.3.6 Economics has components of macro economics

None of the organisation works in isolation. They are affected by the external environment of the economy in which it operates such as government policies, general price level, income and employment levels in the economy, stage of business cycle in which economy is operating, exchange rate, balance of payment, general expenditure, saving and investment patterns of the consumers, market conditions etc. These aspects are related to macro economics.

1.3.7 Managerial Economics is dynamic in nature

Managerial Economics deals with human-beings (i.e. human resource, consumers, producers etc.). The nature and attitude differs from person to person. Thus to cope up with dynamism and vitality managerial economics also changes itself over a period of time.

1.4 IMPORTANCE OF MANAGERIAL ECONOMICS

The significance or importance of business/managerial economics can be discussed as:

1. Business economics is concerned with those aspects of traditional economics which are relevant for business decision making in real life. These are adapted or modified with a view to enable the manager take better decisions. Thus, business economic accomplishes the objective of building a suitable tool kit from traditional economics.
2. It also incorporates useful ideas from other disciplines such as psychology, sociology, etc. If they are found relevant to decision making. In fact, business economics takes the help of other disciplines having a bearing on the business decisions in relation various explicit and implicit constraints subject to which resource allocation is to be optimised.
3. Business economics helps in reaching a variety of business decisions in a complicated environment. Certain examples are:
 - (i) What products and services should be produced?
 - (ii) What input and production technique should be used?
 - (iii) How much output should be produced and at what prices it should be sold?

- (iv) What are the best sizes and locations of new plants?
 - (v) When should equipment be replaced?
 - (vi) How should the available capital be allocated?
4. Business economics makes a manager a more competent model builder. It helps him appreciate the essential relationship Characterising a given situation.
 5. At the level of the firm. Where its operations are conducted though known focus functional areas, such as finance, marketing, personnel and production, business economics serves as an integrating agent by coordinating the activities in these different areas.
 6. Business economics takes cognizance of the interaction between the firm and society, and accomplishes the key role of an agent in achieving the its social and economic welfare goals. It has come to be realised that a business, apart from its obligations to shareholders, has certain social obligations. Business economics focuses attention on these social obligations as constraints subject to which business decisions are taken. It serves as an instrument in furthering the economic welfare of the society through socially oriented business decisions.

1.5 SCOPE OF MANAGERIAL ECONOMICS

Managerial Economics is a developing subject. The scope of managerial economics refers to its area of study. Managerial economics has its roots in economic theory. The empirical nature of managerial economics makes its scope wider. Managerial economics provides management with strategic planning tools that can be used to get a clear perspective of the way the business world works and what can be done to maintain profitability in an ever changing environment. Managerial economics refers to those aspects of economic theory and application which are directly relevant to the practice of management and the decision making process within the enterprise. Its scope does not extend to macro-economic theory and the economics of public policy which will also be of interest to the manager.

While considering the scope of managerial economics we have to understand whether it is positive economics or normative economics.

1.5.1 Positive versus Normative Economics:

Most of the managerial economists are of the opinion that managerial economics is fundamentally normative and prescriptive in nature. It is concerned with what decisions ought to be made. The application of managerial economics is inseparable from consideration of values or norms, for it is always concerned with the achievement of objectives or the optimisation of goals. In managerial economics, we are interested in what should happen rather than what does happen. Instead of explaining what a firm is doing, we explain what it should do to make its decision effective.

I. Positive Economics:

A positive science is concerned with 'what is'. Robbins regards economics as a pure science of what is, which is not concerned with moral or ethical questions. Economics is neutral between ends. The economist has no right to pass judgment on the wisdom or folly of the ends itself. He is simply concerned with the problem of resources in relation to the ends desired. The manufacture and sale of cigarettes and wine may be injurious to health and therefore morally unjustifiable, but the economist has no right to pass judgment on these since both satisfy human wants and involve economic activity.

II. Normative Economics:

Normative economics is concerned with describing what should be the things. It is, therefore, also called prescriptive economics. What price for a product should be fixed, what wage should be paid, how income should be distributed and so on, fall within the purview of normative economics?

It should be noted that normative economics involves value judgments. Almost all the leading managerial economists are of the opinion that managerial economics is fundamentally normative and prescriptive in nature. It refers mostly to what ought to be and cannot be neutral about the ends. The application of managerial economics is inseparable from consideration of values, or norms for it is always concerned with the achievement of objectives or the optimisation of goals.

Further, in managerial economics, we are interested in what should happen rather than what does happen. Instead of explaining what a firm is doing, we explain what it should do to make its decision effective. Managerial economists are generally preoccupied

with the optimum allocation of scarce resources among competing ends with a view to obtaining the maximum benefit according to predetermined criteria.

To achieve these objectives they do not assume *ceteris paribus*, but try to introduce policies. The very important aspect of managerial economics is that it tries to find out the cause and effect relationship by factual study and logical reasoning. The scope of managerial economics is so wide that it embraces almost all the problems and areas of the manager and the firm.

1.5.2 Subject Matter of Marginal Economics

1. Demand Analysis and Forecasting

A firm is an economic organisation which transforms inputs into output that is to be sold in a market. Accurate estimation of demand, by analysing the forces acting on demand of the product produced by the firm, forms the vital issue in taking effective decision at the firm level. A major part of managerial decision making depends on accurate estimates of demand. When demand is estimated, the manager does not stop at the stage of assessing the current demand but estimates future demand as well. This is what is meant by demand forecasting. This forecast can also serve as a guide to management for maintaining or strengthening market position and enlarging profit. Demand analysis helps in identifying the various factors influencing the demand for a firm's product and thus provides guidelines to manipulate demand. The main topics covered are: Demand Determinants, Demand Distinctions and Demand Forecasting.

2. Cost and Production Analysis

Cost analysis is yet another function of managerial economics. In decision making, cost estimates are very essential. The factors causing variation in costs must be recognised and allowed for if management is to arrive at cost estimates which are significant for planning purposes.

The determinants of estimating costs, the relationship between cost and output, the forecast of cost and profit are very vital to a firm. An element of cost uncertainty exists because all the factors determining costs are not always known or controllable. Managerial economics touches these aspects of cost analysis as an effective knowledge and the application of which is corner stone for the success of a firm.

Production analysis frequently proceeds in physical terms. Inputs play a vital role in the economics of production. The factors of production otherwise called inputs, may be combined in a particular way to yield the maximum output.

Alternatively, when the price of inputs shoots up, a firm is forced to work out a combination of inputs so as to ensure that this combination becomes the least cost combination. The main topics covered under cost and production analysis are production function, least cost combination of factor inputs, factor productiveness, returns to scale, cost concepts and classification, cost-output relationship and linear programming.

3. Inventory Management

An inventory refers to a stock of raw materials which a firm keeps. Now the problem is how much of the inventory is the ideal stock. If it is high, capital is unproductively tied up. If the level of inventory is low, production will be affected.

Therefore, managerial economics will use such methods as Economic Order Quantity (EOQ) approach, ABC analysis with a view to minimising the inventory cost. It also goes deeper into such aspects as motives of holding inventory, cost of holding inventory, inventory control, and main methods of inventory control and management.

4. Advertising

To produce a commodity is one thing and to market it is another. Yet the message about the product should reach the consumer before he thinks of buying it. Therefore, advertising forms an integral part of decision making and forward planning. Expenditure on advertising and related types of promotional activities is called selling costs by economists.

There are different methods for setting advertising budget: Percentage of Sales Approach, All You can Afford Approach, Competitive Parity Approach, Objective and Task Approach and Return on Investment Approach.

5. Pricing Decision, Policies and Practices

Pricing is very important area of managerial economics. The control functions of an enterprise are not only productions but pricing as well. When pricing a commodity, the cost of production has to be taken into account. Business decisions are greatly influenced by pervading market structure and the structure of markets that has been evolved by the

nature of competition existing in the market.

Pricing is actually guided by consideration of cost plan pricing and the policies of public enterprises. The knowledge of the pricing of a product under conditions of oligopoly is also essential. The price system guides the manager to take valid and profitable decision.

6. Profit Management

A business firm is an organisation designed to make profits. Profits are acid test of the individual firm's performance. In appraising a company, we must first understand how profit arises. The concept of profit maximisation is very useful in selecting the alternatives in making a decision at the firm level.

Profit forecasting is an essential function of any management. It relates to projection of future earnings and involves the analysis of actual and expected behaviour of firms, the sales volume, prices and competitor's strategies, etc. The main aspects covered under this area are the nature and measurement of profit, and profit policies of special significance to managerial decision making.

Managerial economics tries to find out the cause and effect relationship by factual study and logical reasoning. For example, the statement that profits are at a maximum when marginal revenue is equal to marginal cost, a substantial part of economic analysis of this deductive proposition attempts to reach specific conclusions about what should be done.

The logic of linear programming is deduction of mathematical form. In fine, managerial economics is a branch of normative economics that draws from descriptive economics and from well established deductive patterns of logic.

7. Capital Management

Planning and control of capital expenditures is the basic executive function. The managerial problem of planning and control of capital is examined from an economic stand point. The capital budgeting process takes different forms in different industries.

It involves the equi-marginal principle. The objective is to assure the most profitable use of funds, which means that funds must not be applied when the managerial returns are less than in other uses. The main topics dealt with are: Cost of Capital, Rate of Return and

Selection of Projects.

Thus we see that a firm has uncertainties to rock on with. Therefore, we can conclude that the subject matter of managerial economics consists of applying economic principles and concepts towards adjusting with these uncertainties of the firm.

In recent years, there is a trend towards integration of managerial economics and Operation Research. Hence, techniques such as linear Programming, Inventory Models, Waiting Line Models, Bidding Models, Theory of Games, etc. have also come to be regarded as part of managerial economics.

1.5.3 Relation to Other Branches of Knowledge

A useful method of throwing light on the nature and scope of managerial economics is to examine its relationship with other disciplines. To classify the scope of a field of study is to discuss its relation to other subjects. If we take the subject in isolation, our study would not be useful. Managerial economics has a close linkage with other disciplines and fields of study.

The subject has gained by the interaction with economics, mathematics and statistics and has drawn upon management theory and accounting concepts. The managerial eco-nomics integrates concepts and methods from these disciplines and bringing them to bear on managerial problems.

(i) *Managerial Economics and Economics:*

Managerial Economics has been described as economics applied to decision making. It may be studied as a special branch of economics, bridging the gap between pure economic theory and managerial practice. Economics has two main branches micro-economics and macroeconomics.

Micro-economics:

‘Micro’ means small. It studies the behaviour of the individual units and small groups of such units. It is a study of particular firms, particular households, individual prices, wages, incomes, individual industries and particular commodities. Thus micro-economics gives a microscopic view of the economy.

The micro-economic analysis may be undertaken at three levels:

- (i) The equalisation of individual consumers and produces;
- (ii) The equalisation of the single market;
- (iii) The simultaneous equilibrium of all markets. The problems of scarcity and optimal or ideal allocation of resources are the central problem in micro-economics.

The roots of managerial economics spring from micro-economic theory. In price theory, demand concepts, elasticity of demand, marginal cost marginal revenue, the short and long runs and theories of market structure are sources of the elements of micro-economics which managerial economics draws upon. It also makes use of well known models in price theory such as the model for monopoly price, the kinked demand theory and the model of price discrimination.

Macro-economics:

‘Macro’ means large. It deals with the behaviour of the large aggregates in the economy. The large aggregates are total saving, total consumption, total income, total employment, general price level, wage level, cost structure, etc. Thus macro-economics is aggregative economics.

It examines the interrelations among the various aggregates, and causes of fluctuations in them. Problems of determination of total income, total employment and general price level are the central problems in macro-economics.

Macro-economics is also related to managerial economics. The environment, in which a business operates, fluctuations in national income, changes in fiscal and monetary measures and variations in the level of business activity have relevance to business decisions. The understanding of the overall operation of the economic system is very useful to the managerial economist in the formulation of his policies.

The chief contribution of macro-economics is in the area of forecasting. The post-Keynesian aggregative theory has direct implications for forecasting general business conditions. Since the prospects of an individual firm often depend greatly on business in general, forecasts of an individual firm depend on general business forecasts, which make use of models derived from theory. The most widely used model in modern forecasting is

the gross national product model.

(ii) *Managerial Economics and Theory of Decision Making:*

The theory of decision making is a relatively new subject that has a significance for managerial economics. In the entire process of management and in each of the management activities such as planning, organising, leading and controlling, decision making is always essential. In fact, decision making is an integral part of today's business management. A manager faces a number of problems connected with his/her business such as production, inventory, cost, marketing, pricing, investment and personnel.

Economist are interested in the efficient use of scarce resources hence they are naturally interested in business decision problems and they apply economics in management of business problems. Hence managerial economics is economics applied in decision making. According to M.H. Spencer and L. Siegelman, "Managerial economics is the integration of economic theory with business practice for the purpose of facilitating decision making up and forward planning by management". Managerial economics is a fundamental academic subject which seeks to understand and to analyse the problems of business decision making.

The theory of decision making recognises the multiplicity of goals and the pervasiveness of uncertainty in the real world of management. The theory of decision making replaces the notion of a single optimum solution with the view that the objective is to find solution that 'satisfies' rather than maximise. It probes into an analysis of motivation of the relation of rewards and aspiration levels, and of pattern of influence and authority.

Economic theory and theory of decision making appear to be in conflict, each based on different set of assumptions. Much of the economic theory is based on the assumption of single goal-maximisation of utility for the individual or maximisation of profit for the firm.

(iii) *Managerial Economics and Operations Research:*

Mathematicians, statisticians, engineers and others teamed up together and developed models and analytical tools which have since grown into a specialised subject, known as operation research. The basic purpose of the approach is to develop a scientific model of the system which may be utilised for policy making.

Much of the development of techniques and concepts such as Linear Programming, Dynamic Programming, Input-output Analysis, Inventory Theory, Information Theory, Probability Theory, Queueing Theory, Game Theory, Decision Theory and Symbolic Logic.

Linear programming deals with those programming problems where the relationship among the variables is linear. It is a useful tool for the managerial economist for reducing transportation costs and allocating purchase amongst different supplies and site depots. It is employed when the objective function is to maximise profit, output or efficiency.

Dynamic programming helps in solving certain types of sequential decision problems. A sequential decision problem is one in which a sequence of decision must be made with each decision affecting future decision. It has been applied in cases of maintenance and repair, financial portfolio balancing, inventory and production control, equipment replacement and directed marketing.

Input-output analysis is a technique for analysing inter-industry relation. Prof. W.W. Leontief tries to establish inter industry relationships by dividing the economy into different sectors. In this model, the final demand is treated as exogenously determined and the input-output technique is used to find out the levels of activity in the various sectors of the economic system. It can be used by firms for planning, co-ordination and mobilisation of resources.

Queueing is a particular application of the statistical decision theory. It is employed to get the optimum solution. The theory may be applied to such problems as how to meet a given demand most economically or how to minimise the waiting period or idle time. The theory of games holds out the hope of solving certain problems concerning oligopolistic interminacy.

When we apply the game theory, we have to consider the following:

- (i) The players are the two firms;
- (ii) They play the game in the market place;
- (iii) Their strategies are their price or output decision; and
- (iv) The pay-offs or rewards are their profits. The numerical figures are what is called pay-off matrix. This matrix is the most important tool of game theory.

(iv) *Managerial Economics and Statistics:*

Statistics is important to managerial economics. It provides the basis for the empirical testing of theory. Statistics is important in providing the individual firm with measures of the appropriate functional relationship involved in decision making. Statistics is a very useful science for business executives because a business runs on estimates and probabilities.

Statistics supplies many tools to managerial economics. Suppose forecasting has to be done. For this purpose, trend projections are used. Similarly, multiple regression technique is used. In managerial economics, measures of central tendency like the mean, median, mode, and measures of dispersion, correlation, regression, least square, estimators are widely used. The managerial economics is constantly faced with the choice between models ignoring uncertainty and those that explicitly incorporate probability theory.

Statistical tools are widely used in the solution of managerial problems. For example, sampling is very useful in data collection. Managerial economics makes use of correlation and multiple regression in business problems involving some kind of cause and effect relationship.

(v) *Managerial Economics and Accounting:*

Managerial economics is closely related to accounting. It is concerned with recording the financial operation of a business firm. A business is started with the main aim of earning profit. Capital is invested it is employed for purchasing properties such as building, furniture, etc and for meeting the current expenses of the business.

Goods are bought and sold for cash as well as credit. Cash is paid to credit sellers. It is received from credit buyers. Expenses are met and incomes derived. This goes on the daily routine work of the business. The buying of goods, sale of goods, payment of cash, receipt of cash and similar dealings are called business transactions.

The business transactions are varied and multifarious. They are too numerous to be kept in one's memory. This has given rise to the necessity of recording business transaction in books. They are written in a set of books in a systematic manner so as to facilitate proper study of their results.

There are three classes of accounts:

- (i) Personal account,

- (ii) Property accounts, and
- (iii) Nominal accounts.

Management accounting provides the accounting data for taking business decisions. The accounting techniques are very essential for the success of the firm because profit maximisation is the major objective of the firm.

(vi) *Managerial Economics and Mathematics:*

Mathematics is yet another important subject closely related to managerial economics. For the derivation and exposition of economic analysis, we require a set of mathematical tools. Mathematics has helped in the development of economic theories and now mathematical economics has become a very important branch of the science of economics.

Mathematical approach to economic theories makes them more precise and logical. For the estimation and prediction of economic factors for decision making and forward planning, the mathematical method is very helpful. The important branches of mathematics generally used by a managerial economist are geometry, algebra and calculus.

The mathematical concepts used by the managerial economists are the logarithms and exponential, vectors and determinants, input-output tables. Operations research which is closely related to managerial economics is mathematical in character.

1.6 ROLE OF MANAGERIAL ECONOMICS IN BUSINESS DECISION

Decision making is an integral part of today's business management. Making a decision is one of the most difficult tasks faced by a professional manager. A manager has to take several decisions in the management of business. The life of a manager is filled with making decisions alter decisions.

Decision making is a process and a decision is the product of such a process. Managerial decisions are based on the flow of information. Decision making is both a managerial function and an organisational process. Managerial function is exercised through decision making.

The purpose of decision making as well as planning is to direct human behaviour

and effort towards a future goal or objective. It is organisational in that many decisions transcend the individual manager and become the product of groups, teams, committees, etc.

Once the decision is taken it is implemented within the minimum time and cost. A study of the principles of business decisions will enable managers to understand business problems in a better perspective and increase their ability to solve business problems facing them in the management of business.

Executives make many types of decisions connected with the business such as production, inventory, cost, marketing, pricing, investment and personnel. In the long-run, application of principles of business decisions will result in successful outcomes. A good decision is one that is based on logic, considers all available data and possible alternatives and applies the quantitative approach.

Organisational decisions are those which the executive makes in his personal capacity as a manager. They include the adoption of the strategies, the framing of objectives and the approval of plans. These decisions can be delegated to the organisational members so that decisions could be implemented with their support. These decisions aim at achieving the best interests of the organisation. The basic decisions are those which are more important, they involve long-range commitment and heavy expenditure of funds.

A high degree of importance is attached to them. A serious mistake will endanger the company's existence. The selection of a location, selection of a product line, and decision relating to manage the business are all basic decisions. They are considered basic because they affect the whole organisation.

1.6.1 IMPORTANT TYPES OF BUSINESS DECISIONS

(i) *Production Decisions:*

Production is an economic activity which supplies goods and services for sale in a market to satisfy consumer wants thereby profit maximisation is made possible. The business executive has to make the rational allocation of available resources at his disposal. He may face problems relating to best combination of the factors to gain maximum profit or how to use different machine hours for maximum production advantage, etc.

(ii) *Inventory Decision:*

Inventory refers to the quantity of goods, raw material or other resources that are idle at any given point of time held by the firm. The decision to hold inventories to meet demand is quite important for a firm and in certain situation the level of inventories serves as a guide to plan production and is therefore, a strategic management variable. Large inventory of raw materials, intermediate goods and finished goods means blocking of capital.

(iii) *Cost Decisions:*

The competitive ability of the firm depends upon the ability to produce the commodity at the minimum cost. Hence, cost structure, reduction of cost and cost control has come to occupy important places in business decisions. In the absence of cost control, profits would come down due to increasing cost.

Business decisions about the future require the businessmen to choose among alternatives, and to do this, it is necessary to know the costs involved. Cost information about the resources is very essential for business decision making.

(iv) *Marketing Decisions:*

Within market planning, the marketing executive must make decisions on target market, market positioning, product development, pricing channels of distribution, physical distribution, communication and promotion. A businessman has to take mainly two different but interrelated decisions in marketing.

They are the sales decision and purchase decision. Sales decision is concerned with how much to produce and sell for maximising profit. The purchase decision is concerned with the objective of acquiring these resources at the lowest possible prices so as to maximise profit. Here the executive's basic skill lies in influencing the level, timing, and composition of demand for a product, service, organisation, place, person or idea.

(v) *Investment Decision:*

The problems of risks and imperfect foresight are very crucial for the investment decision. In real business situation, there is seldom an investment which does not involve uncertainties. Investment decision covers issues like the decisions regarding the amount of

money for capital investment, the source of financing this investment, allocation of this investment among different projects over time. These decisions are of immense significance for ensuring the growth of an enterprise on sound lines. Hence, decisions on investment are to be taken with utmost caution and care by the executive.

(vi) *Personnel Decision:*

An organisation requires the services of a large number of personnel. These personnel occupy various positions. Each position of the organisation has certain specific contributions to achieve organisational objectives. Personnel decisions cover the areas of manpower planning, recruitment, selection, training and development, performance appraisal, promotion, transfer, etc. Business executives should take personnel decisions as an essential element.

1.7 SUMMARY

Managerial economics generally refers to the integration of economic theory with business practice. Economics provides tools and managerial economics applies these tools to the management of business. In simple terms, managerial economics means the application of economic theory to the problem of management. Managerial economics may be viewed as economics applied to problem solving at the level of the firm.

It enables the business executive to assume and analyse things. Every firm tries to get satisfactory profit even though economics emphasises maximising of profit. Hence, it becomes necessary to redesign economic ideas to the practical world. This function is being done by managerial economics.

The scope of managerial economics is not yet clearly laid out because it is a developing science. Even then the following fields may be said to generally fall under Managerial Economics:

1. Demand Analysis and Forecasting
2. Cost and Production Analysis
3. Pricing Decisions, Policies and Practices
4. Profit Management

5. Capital Management

The usefulness of business economics lies in borrowing and adopting the toolkit from economic theory, incorporating relevant ideas from other disciplines to take better business decisions, serving as a catalytic agent in the process of decision making by different functional departments at the firm's level, and finally accomplishing a social purpose by orienting business decisions towards social obligations.

1.8 SELF ASSESSMENT QUESTIONS

1. Discuss the principles of managerial decision analysis?

2. State the relationship between micro economics, macro economics and managerial economics.

3. Throw light on goals and scope of economics.

1.9 SUGGESTED READINGS

- Managerial economics, Dwivedi D.N., Vikas publishing house, New Delhi.
- Managerial Economics, Mehta, P.L., S. Chand, Delhi.
- Mithani, D.M., Managerial Economics-Theory & application, Himalaya Publishing House Pvt. Ltd., New Delhi.

- Gupta, G.S., Macro Economic- Theory & Application, Tata Mcgraw Hill Publishing House, New Delhi.
- Vaish, M.C., Macro Economic Theory, Vikas Publishing House Pvt. Ltd., New Delhi.
- Mishra, S.k., and Puri, V.K., Modern Macro Economic Theory, Himalayan Publishing House.
- Edward Shapiro, Macro Economic Analysis, Tata McGraw Hill, New Delhi.
- Jhingam, M.L. & Stephen, J.K, Managerial Econbomics, Vrinda Publications Pvt. Ltd. Delhi.
- Dingra, I.C Managerial Economics, Sultan Chand, New Delhi.

UNIT-I

LESSON 2

MANAGERIAL DECISION ANALYSIS

STRUCTURE

- 2.1 INTRODUCTION
- 2.2 OBJECTIVE
- 2.3 ECONOMIC THEORY AND MANAGERIAL THEORY
- 2.4 WHY DO MANAGERS NEED TO KNOW ECONOMICS?
- 2.5 DECISION MAKING
 - 2.5.1 Contribution of Managerial Economics in Business Decision Making
- 2.6 MANAGERIAL DECISION ANALYSIS
 - 2.6.1 Principles in Managerial Economics
 - 2.6.2 Application of Economics to Business decisions- Example
 - 2.6.3 Other Economic Principles Relevant to Managerial Decisions
- 2.7 SUMMARY
- 2.8 SELF ASSESSMENT QUESTIONS
- 2.9 SUGGESTED READING

2.1 INTRODUCTION

Business Economics, also called Managerial Economics, is the application of economic theory and methodology to business. Business involves decision-making. Decision making means the process of selecting one out of two or more alternative courses of action. The question of choice arises because the basic resources such as capital, land, labour and management are limited and can be employed in alternative uses. The decision-

making function thus becomes one of making choice and taking decisions that will provide the most efficient means of attaining a desired end, say, profit maximisation. Managerial Economics applies micro-economic tools to make business decisions. It deals with a firm. The use of Managerial Economics is not limited to profit-making firms and organisations. But it can also be used to help in decision-making process of non-profit organisations (hospitals, educational institutions, etc). It enables optimum utilisation of scarce resources in such organizations as well as helps in achieving the goals in most efficient manner. Managerial Economics is of great help in price analysis, production analysis, capital budgeting, risk analysis and determination of demand. Managerial economics uses both Economic theory as well as Econometrics for rational managerial decision making. Econometrics is defined as use of statistical tools for assessing economic theories by empirically measuring relationship between economic variables. It uses factual data for solution of economic problems. Managerial Economics is associated with the economic theory which constitutes “Theory of Firm”. Theory of firm states that the primary aim of the firm is to maximise wealth. Decision making in managerial economics generally involves establishment of firm’s objectives, identification of problems involved in achievement of those objectives, development of various alternative solutions, selection of best alternative and finally implementation of the decision.

2.2 OBJECTIVES

The objectives of this lesson are:

- To provide knowledge of economic and managerial theory.
- To explain the concept of managerial decision making.
- To explain principles of managerial decision.

2.3 ECONOMIC THEORY AND MANAGERIAL THEORY

Economic Theory is a system of inter-relationships. Among the social sciences, economics is the most advanced in terms of theoretical orientations. There are well defined theoretical structures in economics. One of the most widely discussed structures is the postulational or axiomatic method of theory formulation. It insists that there is a logical core of theory consisting of postulates and their predictions which forms the basis of economic reasoning and analysis. This logical core of theory cannot easily be detached

from the empirical part of the theory. Economics has a logically consistent system of reasoning. The theory of competitive equilibrium is entirely based on axiomatic method. Both in deductive inferences and inductive generalisations, the underlying principle is the interrelationships.

Managerial theory refers to those aspects of economic theory and application which are directly relevant to the practice of management and the decision making process. Managerial theory is pragmatic. It is concerned with those analytical tools which are useful in improving decision making. Managerial theory provides necessary conceptual tools which can be of considerable help to the manager in taking scientific decisions. The managerial theory provides the maximum help to a business manager in his decision making and business planning. The managerial theoretical concepts and techniques are basic to the entire gamut of managerial theory.

Economic theory deals with the body of principles. But managerial theory deals with the application of certain principles to solve the problem of a firm. Economic theory has the characteristics of both micro and macro economics. But managerial theory has only micro characteristics. Economic theory deals with a study of individual firm as well as individual consumer. But managerial theory studies only about individual firm. Economic theory deals with a study of distribution theories of rent, wages, interest and profits. But managerial theory deals with a study of only profit theories. Economic theory is based on certain assumptions. But in managerial theory these assumptions disappear due to practical situations. Economic theory is both positive and normative in character but managerial theory is essentially normative in nature. Economic theory studies only economic aspect of the problem whereas managerial theory studies both economic and non-economic aspects.

2.4 WHY DO MANAGERS NEED TO KNOW ECONOMICS?

Economics contributes a great deal towards the performance of managerial duties and responsibilities. Just as biology contributes to the medical profession and physics to engineering, economics contributes to the managerial profession. All other professional qualifications being the same, managers with a working knowledge of economics can perform their functions more efficiently than those without it. The basic function of the managers of a business firm is to achieve the objective of the firm to the maximum possible extent with the limited resources placed at their disposal. The emphasis here is on the

maximisation of the objective and limitedness of resources. Had the resources been unlimited, the problem of recognising on the resources or resource management would have never arisen. But resources at the disposal of a firm, be it finance, men, or material, are by all means limited. Therefore, the basic task of the management is to optimise their use.

As mentioned, economics, though variously defined, is essentially the study of logic, tools and techniques of making optimum use of the available resources to achieve the given ends. Economics thus provide analytical tools and techniques that managers need to achieve the goals of the organisation they manage. Therefore, a working knowledge of economics, not necessarily a formal degree, is essential for managers. In other words, managers are essentially practicing economists.

In performing their functions, managers have to take a number of decisions in conformity with the goals of the firm. Many business decisions are taken under the conditions of uncertainty and risk. These arise mainly due to uncertain behaviour of the market forces, changing business environment, emergence of competitors with highly competitive products, government policy, international factors impacting the domestic market due to increasing globalisation as well as social and political changes in the country. The complexity of the modern business world adds complexity to business decision making. However, the degree of uncertainty and risk can be greatly reduced if market conditions are predicted with a high degree of reliability. Economics offers models, tolls and techniques to predict the future course of market conditions and business prospects.

The prediction of the future course of business environment alone is not sufficient. What is equally important is to take appropriate business decisions and to formulate a business strategy in conformity with the goals of the firm. Taking a rational business requires a clear understanding of the technical and environmental conditions related to the business issues for which decisions are taken. Application of economic theories to explain and analyse the technical conditions and the business environment contributes a good deal to rational decision-making. Economic theories have, therefore, gained a wide range of application in the analysis of practical problems of the business. With the growing complexity of business environment, the usefulness of economic theory as a tool of analysis and its contribution to the process of decision making has been widely recognised.

2.5 DECISION MAKING

Managerial economics is supposed to enrich the conceptual and technical skill of a manager. It is concerned with economic behaviour of the firm. It concentrates on the decision process, decision model and decision variables at the firm level. It is the application of economic analysis to evaluate business decisions. The primary function of a manager in business organisation is decision making and forward planning under uncertain business conditions. Some of the important management decisions are production decision, inventory decision, cost decision, marketing decision, financial decision, personnel decision and miscellaneous decisions. One of the hallmarks of a good executive is the ability to take quick decision. He must have the clarity of goals, use all the information he can get, weigh pros and cons and make fast decisions.

The decisions are taken to achieve certain objectives. Objectives are the motivating factors in taking decision. Several acts are performed to attain the objectives quantitative techniques are also used in decision making. But it may be noted that acts and quantitative techniques alone will not produce desirable results. It is important to remember that other variables such as human and behavioural considerations, technological forces and environmental factors influence the choices and decisions made by managers.

2.5.1 Contribution of Managerial Economics in Business Decision Making

Mathematical Economics and Econometrics are utilized to construct and estimate decision models useful in determining the optimal behaviour of a firm. The former helps to express economic theory in the form of equations while the latter applies statistical techniques and real world data to economic problems. Like, regression is applied for forecasting and probability theory is used in risk analysis. In addition to this, economists use various optimization techniques, such as linear programming, in the study of behavior of a firm. They have also found it most efficient to express their models of behavior of firms and consumers in terms of the symbols and logic of calculus. Thus, Managerial Economics deals with the economic principles and concepts, which constitute “Theory of the Firm”. The subject is a synthesis of economic theory and quantitative techniques to solve managerial decision problems. It is micro-economic in character. Further, it is normative since it makes value judgments, that is, it states what goals a firm should pursue. Fig. below summarises our discussion of the principal ways in which Economics relates to managerial decision-

making. Managerial Economics plays an equally important role in the management of non-business organizations such as government agencies, hospitals and educational institutions. Regardless of whether one manages the ABC hospital, Eastman Kodak or College of Fine Arts, logical managerial decisions can be taken by a mind trained in economic logic.

2.6 MANAGERIAL DECISION ANALYSIS

Managerial Economics deals with allocating the scarce resources in a manner that minimizes the cost. As we have already discussed, Managerial Economics is different from microeconomics and macro-economics. Managerial Economics has a more narrow scope - it is actually solving managerial issues using micro-economics. Wherever there are scarce resources, managerial economics ensures that managers make effective and efficient decisions concerning customers, suppliers, competitors as well as within an organization. The fact of scarcity of resources gives rise to three fundamental questions-

- a. What to produce?
- b. How to produce?
- c. For whom to produce?

To answer these questions, a firm makes use of managerial economics principles.

The first question relates to what goods and services should be produced and in what amount/quantities. The managers use demand theory for deciding this. The demand theory examines consumer behaviour with respect to the kind of purchases they would like to make currently and in future; the factors influencing purchase and consumption of a specific good or service; the impact of change in these factors on the demand of that specific good or service; and the goods or services which consumers might not purchase and consume in future. In order to decide the amount of goods and services to be produced, the managers use methods of demand forecasting.

The second question relates to how to produce goods and services. The firm has now to choose among different alternative techniques of production. It has to make decision regarding purchase of raw materials, capital equipments, manpower, etc. The managers can use various managerial economics tools such as production and cost analysis (for hiring and acquiring of inputs), project appraisal methods (for long term investment decisions),

etc for making these crucial decisions.

The third question is regarding who should consume and claim the goods and services produced by the firm. The firm, for instance, must decide which is its niche market-domestic or foreign? It must segment the market. It must conduct a thorough analysis of market structure and thus take price and output decisions depending upon the type of market.

Managerial economics helps in decision-making as it involves logical thinking. Moreover, by studying simple models, managers can deal with more complex and practical situations. Also, a general approach is implemented. Managerial Economics take a wider picture of firm, i.e., it deals with questions such as what is a firm, what are the firm's objectives, and what forces push the firm towards profit and away from profit. In short, managerial economics emphasises upon the firm, the decisions relating to individual firms and the environment in which the firm operates. It deals with key issues such as what conditions favour entry and exit of firms in market, why are people paid well in some jobs and not so well in other jobs, etc. Managerial Economics is a great rational and analytical tool.

Managerial Economics is not only applicable to profit-making business organizations, but also to non-profit organisations such as hospitals, schools, government agencies, etc.

2.6.1 Principles in Managerial Economics

Economic principles assist in rational reasoning and defined thinking. They develop logical ability and strength of a manager. Some important principles of managerial economics are:

1. Marginal and Incremental Principle: This principle states that a decision is said to be rational and sound if given the firm's objective of profit maximisation, it leads to increase in profit, which is in either of two scenarios-

- If total revenue increases more than total cost.
- If total revenue declines less than total cost.

Marginal analysis implies judging the impact of a unit change in one variable on the

other. Marginal generally refers to small changes. Marginal revenue is change in total revenue per unit change in output sold. Marginal cost refers to change in total costs per unit change in output produced (While incremental cost refers to change in total costs due to change in total output). The decision of a firm to change the price would depend upon the resulting impact/change in marginal revenue and marginal cost. If the marginal revenue is greater than the marginal cost, then the firm should bring about the change in price.

Incremental analysis differs from marginal analysis only in that it analysis the change in the firm's performance for a given managerial decision, whereas marginal analysis often is generated by a change in outputs or inputs. Incremental analysis is generalisation of marginal concept. It refers to changes in cost and revenue due to a policy change. For example - adding a new business, buying new inputs, processing products, etc. Change in output due to change in process, product or investment is considered as incremental change. Incremental principle states that a decision is profitable if revenue increases more than costs; if costs reduce more than revenues; if increase in some revenues is more than decrease in others; and if decrease in some costs is greater than increase in others.

2. Equi-marginal Principle: Marginal Utility is the utility derived from the additional unit of a commodity consumed. The laws of equi-marginal utility states that a consumer will reach the stage of equilibrium when the marginal utilities of various commodities he consumes are equal. According to the modern economists, this law has been formulated in form of law of proportional marginal utility. It states that the consumer will spend his money-income on different goods in such a way that the marginal utility of each good is proportional to its price, i.e.,

$$MU_x / P_x = MU_y / P_y = MU_z / P_z$$

Where, MU represents marginal utility and P is the price of good.

Similarly, a producer who wants to maximize profit (or reach equilibrium) will use the technique of production which satisfies the following condition:

$$MRP_1 / MC_1 = MRP_2 / MC_2 = MRP_3 / MC_3$$

Where, MRP is marginal revenue product of inputs and MC represents marginal cost.

Thus, a manger can make rational decision by allocating/hiring resources in a

manner which equalizes the ratio of marginal returns and marginal costs of various use of resources in a specific use.

3. Opportunity Cost Principle: By opportunity cost of a decision is meant the sacrifice of alternatives required by that decision. If there are no sacrifices, there is no cost. According to Opportunity cost principle, a firm can hire a factor of production if and only if that factor earns a reward in that occupation/job equal or greater than its opportunity cost. Opportunity cost is the minimum price that would be necessary to retain a factor-service in its given use. It is also defined as the cost of sacrificed alternatives. For instance, a person chooses to forgo his present lucrative job which offers him Rs.50000 per month, and organizes his own business. The opportunity lost (earning Rs. 50,000) will be the opportunity cost of running his own business.

4. Time Perspective Principle: According to this principle, a manager/decision maker should give due emphasis, both to short-term and long-term impact of his decisions, giving apt significance to the different time periods before reaching any decision. Short-run refers to a time period in which some factors are fixed while others are variable. The production can be increased by increasing the quantity of variable factors. While long-run is a time period in which all factors of production can become variable. Entry and exit of seller firms can take place easily. From consumers point of view, short-run refers to a period in which they respond to the changes in price, given the taste and preferences of the consumers, while long-run is a time period in which the consumers have enough time to respond to price changes by varying their tastes and preferences.

5. Discounting Principle: According to this principle, if a decision affects costs and revenues in long-run, all those costs and revenues must be discounted to present values before valid comparison of alternatives is possible. This is essential because a rupee worth of money at a future date is not worth a rupee today. Money actually has time value. Discounting can be defined as a process used to transform future dollars into an equivalent number of present dollars. For instance, \$1 invested today at 10% interest is equivalent to \$1.10 next year.

$$FV = PV \cdot (1+r)^t$$

Where, FV is the future value (time at some future time), PV is the present value (value at t_0), r is the discount (interest) rate, and t is the time between the future value and

present value.

2.6.2 Application of Economics to Business decisions- Example

We have discussed above how economics can contribute to business decision making. Business decision making is essentially a process of selecting the best out of alternative opportunities open to the firm. The process of decision making comprises four main phases:

- a) Determining and defining the objective to be achieved;
- b) Collections and analysis of business related data and other information regarding economic, social, political and technological environment and foreseeing the necessity and occasion for decision making;
- c) Inventing, developing and analysing possible courses of action; and
- d) Selecting a particular course of action, from the available alternatives.

This process of decision making is, however, not as simple as it appears to be. Step (ii) and (iii) are crucial in business decision making. These steps put managers' analytical ability to test and determine the appropriateness and validity of decisions in the modern business world. Modern business conditions are changing so fast and becoming so competitive and complex that personal sense, intuition and experience alone may not prove sufficient to make appropriate business decisions.

2.6.3 Other Economic Principles Relevant to Managerial Decisions

Some other key economic principles that are relevant to managerial decisions are:

1) Division of Labour

I put the division of labour first mainly because Adam Smith did argue that division of labour is the key cause of improving standards of living. Modern economics doesn't do much with the concept of division of labour, but two closely related concepts are important:

Returns to Scale: Returns to scale may be increasing, constant or decreasing. Increasing returns to scale is the case that leads to special results, and division of labor is one cause (arguably the main cause) of increasing returns to scale.

Virtuous Circles in Economic Growth: For Smith, a major consequence of division of labour and resulting increasing productivity was a “virtuous circle” of continuing growth. Modern “virtuous circle” theories have more dimensions, but division of labour and increasing returns to scale are among them.

2) Market Equilibrium

The market equilibrium model could be broken down into several principles-the definitions of supply, demand, quantity supplied and demanded and equilibrium, at least-but these all complement one another so strongly that there is not much profit in taking them separately.

However, there are many applications and at least four important subsidiary principles:

Elasticity and Revenue: These ideas are a key to understanding how market changes transform society.

The Entry Principle: This tells us that, when entry into a field of activity is free, profits (beyond opportunity costs) will be eliminated by increasing competition. This has a somewhat different significance depending on whether competition is “perfect” or monopolistic.

Cobweb Adjustment: This might give the explanations when the market does not move smoothly to equilibrium, but overshoots.

Competition vs. Monopoly: Why economists tend to think highly of competition, and lowly of monopoly.

3) Diminishing Returns

Perhaps the best-known of major economic principles, the Principle of Diminishing Returns is much more reliable in short-run than in long-run applications, so the Long Run/Short Run dichotomy is an important subsidiary principle. Modern economists think of diminishing returns mainly in marginal terms, so marginal analysis and the equi-marginal principle are closely associated.

4) Game Equilibrium

Game theory allows strategy to be part of the story. One result is that we have to allow for

several kinds of equilibriums.

Non-cooperative equilibrium

- (a) Prisoners' Dilemma (dominant strategy) equilibrium
- (b) Nash (best response) equilibrium, (but not all Nash equilibrium are dominant strategy equilibrium),

Cooperative equilibrium

Oligopoly

5) Measurement Principles

Economics is multidimensional, and that creates some difficulties in measuring things like production, incomes, and price levels. Some of the problems can be solved more or less fully.

Value Added and Double Counting: One for which we have a pretty complete solution is the problem of double counting: the solution is, use value added.

“Real” Values and Index Numbers: Since we measure production and related quantities in dollar terms, we have to correct for inflation. Index numbers are a pretty good workable solution, but there are some problems and criticisms.

Measurement of Inequality: Another issue is that the “average income” may not mean very much, because nobody is average and income is unequally distributed. Even if we cannot correct for that we can get a rough measure of the relative inequality and see where it is going.

6) Medium of Exchange

Money is whatever is generally acceptable as a medium of exchange. That means a bank, or similar institution, can literally create money, so long as people trust the bank enough to accept its paper as a medium of exchange. We might call this magical fact the Fiduciary Principle.

7) Income-Expenditure Equilibrium

Like the market equilibrium principle, but even more so, this model pulls together

a number of subsidiary principles that complement one another and together constitute the “Keynesian” theory of aggregate demand. The implications of this theory are less controversial than the word “Keynesian” is -controversy has to do more with the details than the applications.

Among the subsidiary principles are

1. Coordination Failure
2. The income-consumption relationship
3. The Multiplier
4. Unplanned inventory investment
5. Fiscal Policy
6. The Marginal Efficiency of Investment
7. The influence of money on interest
8. Real Money Balances
9. Monetary Policy

8) Surprise Principle

People respond differently to the same stimuli if the stimuli come as a surprise than they would if the stimuli do not come as a surprise. This new economic principle plays the key role with respect to aggregate supply that “Income-Expenditure Equilibrium” plays with respect to aggregate demand.

Rational Expectations: People don’t want too many unpleasant surprises. If they use the information available to them efficiently, then they won’t be surprised in the same way very often. This can lead to:

- (a) *Policy ineffectiveness*
- (b) *Permanence*
- (c) *Path Dependence.*

2.7 SUMMARY

Managerial economics is a science applied to decision making. It bridges the gap between abstract theory and managerial practice. It concentrates more on the method of reasoning. In short, managerial economics is “Economics applied in decision making”. The primary function of management executive in a business organisation is decision making and forward planning. Decision making and forward planning go hand in hand with each other. Decision making means the process of selecting one action from two or more alternative courses of action. Forward planning means establishing plans for the future to carry out the decision so taken. The problem of choice arises because resources at the disposal of a business unit (Land, Labour, capital, and managerial capacity) are limited and the firm has to make the most profitable use of these resources. The decision making function is that of the business executive, he takes the decision which will ensure the most efficient means of attaining a desired objective, say profit maximisation. After taking the decision about the particular output, pricing, capital, raw-materials and power etc., are prepared. Forward planning and decision-making thus go on at the same time. A business manager’s task is made difficult by the uncertainty which surrounds business decision-making. Nobody can predict the future course of business conditions. He prepares the best possible plans for the future depending on past experience and future outlook and yet he has to go on revising his plans in the light of new experience to minimise the failure. Managers are thus engaged in a continuous process of decision-making through an uncertain future and the overall problem confronting them is one of adjusting to uncertainty.

2.8 SELFASSESSMENT QUESTIONS

1. What is economic theory? How it is different from managerial theory?

2. Explain the concept of managerial decision analysis?

3. Discuss the principles followed in decision making.

4. Give the importance of managerial economics in business decision making.

2.8 SUGGESTED READINGS

- Dwivedi D.N., Managerial Economics, Vikas Publishing House, New Delhi.
- Mithani, D.M., Managerial Economics-Theory & Application, Himalaya Publishing House Pvt. Ltd., New Delhi.
- Shapiro Edward, Macro Economic Analysis, Tata McGraw Hill, New Delhi.
- Dingra, I.C., Managerial Economics, Sultan Chand, New Delhi.

UNIT I

LESSON 3

MANAGERIAL ECONOMICS-A POSITIVE OR NORMATIVE SCIENCE

STRUCTURE

- 3.1 INTRODUCTION
- 3.2 OBJECTIVE
- 3.3 METHODOLOGY OF ECONOMICS
- 3.4 GOALS OF ECONOMICS
- 3.5 MANAGERIAL ECONOMICS- POSITIVE OR NORMATIVE SCIENCE
- 3.6 IMPORTANCE OF ECONOMICS IN OUR LIFE
- 3.7 CENTRAL PROBLEMS OF AN ECONOMY
- 3.8 SUMMARY
- 3.9 SELF ASSESSMENT QUESTIONS
- 3.10 SUGGESTED READINGS

3.1 INTRODUCTION

We observe that there are different types of people or stakeholders who use economics in different ways. For example, a practising economist or a policy practitioner uses economic tools and information to make any suggestion or critical analysis. Generally, such people use economic theories and tools for proper understanding and specific forecasting of economic variables. It is because use of economic sciences is generally for proper decision making and accuracy in economic forecasting. Thus, positive statements are about facts. They state what the reality is. To be specific, economics is strictly positive in character and is concerned with merely positive statements. Since positive statements are about facts, any disagreement over such statement or analysis can be handled properly only by use of facts and their analysis. Thus, positive economics is one that deals with the

real life situations or the facts or evidences. Any inferences are derived and disputed based upon such facts and analysis only. Normative economics is based on the normative statements. Normative statements are concerned with what are to be? In this case, economics is not concerned with real life experiences rather, it is concerned with, how things should operate. As against the positive economics, the normative economics cannot be challenged based upon any fact. For example, if a political leader projects his party's vision in election that the unemployment rate should be brought down to 2.0 per cent, this statement is not based upon any analysis or fact, rather it is desire or the wish or the norm applied by the particular political party. Now, if the political party comes to the power the policy maker must tune the system to realise this target. Despite there being differences between positive economics and normative economics, economics is a science having both positive and normative aspects. It is more so because economics is a social science.

According to Ross D. Eckert and Richard H. Leftwich, (1988), "Economic policy-making-conscious intervention in economic activity with the intent of altering the course that it will take-is essentially normative in character. But if economic policy-making is to be effective in improving economic well-being, it must obviously be rooted in sound positive economic analysis. Policy-makers should be cognised of the full range of consequences of the policies they recommend." ("The Price System and Resource Allocation", New York, 10th edition, p. 10) According to Samuelson and Nordhaus, (2000), positive and normative economics may be interpreted as under. "Positive economics deals with questions such as: why do doctors earn more than janitors? Does free trade raise or lower wages for most Americans? ... Although these are difficult questions to answer, they can all be resolved by reference to analysis and empirical evidence. That puts them in the realm of positive economics." "Normative economics involves ethical precepts and norms of fairness. Should poor people be required to work if they are to get government assistance? Should unemployment be raised to ensure that price inflation does not become too rapid? ... There are no right or wrong answers to these questions because they involve ethics and values rather than facts. They can be resolved only by political debate and decisions, not by economic analysis alone."

3.2 OBJECTIVES

The objectives of this lesson are to explain the:

- Positive and Normative science of economics.

- Inductive and deductive methods of economics.

3.3 METHODOLOGY OF ECONOMICS

Economics is also like a science but it is a social science. It deals mainly with the human behaviour. Therefore, many economists argue that economics can not be as precise a science as the natural sciences like physics, chemistry etc. The latter can be studied in the laboratory conditions where variables can be easily controlled during experiments. However, social sciences like economics cannot be easily controlled. Still over a period of time economic sciences have gained maturity to develop its methodology which is proving now to be quite efficient and such methodologies can be used for efficient analysis of the economic relationships and predictions can be made with sufficient accuracy that generate a sense of confidence and faith. There are two broad methods used in the economic sciences.

1. The deductive method
2. The inductive method

1. *The deductive method*: This method involves going from general to particular. Certain hypotheses or postulates regarding human behaviour are taken to be true and then with the help of logical reasoning and examination, Nature and Scope of Economics.

Here in this lesson we try to figure out the cause and effect relationship between the factors under consideration. The following steps are involved in the deductive method.

I. Firstly, a problem needs to be identified and then it should be properly specified for the study.

II. The assumptions required in the study should be clear. Appropriate assumptions are crucial in economic analysis.

III. After specifying the assumptions, hypotheses should be clearly framed. The hypothesis formulation requires likely relationship among the different economic variables.

IV. In the last phase, hypotheses should be tested through different tools like mathematical economics and econometrics.

V. Based on the above analysis proper inference needs to be derived for specific

economic decision making.

2. *The inductive method*: Although deductive method has strong points of merit to depend upon, this methodology seems to suffer from certain weaknesses. Therefore, economists belonging to the historical school and many other economists have favoured the inductive or empirical method.

The method of induction involves going from particular to general. Here the appeal is to facts, rather than reasoning and an attempt is made to arrive at conclusions from the known facts of actual life. The inductive method required the following steps:

I. The first step, as under the deductive method, is selecting and specifying the problem that is to be studied.

II. The second step involves collection of data pertaining to the problem selected for study.

III. The stage of collection is followed by classification and then analysis of the data by appropriate statistical techniques.

IV. The fourth stage is that of 'inference', *i.e.* drawing conclusions from the statistical analysis conducted. The conclusions are presented in the form of economic generalisation.

3.4 ECONOMIC GOALS

Any science moves with certain goals to be achieved. Economics has become now a crucial branch of knowledge. Being a social science it keeps on revising its goals from time to time. The list might be quite large, but we would like to focus only on certain major goals of economics as given under:

1. *A low rate of unemployment*: People willing to work should be able to find jobs reasonably quickly. Widespread unemployment is demoralising and it represents an economic waste. Society forgoes the goods and services that the unemployed could have produced.
2. *Price stability*: It is desirable to avoid rapid increases-or decreases- in the average level of price.
3. *Efficiency*: When we work, we want to get as much as we reasonably can take out of

our productive efforts. For this, efficient technology becomes quite useful.

4. *An equitable distribution of income*: When many live in affluence, no group of citizens should suffer stark poverty. Given this, developing countries are strategising goals like participatory growth and inclusive growth.
5. *Growth*: Continuing growth, which would make possible an even higher standard of living in the future, is generally considered an important objective.
6. *Economic freedom and choice*: Any economy should grow and develop in such a manner that people should get more choices and there should not be any outside pressure on their choices.
7. *Economic welfare*: Economic policies should be pursued in such a manner that welfare of the people or the social benefits get maximised.
8. *Sustainable development*: It has become a major challenge for economists to carry on the process of economic growth in such a manner that the resources are optimally utilized not only for intergenerational equity but also for sustainable development in quite long run.

3.5 MANAGERIAL ECONOMICS- A POSITIVE OR NORMATIVE SCIENCE

Most of the managerial economists are of the opinion that managerial economics is fundamentally normative and prescriptive in nature. It is concerned with what decisions ought to be made. The application of managerial economics is inseparable from consideration of values or norms, for it is always concerned with the achievement of objectives or the optimisation of goals. In managerial economics, we are interested in what should happen rather than what does happen. Instead of explaining what a firm is doing, we explain what it should do to make its decision effective.

Positive Economics:

A positive science is concerned with 'what is'. Robbins regards economics as a pure science of what is, which is not concerned with moral or ethical questions. Economics is neutral between ends. The economist has no right to pass judgment on the wisdom or folly of the ends itself.

He is simply concerned with the problem of resources in relation to the ends desired. The manufacture and sale of cigarettes and wine may be injurious to health and therefore morally unjustifiable, but the economist has no right to pass judgment on these since both satisfy human wants and involve economic activity.

Normative Economics:

Normative economics is concerned with describing what should be the things. It is, therefore, also called prescriptive economics. What price for a product should be fixed, what wage should be paid, how income should be distributed and so on, fall within the purview of normative economics?

It should be noted that normative economics involves value judgments. Almost all the leading managerial economists are of the opinion that managerial economics is fundamentally normative and prescriptive in nature.

It refers mostly to what ought to be and cannot be neutral about the ends. The application of managerial economics is inseparable from consideration of values, or norms for it is always concerned with the achievement of objectives or the optimisation of goals.

Managerial economists are generally preoccupied with the optimum allocation of scarce resources among competing ends with a view to obtaining the maximum benefit according to predetermined criteria.

To achieve these objectives they do not assume *ceteris paribus*, but try to introduce policies. The very important aspect of managerial economics is that it tries to find out the cause and effect relationship by factual study and logical reasoning. The scope of managerial economics is so wide that it embraces almost all the problems and areas of the manager and the firm.

3.6 IMPORTANCE OF ECONOMICS IN OUR LIFE

Economics is the study of how finite resources are consumed by demand, according to the costs imposed by their supply in relation to that demand. In other words, economics tells us that a freeze in Florida that damages the orange crop will cause the price of orange juice to change and how the price will modify demand over time.

Modern economic theory is said to have originated in “The Wealth of Nations,” a

book written by Scottish scholar Adam Smith in 1776. The theory holds that rational self interest pursued by individuals and businesses in a free market society leads to optimal economic conditions.

The study of economics helps formulate an understanding of the effects of financial actions and reactions by individuals and institutions. This understanding allows the projection of future economic conditions based on current indications.

An understanding of economics assists governments in managing macroeconomic conditions such as limiting a recession by inducing recovery. However, economic theory is not foolproof because it is a social science based on the interplay between culture and money. Economic effects change as cultural customs change.

3.7 CENTRAL PROBLEMS OF AN ECONOMY

Every economy faces some problems. These problems are associated with growth, business cycles, unemployment and inflation. The macroeconomic theory is designed to explain how supply and demand in the aggregate interact to concern with these four problems. Economists treat these very important national problems as macroeconomic problems - that is, as problems that could not be understood or solved without an understanding of the workings of the economic system as a whole. The four distinctively macroeconomic problems are:

- 1. Recession*
- 2. Unemployment*
- 3. Inflation*
- 4. Economic Growth or Stagnation*

A. Recessions, Depressions and Economic Fluctuations

The event that created modern macroeconomics was called “the Great Depression,” but the general term for decreasing national production, in modern economics, is a recession.

But why do economists regard a recession as a problem?

It is not self-evident that a drop in production is a bad thing. For example, it might be that people want to enjoy more leisure, and spend less time producing goods and

services. If production dropped for that reason, we would have no reason to think of it as an economic problem. But, in some periods of recession, we have evidence that this was not what happened. In many recession periods, businesses that announced they were hiring had long lines of people who wanted to apply, with many more people than they could hire. This suggests that the people standing in line for a job had more leisure than they wanted, and would have preferred jobs and income to buy more goods and services. In the 1930's, some people sold apples or pencils in the street to get a little income, typically much less than they would have had in their old jobs. Again, this suggests that people had too much leisure and would have preferred more work and income. If this is so, then it seems that something was going wrong. In different terms, it seemed that the recession had caused unemployment. Another possibility is that production might drop because a war or disaster had destroyed factories and other capital goods. But, in 1933, it seems very unlikely that the productive capacity of the economy could have dropped by 30%. There had been no war. And in fact, factories had been closed that could have been reopened and put to work, at the same time as many people were looking for work. Perhaps these circumstances show why the recession is regarded as a major economic problem.

B. Unemployment

Our second macroeconomic problem is unemployment. This problem is highly correlated with recession, but is distinct, and we need to look at it in its own terms. Unemployment occurs when a person is available to work and currently seeking work, but the person is without work. The prevalence of unemployment is usually measured using the unemployment rate, which is defined as the percentage of those in the labour force who are unemployed.

Economists distinguish between various types of unemployment. For example, cyclical, frictional, structural and classical, seasonal, hardcore and hidden. Real-world unemployment may combine different types. The magnitude of each of these is difficult to measure, partly because they overlap.

Unemployment is a status in which individuals are without job and are seeking a job. It is one of the most pressing problems of any economy especially the underdeveloped ones. This has macroeconomic implications too some of which are discussed below:

Reduction in the Output: The unemployed workforce could be utilised for the production of goods and services. Since they are not doing so, the economy is losing out on its output.

Reduction in Tax Revenue: Since income tax is an important part of the revenue for the government. The unemployed are unable to earn, the government loses out on the income tax revenue.

Rise in the Government Expenditure: The government has to give unemployment insurance benefits to the claimants. Hence the government will lose from both sides in terms of unemployment benefits and loss of tax revenue.

C. Inflation

In economics, inflation is a rise in the general level of prices of goods and services in an economy over a period of time. A rising price level – inflation- has the following disadvantages:

1. It creates uncertainty, in that people do not know what the money they earn today will buy tomorrow.
2. Uncertainty, in turn, discourages productive activity, saving and investing.
3. Inflation reduces the competitiveness of the country in international trade. If this is not offset by a devaluation of the national currency against other currencies, it makes the country's exports less attractive, and makes imports into the country more attractive, which in turn tends to create unbalance in trade.
4. Inflation is a hidden tax on "nominal balances." That is, people who hold bonds and bank accounts in dollars lose the value of those accounts when the price level rises, just as if their money had been taxed away.
5. The inflation tax is capricious-some lose by it and some do not without any good economic reason.
6. As the purchasing power of the monetary unit becomes less predictable, people resort to other means to carry out their business, means which use up resources and are inefficient.

D. Economic Growth or Stagnation

Stagnation is a period of many years of slow growth of gross domestic product, in which the growth is, on the average, slower than the potential growth in the economy.

Causes of Stagnation

1. Population growth might high.
2. Fewer people might choose to work.
3. The growth of labour productivity might slow.

Stagnation is economic growth that, while positive, is less than the potential growth of the economy. Some economists believe that stagnation is a serious problem and a cause of other problems, but since identification of stagnation depends on one's idea of the potential, it remains controversial whether the slowing we see is stagnation or a reduction of the potential.

3.8 SUMMARY

Traditional economic theory has developed along two lines; viz., normative and positive. Normative focuses on prescriptive statements, and help establish rules aimed at attaining the specified goals of business. Positive, on the other hand, focuses on description it aims at describing the manner in which the economic system operates without staffing how they should operate. The emphasis in business economics also known as managerial economics is on normative theory. Business economics seeks to establish rules which help business firms attain their goals, which indeed is also the essence of the word normative. However, if the firms are to establish valid decision rules, they must thoroughly understand their environment. This requires the study of positive or descriptive theory. Thus, managerial economics combines the essentials of the normative and positive economic theory, the emphasis being more on the former than the latter.

3.9 SELFASSESSMENT QUESTIONS

1. What is meant by business environment? What branch of economics is related to the environment issues of private business?

-
-
2. What are basic functions of business managers? How does economics help business managers in performing their functions?

-
-
3. Differentiate between positive economics and normative economics.

3.10 SUGGESTED READINGS

- Managerial economics, Dwivedi D.N., Vikas Publishing house, New Delhi.
- Mishra, S.K., and Puri, V.K., Modern Macro Economic Theory, Himalayan Publishing house.
- Edward Shapiro, Macro Economic Analysis, Tata McGraw Hill, New Delhi.
- Jhingam, M.L. & Stephen, J.K, Managerial Economics, Vrinda Publications Pvt. Ltd. Delhi.
- Dingra, I.C., Managerial economics, Sultan Chand, New Delhi.

Unit-I

LESSON 4

APPROACHES TO MANAGERIAL DECISIONS

STRUCTURE

- 4.1 INTRODUCTION
- 4.2 OBJECTIVES
- 4.3 ROLE OF A MANAGERIAL ECONOMIST
- 4.4 RESPONSIBILITIES OF A MANAGERIAL ECONOMIST
- 4.5 TECHNIQUES OR APPROACHES TO MANAGERIAL DECISION MAKING
 - 4.5.1 Scientific Method
 - 4.5.2 The Statistical Method
 - 4.5.3 Method of Intellectual Experiment
 - 4.5.4 Method of Simulation
 - 4.5.5 Historical Method
 - 4.5.6 DESCRIPTIVE METHOD
- 4.6 SUMMARY
- 4.7 SELF ASSESSMENT QUESTIONS
- 4.8 SUGGESTED READINGS

4.1 INTRODUCTION

Decision making is an essential part of planning. Decision making and problem solving are used in all management functions, although usually they are considered a part of the planning phase. A discussion of the origins of management science leads into one on modeling, the five-step process of management science, and the process of engineering

problem solving. Managerial decision making is the process of making a conscious choice between two or more rational alternatives in order to select the one that will produce the most desirable consequences (benefits) relative to unwanted consequences (costs). If there is only one alternative, there is nothing to decide. In this lesson, we consider the process of developing and evaluating alternatives and selecting from among them the best alternative, and we review briefly some of the tools of management science available to help us in this evaluation and selection. If planning is truly “deciding in advance what to do, how to do it, when to do it, and who is to do it” (as proposed by Amos and Sarchet¹), then decision making is an essential part of planning. Decision making is also required in designing and staffing an organisation, developing methods of motivating subordinates, and identifying corrective actions in the control process. However, it is conventionally studied as part of the planning function, and it is discussed here.

4.2 OBJECTIVES

After reading this Lesson, you will be able:

- To discuss how decision making relates to planning.
- To explain the process of problem solving.
- To discuss the differences between decision making under certainty, risk, and uncertainty.
- To describe decision-making techniques.

4.3 ROLE OF A MANAGERIAL ECONOMIST

With the advent of managerial revolution and transition from the owner- manager to the professional executive, the managerial economists have occupied an important place in modern business. In real practice, firms do not behave in a deterministic world.

They strive to attain a multiplicity of objectives. Economic theory makes a fundamental assumption of maximising profits as the basic objective of every firm. The application of pure economic theory seldom leads us to direct executive decisions.

Present business problems are either too obvious in their solution or purely speculative and they need a special form of insight. A managerial economist with his sound knowledge of theory and analytical tools can find out solution to the business problems. In

advanced countries, big firms employ managerial economists to assist the management.

Organisationally, a managerial economist is placed nearer to the policy maker simple because his main role is to improve the quality of policy making as it affects short term operation and long range planning. He has a significant role to play in assisting the management of a firm in decision making and forward planning by using specialised skills and techniques.

The factors which influence the business over a period are:

- (i) External and (ii) Internal.

The external factors lie outside the control of the firm and these factors constitute 'Business Environment'. The internal factors lie within the scope and operation of a firm and they are known as 'Business Operations'.

1. External Factors

The prime duty of a managerial economist is to make extensive study of the business environment and external factors affecting the firm's interest, viz., the level and growth of national income, influence of global economy on domestic economy, trade cycle, volume of trade and nature of financial markets, etc. They are of great significance since every business firm is affected by them.

These factors have to be thoroughly analysed by the managerial economist and answers to the following questions have also to be found out:

- (i) What are the current trends in the local, regional, national and international economies? What phase of trade cycle is going to occur in the near future?
- (ii) What about the change in the size of population and the resultant change in regional purchasing power?
- (iii) Is competition likely to increase or decrease with reference to the products produced by the firm?
- (iv) Are fashions, tastes and preferences undergoing any change and have they affected the demand for the product?
- (v) What about the availability of credit in the money and capital markets?

- (vi) Is there any change in the credit policy of the government?
- (vii) What are the strategies of five year plan? Is there any special emphasis for industrial promotion?
- (viii) What will be the outlook of the government regarding its commercial and economic policies?
- (ix) Will the international market expand or contract and what are the provisions given by the trade organisations?
- (x) What are the regulatory and promotional policies of the central bank of a country?

Answer to these and similar questions will throw more light on the perspective business and these questions present some of the areas where a managerial economist can make effective contributions through scientific decision making. He infuses objectivity, broad perspective and concept of alternatives into decision making process.

His focus on long term trends helps maximise profits and ensures the ultimate success of the firm. The role of the managerial economist is not to take decisions but to analyse, conclude and recommend. His basic role is to provide quantitative base for decision making. He should concentrate on the economic aspects of problems. He should have a rare intuitive ability of perception.

2. Internal Factors

The managerial economist can help the management in making decision regarding the internal operations of a firm in respect of such problems as cost structure, forecasting of demand, price, investment, etc.

Some of the important relevant questions in this connection are as follows:

- (i) What should be the production schedule for the coming year?
- (ii) What should be the profit budget for the coming year?
- (iii) What type of technology should be adopted in the specific process and specify it?
- (iv) What strategies have to be adopted for sales promotion, inventory control and utilisation of manpower?

- (v) What are the factors influencing the input cost?
- (vi) How different input components can be combined to minimise the cost of production?

Apart from the above studies, the managerial economist has to perform certain specific functions. He helps to co-ordinate practices relating to production, investment, price, sales and inventory schedules of the firm. Forecasting is the fundamental activity which consumes most of the time of the managerial economist.

The sales forecast acts as a link between the external uncontrollable factors and the internal controllable factors and are intimately related to general economic activity. The managerial economist is usually assigned the task of preparing short term general economic and specific market forecasts to provide a framework for the development of sales and profit. He has to help the firm to plan product improvement, new product policy, and pricing and sales promotion strategy.

The managerial economist often needs focused studies of specific problems and opportunities. He should indulge in market survey, a product preference test, an advertising effectiveness study and marketing research. Marketing research is undertaken to understand a marketing problem better.

The managerial economist has to undertake an economic analysis of competing firms. He should also under-take investment appraisal, project evaluation and feasibility study. It is the duty of the managerial economist to provide necessary intelligence.

To conclude, a managerial economist has a very important role to play. He should be held in the confidence of the management. A managerial economist can serve the management best only if he always keeps in mind the main objective of his firm, which is to make a profit.

4.4 RESPONSIBILITIES OF A MANAGERIAL ECONOMIST

The managerial economist can play a very important role by assisting management in using the increasingly specialised skills and sophisticated techniques which are required to solve the different problems of successful decision making and forward planning.

The functions of a managerial economist can be broadly defined as the study and interpretation of economic data in the light of the problems of the management. The

managerial economist should be in a position to spare more time and thought on problems of an economic nature than the firm's administration. His job may involve a number of routine duties closely tied in with the firm's day to day activities.

The managerial economist is employed primarily as a general adviser. The advisory service refers to the opportunities open to the managerial economist because of the growing role of government in business life. He is responsible for the working of the whole business concern. The most important obligations of a managerial economist is that his objective must coincide with that of the business. Traditionally, the basic objective of business has been defined in terms of profit maximisation.

As a managerial economist, he must do something more than routine management to earn profit. He cannot expect to succeed in serving management unless he has a strong conviction which helps him in enhancing the ability of the firm. The other most important responsibility of a managerial economist is to try to make as accurate forecast as possible. The managerial economist has to forecast not only the various components of the external business picture, but he has also to forecast the various phases of company's activity, that is the internal picture of the company.

The managerial economist should recognise his responsibilities to make successful forecast. By making the best possible forecasts, the management can follow a more closely course of business planning. Yet another responsibility of the managerial economist is to bring about a synthesis of policies pertaining to production, investment, inventories, price and cost. Production is an organised activity of transforming inputs into output. The process of production adds to the values or creation of utilities. The money expenses incurred in the process of production constitute the cost of production. Cost of production provides the floor, to pricing. It provides a basis for managerial decision.

There are several areas which have attracted the attention of the managerial economist, such as maximising profit, reducing stocks, forecasting sales, etc. If the inventory level is very low, it hampers production. A managerial economist's first responsibility, therefore, is to reduce his stocks, for a great deal of capital is unprofitably tied up in the inventory. The managerial economist's contribution will be adequate only when he is a member of full status in the business team. The managerial economist should make use of his experience and facts in deciding the nature of action.

He should be ready to undertake special assignments with full seriousness. The managerial economist can put even the most sophisticated ideas in simple language and avoid hard technical terms. It is also the managerial economist's responsibility to alert the management at the earliest possible moment in case he discovers an error in his forecast. By this way, he can assist the management in adopting appropriate adjustment in policies and programmes. He must be alert to new developments both economic and political in order to appraise their possible effects on business. The managerial economist should establish and maintain many contacts and data sources which would not be immediately available to the other members of management. For this purpose, he should join professional and trade associations and take an active part in them.

To conclude, a managerial economist should enlarge the area of certainty. To discharge his role successfully, he must recognise his responsibilities and obligations. No one can deny that the managerial economist contributes significantly to the profitable growth of the firm through his realistic attitude.

4.5 TECHNIQUES OR APPROACHES TO MANAGERIAL DECISION MAKING

Six most important methods used by managerial economics to explain and solve business problems of a firm are:

4.5.1 SCIENTIFIC METHOD

Scientific method is a branch of study which is concerned with observed facts systematically classified and which includes trustworthy method for the discovery of truths. It refers to a procedure or mode of investigation by which scientific and systematic knowledge is acquired.

The method of enquiry is a very important aspect of science, perhaps this is the most significant feature. Scientific method alone can bring about confidence in the validity of conclusions. It concentrates on controlled experiments and investigates the behaviour of preconceived elements in a highly simplified environment.

The experimental method may be usefully applied to those aspects of managerial behaviour which call for accurate and logical thinking. The experimental methods are of limited use to managerial economics. A managerial economist cannot apply experimental

methods to the same extent and in the same way as a physicist can in physical sciences.

We usually adopt an inductive as well as deductive approach in any analysis of managerial behaviour. The deductive method begins with postulates and hypotheses which are arbitrary. For the rationalists, there stands at the head of the system, a set of self-evident propositions and it is from these that other propositions (theorems) are derived by the process of reasoning.

At the other end are inductionist (empiricists) who believe that science must construct its axioms from the same data and particularly by ascending continually and gradually till it finally arrives at the most general axioms.

It is often asked what the method of science is, whether induction or deduction? The proper answer to this is, both. Both the methods are interdependent and hold an equally important place in any scientific analysis.

4.5.2 THE STATISTICAL METHOD

Statistical methods are a mechanical process especially designed to facilitate the condensation and analysis of the large body of quantitative data. The aim of statistical method is to facilitate comparison, study relationships between the two phenomena and to interpret the complicated data for the purpose of analysis.

Many a time comparison has to be made between the changes and results which are due to changes in time, frequency of occurrence, and many other factors. Statistical methods are used for such comparison among past, present and future estimates.

For example, such methods as extrapolation can be applied for the purpose of making future forecast about the trends of say, demand and supply of a particular commodity. The statistical method of drawing inference is mathematical in nature. It not only establishes causal connection between two variables but also tries to establish a mathematical relation-ship between them.

Statistical approach is a quantitative micro-approach. Certain important correlation and association of attributes can be found with the help of statistics. It is useful for the study of manage-ment, economics, etc. and it is very helpful to bankers, state, planners, speculators, researchers, etc.

Though statistical methods are the handmaid of managerial economics, they should be used with care. The most significant peculiarity of the statistical method is that it helps us to seek regularities or patterns in economic data and permits us to arrive at generalisations that cannot be reached by any other method.

4.5.3 METHOD OF INTELLECTUAL EXPERIMENT

The fundamental problem in managerial economics is to find out the nature of any relationship between different variables such as cost, price and output. The real world is also invariably complex. It is influenced by many factors such as physical, social, temperamental and psychological. It is difficult to locate any order, sequence or law in such a confused and complex structure. In this context, it is essential for the managerial economist to engage in model building.

At times, to analyse behaviour we use models. A model is an abstraction from reality. A model may be in the form of diagram, a verbal description or a mathematical description. It can be classified into three categories such as iconic, analogue and symbolic.

Managerial economics may be viewed as economics applied to problem solving at the level of the firm. The problems relate to choices and allocation of resources is faced by managers all the time. Managerial economics is more concrete and situational and mainly concerned with purposefully managed process of allocation. For this purpose the managerial economist can and does use an abstract model of the enterprise.

Models are approximate representations of reality. They help us in understanding the underlying forces of the complex world of reality through approximation. Model building is more useful in managerial economics, as it helps us to know the actual socio-economic relationship prevailing in a firm.

Firms have only limited resources at their disposal which they must utilise to make profit. The managers of these firms must make judgements about the disposition of their resources and decide which priorities among the various competing claims they have upon them. Models can guide business executives to predict the future consequences.

4.5.4 METHOD OF SIMULATION

It is an extension of the intellectual experiment. This method has gained popularity with the development of electronic computers, calculators and other similar equipment

and internet services. We can programme a complex system of relationship with the help of this method. Computer is not only used for scientific or mathematical applications, it may also be used for some business applications, document generations and graphical solutions. Computer is a fast electronic calculating machine capable of absorbing, processing, integrating, relating and producing the resultant output information within a short span of time.

A manager has to take numerous decisions in the management of business which may be minor or major, simple or complex. They have to ensure that once the decision is taken, it is to be implemented within the minimum time and cost. The electronic gadgets will enable the manager to understand business problems in a better perspective and increase his ability to solve the business problems facing him in the management of business.

4.5.5 HISTORICAL METHOD

Past knowledge is considered to be a pre-requisite for present knowledge. This is the main argument for the adoption of historical method in the present day managerial economics. In order to discover some basis for business activity, the method becomes generic in character.

The main objective of this method is to apply mind in the matter of various business problems by discovering the past trend regarding facts, events and attitudes and by demarcating the lines of development of thought and action. If we have an idea of the past events, we can understand the current economic problems much better. The wisdom of a particular economic policy is an inevitable product of its past.

The historical method requires experience not only in collecting data but also in finding out their relations and significance in the particular context. The managerial economist must take up the analytical view in order to get perfect control over facts and the synthetic view of facts.

He should be able to find out the relations between events and events and between events and environment. It is necessary to make an objective approach both in discovering facts and interpreting them. But in order to be objective, the approach must be based on relevant, adequate and reliable data.

For applying historical method, the managerial economist should be familiar with

the general field of his topic and be clear with regard to his own objective. A good deal of imagination is required to apply the historical method.

4.5.6 DESCRIPTIVE METHOD

The descriptive method is simple and easily applicable to various business problems, particularly in developing countries. It is a fact finding approach related mainly to the present and abstract generalisations through the cross sectional study of the present situation.

This method is mainly concerned with the collection of data. To some extent, the descriptive method is also concerned with the interpretation of data. In order to apply the descriptive method, the data should be accurate and objective and if possible quantifiable.

Since the descriptive method wants to relate causality of the collected facts, it is necessary for it to make comparisons between one situation with the other and among different aspects of the same situation. Thus, situational comparability is an essential element of this method.

This method is used to describe the organisation and functioning of institutions and the policies which have economic significance. To analyse the impact of the organisational structure in the working of business enterprises, it is widely used by the managerial economist.

The best descriptive studies are observational in nature. This method provides the empirical and logical basis for drawing conclusions and gaining knowledge. Thus it enables the managerial economists to describe or present the picture of a phenomenon or phenomena under investigation.

4.6 SUMMARY

Managerial Economics is a discipline that combines economic theory with managerial practice. Managerial Economics bridge the gap between the problems of logic that intrigue economic theorist and problems of policy that plague practical managers. Managerial economics enriches the analytical skill, helps in logical structuring of problems and provides adequate solutions to the economic problems. The study of it helps in all direction of managerial decision making process to execute business efficiently and effectively.

Managerial economics leverages economic concepts and decision science techniques to solve managerial problems. It provides optimal solutions to managerial decision making issues. Business firms are a combination of manpower, financial, and physical resources which help in making managerial decisions. Societies can be classified into two main categories - production and consumption. Firms are the economic entities and are on the production side, whereas consumers are on the consumption side.

The performances of firms get analysed in the framework of an economic model. The economic model of a firm is called the theory of the firm. Business decisions include many vital decisions like whether a firm should undertake research and development program, should a company launch a new product, etc. Business decisions made by the managers are very important for the success and failure of a firm. Complexity in the business world continuously grows making the role of a manager or a decision maker of an organisation more challenging. The impact of goods production, marketing, and technological changes highly contribute to the complexity of the business environment.

4.7 SELFASSESSMENT QUESTIONS

1. Critically evaluate micro economics. How micro economics is helpful in taking business decisions?

2. Determine strategies a manager can use to create a more effective decision making environment ?

3. Identify the factors that influence decision-making?

4.8 SUGGESTED READINGS

- Managerial economics, Dwivedi D.N., Vikas Publishing House, New Delhi.
- Managerial Economics, Mehta, P.L., S. Chand, Delhi.
- Mithani, D.M., Managerial Economics-Theory & Application, Himalaya Publishing House Pvt. Ltd., New Delhi.

UNIT- II

LESSON 5

DEMAND ANALYSIS

STRUCTURE

- 5.1 INTRODUCTION
- 5.2 OBJECTIVES
- 5.3 MEANING OF DEMAND
 - 5.3.1 Types of Demand
- 5.4 FEATURES OF A DEMAND
- 5.5 DETERMINANTS OF DEMAND
- 5.6 EXCEPTIONS TO THE LAW OF DEMAND
- 5.7 ELASTICITY OF DEMAND
- 5.8 SUMMARY
- 5.9 SELF ASSESSMENT QUESTIONS
- 5.10 SUGGESTED READINGS

5.1 INTRODUCTION

The concepts of demand and supply are useful for explaining what is happening in the market place. Every market transaction involves an exchange and many exchanges are undertaken in a single day. A market is a place where we buy and sell goods and services. A buyer demands goods and services from the market and the sellers supply the goods in the market. This chapter describes demand which is the driving force behind a market economy. In Economics, use of the word ‘demand’ is made to show the relationship between the prices of a commodity and the amounts of the commodity which consumers want to purchase at those prices. Demand is one of the forces determining price. The theory of demand is related to the economic activities of a consumer, called consumption.

The process through which a consumer obtains the goods and services he wants to consume is known as demand. Demand is one of the most important managerial factors because it assists the managers in predicting changes in production and input prices. The manager can take better decisions regarding the kind of product to be produced, the quantity, the cost of the product and its selling price. Let us understand the concept of demand and its importance in decision making.

5.2 OBJECTIVES

The objectives of this chapter is:

- To understand the general theory of demand.
- To know about the various types of demand.
- To know about the factors affecting demand of a product.

5.3 DEFINITION OF DEMAND

An economic principle that describes a consumer's desire and willingness to pay a price for a specific good or service. Holding all other factors constant, the price of a good or service increases as its demand increases and vice versa. Demand means the ability and willingness to buy a specific quantity of a commodity at the prevailing price in a given period of time. Therefore, demand for a commodity implies the desire to acquire it, willingness and the ability to pay for it.

According to Prof. Hibdon, "Demand means the various quantities of goods that would be purchased per time period at different prices in a given market." Thus, three things are necessary for demand to exist; (1) the price of a commodity (2) the amount of the commodity the consumer or consumers are prepared to buy per unit of time; (3) a given time. Similarly, Benham wrote down, "The demand for anything at a given price is the amount of it which will be bought per unit of time at that price."

5.3.1 Types of Demand

There are eight demand states and their details given below:

1. **Negative Demand:** Product is disliked in general. The product might be beneficial but the customer does not want it.

For example: for dental care, and others have a negative demand for air travel.

2. **No demand:** Target consumers may be unaware and uninterested about the product. For examples: Farmers may be not interested in new farming method. College students may not be interested in foreign language course.
3. **Latent demand:** Consumers may share a strong need that cannot be satisfied by any existing product. For examples: Harmless cigarette, safer neighborhood, more fuel efficient car.
4. **Declining demand:** When the demand of the product or service becomes lower. For examples private colleges have seen application falls.
5. **Irregular demand:** Demand varies on a seasonal, daily and hourly basis. For examples: Museums are under visited in week days and overcrowded on week days.
6. **Full demand:** When the organisation is pleased with their volume of business. For example, Ideal Situation where supply is equal to demand.
7. **Overfull demand:** Demand level is higher that the organisation can and want to handle. For example, national park is terribly overcrowded in the summer.
8. **Unwholesome demand:** Those kinds of demands, not acceptable by the society. For example Cigarettes, hard drinks, alcohol.

5.4 FEATURES OF DEMAND

- a) **Difference between desire and demand.** Demand is the amount of a commodity for which a consumer has the willingness and the ability to buy. There is difference between need and demand. Demand is not only the need, it also implies that the consumer has the money to purchase it.
- b) **Relationship between demand and price.** Demand is always at a price. Unless price is stated, the amount demanded has no meaning. The consumer must know both the price and the commodity and he will tell his amount demanded.
- c) **Demand at a point of time.** The amount demanded must refer to some period of time such as 10 quintals of wheat per year or six shirts per year or five kilos of

sugar per month. Not only this, the amount demanded and the price must refer to a particular date.

5.5 DETERMINANTS OF DEMAND

The demand for a product is determined by a large number of factors. It would be impossible to include all possible determinants of demand in any study. Therefore, a few factors which underlie the demand for most of the products can be easily spotted. These factors are price of the commodity, incomes of the buyers' of the commodity, prices of related goods, advertising and sales promotion. These factors are found to have a substantial influence on the sales of a commodity. These are expressed and measured in various ways. In demand studies, these constitute the controlling variables. The importance of each determinant varies from product to product. As such the demand for a particular product has to be analysed only after the importance of each determinant is specified. Some of these factors are within a firm's control, others may not be so. For example, a firm can change the price of the commodity, its promotional expenditure, quality of the product and sales conditions. Let us discuss all these determinants in brief:

- i. Price of the Commodity-* The most important factor affecting amount demanded is the price of the commodity. The amount of a commodity demanded at a particular price is more properly called price demand. The relation between price and demand is called the Law of Demand. It is not only the existing price but also the expected changes in price which affect demand.
- ii. Income of the Consumer-* The second most important factor influencing demand is consumer income. In fact, we can establish a relation between the consumer income and the demand at different levels of income, price and other things remaining the same. The demand for a normal commodity goes up when income rises and falls down when income falls. But in case of Giffen goods the relationship is the opposite.
- iii. Prices of related goods.* The demand for a commodity is also affected by the changes in prices of the related goods also. Related goods can be of two types: (1) Substitutes which can replace each other in use; for example, tea and coffee are substitutes. The change in price of a substitute has effect on a commodity's demand in the same direction in which price changes. The rise in price of coffee

shall raise the demand for tea; (2) Complementary goods are those which are jointly demanded, such as pen and ink. In such cases complementary goods have opposite relationship between price of one commodity and the amount demanded for the other. If the price of pens goes up, their demand is less as a result of which the demand for ink is also less. The price and the demand go in opposite direction. The effect of changes in price of a commodity on amounts demanded of related commodities is called Cross Demand.

- iv. *Tastes of the Consumers-*** The amount demanded also depends on consumer's taste. Tastes include fashion, habit, customs, etc. A consumer's taste is also affected by advertisement. If the taste for a commodity goes up its amount demanded is more even at the same price. This is called increase in demand. The opposite is called decrease in demand.
- v. *Wealth-*** The amount demanded of a commodity is also affected by the amount of wealth as well as its distribution. The wealthier are the people higher is the demand for normal commodities. If wealth is more equally distributed, the demand for necessities and comforts is more. On the other hand, if some people are rich, while the majorities are poor, the demand for luxuries is generally higher.
- vi. *Population-*** Increase in population increases demand for necessities of life. The composition of population also affects demand. Composition of population means the proportion of young and old and children as well as the ratio of men to women. A change in composition of population has an effect on the nature of demand for different commodities.
- vii. *Government Policy-*** Government policy affects the demands for commodities through taxation. Taxing a commodity increases its price and the demand goes down. Similarly, financial help from the government increases the demand for a commodity while lowering its price.

5.6 EXCEPTIONAL DEMAND CURVE

The demand curve slopes from left to right upward if despite the increase in price of the commodity, people tend to buy more due to reasons like fear of shortages or it may be an absolutely essential good. The law of demand does not apply in every case and

situation. The circumstances when the law of demand becomes ineffective are known as exceptions of the law. Some of these important exceptions are as under.

1. Giffen Goods:

Some special varieties of inferior goods are termed as Giffen goods. Cheaper varieties millets like bajra, cheaper vegetables like potato etc come under this category. Sir Robert Giffen of Ireland first observed that people used to spend more of their income on inferior goods like potato and less of their income on meat. After purchasing potato the staple food, they did not have staple food potato surplus to buy meat. So the rise in price of potato compelled people to buy more potato and thus raised the demand for potato. This is against the law of demand. This is also known as Giffen paradox.

2. Conspicuous Consumption / Veblen Effect:

This exception to the law of demand is associated with the doctrine propounded by Thorsten Veblen. A few goods like diamonds etc are purchased by the rich and wealthy sections of society. The prices of these goods are so high that they are beyond the reach of the common man. The higher the price of the diamond, the higher its prestige value. So when price of these goods falls, the consumers think that the prestige value of these goods comes down. So quantity demanded of these goods falls with fall in their price. So the law of demand does not hold good here.

3. Conspicuous Necessities:

Certain things become the necessities of modern life. So we have to purchase them despite their high price. The demand for T.V. sets, automobiles and refrigerators etc. has not gone down in spite of the increase in their price. These things have become the symbol of status. So they are purchased despite their rising price.

4. Ignorance:

A consumer's ignorance is another factor that at times induces him to purchase more of the commodity at a higher price. This is especially true, when the consumer believes that a high-priced and branded commodity is better in quality than a low-priced one.

5. Emergencies:

During emergencies like war, famine etc, households behave in an abnormal way.

Households accentuate scarcities and induce further price rise by making increased purchases even at higher prices because of the apprehension that they may not be available. . On the other hand during depression, , fall in prices is not a sufficient condition for consumers to demand more if they are needed.

6. Future Changes in Prices:

Households also act as speculators. When the prices are rising households tend to purchase large quantities of the commodity out of the apprehension that prices may still go up. When prices are expected to fall further, they wait to buy goods in future at still lower prices. So quantity demanded falls when prices are falling.

7. Change In Fashion:

A change in fashion and tastes affects the market for a commodity. When a digital camera replaces a normal manual camera, no amount of reduction in the price of the latter is sufficient to clear the stocks. Digital cameras on the other hand, will have more customers even though its price may be going up. The law of demand becomes ineffective.

8. Demonstration Effect:

It refers to a tendency of low income groups to imitate the consumption pattern of high income groups. They will buy a commodity to imitate the consumption of their neighbours even if they do not have the purchasing power.

9. Snob Effect:

Some buyers have a desire to own unusual or unique products to show that they are different from others. In this situation even when the price rises the demand for the commodity will be more.

10. Speculative Goods/ Outdated Goods/ Seasonal Goods:

Speculative goods such as shares do not follow the law of demand. Whenever the prices rise, the traders expect the prices to rise further so they buy more. Goods that go out of use due to advancement in the underlying technology are called outdated goods. The demand for such goods does not rise even with fall in prices

11. Seasonal Goods:

Goods which are not used during the off-season (seasonal goods) will also be subject to similar demand behaviour.

12. Goods in Short Supply:

Goods that are available in limited quantity or whose future availability is uncertain also violate the law of demand.

5.7 ELASTICITY OF DEMAND

In economics, the term elasticity means a proportionate (percentage) change in one variable relative to a proportionate (percentage) change in another variable. The quantity demanded of a good is affected by changes in the price of the good, changes in price of other goods, changes in income and changes in other factors. Elasticity is a measure of just how much of the quantity demanded will be affected due to a change in price or income. Elasticity of Demand is a technical term used by economists to describe the degree of responsiveness of the demand for a commodity due to a fall in its price. A fall in price leads to an increase in quantity demanded and vice versa.

5.7 SUMMARY

Demand is one of the forces determining price. The theory of demand is related to the economic activities of a consumer, called consumption. The process through which a consumer obtains the goods and services he wants to consume is known as demand. In Economics, use of the word 'demand' is made to show the relationship between the prices of a commodity and the amounts of the commodity which consumers want to purchase at those prices.

The demand for a product is determined by a large number of factors, viz., price, income, prices of related goods, tastes, preferences, population etc. There is an inverse relationship between the price of a commodity and the amount demanded.

In Economics, this relationship is known as the Law of Demand. The demand curve is negatively sloped just because of law of diminishing marginal utility, substitution effect, different uses of the commodity, and because of income effect.

As we know that the demand curve is negatively sloped from left to right, but in

some cases it is positively sloped like in case of inferior or giffen goods, expecting rise or fall in the prices of goods in future, due to ignorance of consumers etc.

Law of demand is important to determine price of a product, budget fixing by finance minister, How far a good shall or bad crop affect the economic condition of the farmer can be known from the Law of Demand and also in planning for individual commodities and industries.

5.8 SELFASSESSMENT QUESTIONS

1. Explain the general theory of Demand?

2. What are various factors an individual should consider while making a demand of a product?

3. Explain features/characteristics of demand?

5.9 SUGGESTED READINGS

- Business Economics, Chopra P.N., Kalyani Publishers, New Delhi.
- Managerial Economics, Mehta, P.L., S. Chand, Delhi.
- Micro Economics, Mithani, D.M., Himalaya Publishing House, New Delhi.

UNIT-II

LESSON 6

MARKET DEMAND ANALYSIS

STRUCTURE

- 6.1 INTRODUCTION
- 6.2 OBJECTIVE
- 6.3 MEANING OF MARKET DEMAND
 - 6.3.1 Definition
 - 6.3.2 Market demand Curve
 - 6.3.3 Difference between Demand and Desire
- 6.4 DETERMINANTS OF MARKET DEMAND
- 6.5 FACTORS AFFECTING MARKET DEMAND
- 6.6 DIFFERENCE BETWEEN INDIVIDUAL DEMAND AND MARKET DEMAND
- 6.7 SUMMARY
- 6.8 SELF ASSESSMENT QUESTIONS
- 6.9 SUGGESTED READING

6.1 INTRODUCTION

Demand for a good is defined as the quantity of the good purchased at a given price at given time.

Thus the definition of demand includes three components

- (a) Price of the commodity
- (b) Quantity of the commodity bought

(c) Time period.

Note that time period may vary. This can be week, month, year etc.

6.2 OBJECTIVES

The objectives of this lesson are:

- To explain the concept of market demand
- To explain the factors and determinants affecting market demand

6.3 MEANING OF MARKET DEMAND

The aggregate of the demands of all potential customers (market participants) for a specific product over a specific period in a specific market is called as market demand of a particular good.

6.3.1 Definition

The total demand for a product or service in the market as a whole. Market demand is calculated to determine at what level to set production output for a good or service, and to help to determine optimal pricing levels to maximise sales revenues.

6.3.2 Market Demand Curve

A graph that shows the amount of a good or service that consumers purchase on the X axis at a range of pricing levels that are plotted on the Y axis. The market demand curve for a good or service provided by a business can be combined with its market supply curve to determine the product's equilibrium price that is located where the two curves cross.

6.3.3 Difference between Demand and Desire

On many occasions people confuse between desire and demand and use them interchangeably. In fact these are two different terms. Demand is desire backed by ability to purchase. This means that if somebody desires to have a good, he/she can demand it if he/she has the money to purchase it by paying its price. Anyone can desire any good or service. But just by desiring something, one cannot have it without paying the price. Once the price is paid by the person who has desired it, only then it becomes the demand for the

good by that person. Take the example given above once again- “Varsha purchased 2 kg of mangoes at Rs. 50 per kg last week.” This is the demand for mangoes by Varsha. Had Varsha desired to have mangoes but could not pay the price to buy, then it would have been said as Varsha’s desire but not demand for mangoes.

6.4 DETERMINANTS OF MARKET DEMAND

Demand schedule and law of demand state the relationship between price and quantity demanded by assuming “other things remaining the same “. When there is a change in these other things, the whole demand schedule or demand curve undergoes a change. In other words, these other things determine the position and level of the demand curve. If these other things or the determinants of demand change, the whole demand schedule or the demand curve will change. As a result of the changes in these determinants, a demand curve will shift above or below as the case may be.

The following are the determinants of market demand for goods:

1. Tastes and Preferences of the Consumers:

An important factor which determines demand for a good is the tastes and preferences of the consumers for it. A good for which consumers’ tastes and preferences are greater, its demand would be large and its demand curve will lie at a higher level.

People’s tastes and preferences for various goods often change and as a result there is change in demand for them. The changes in demand for various goods occur due to the changes in fashion and also due to the pressure of advertisements by the manufacturers and sellers of different products.

For example, a few years back when Coca Cola plant was established in New Delhi demand for it was very small. But now people’s taste for Coca Cola has undergone a change and become favourable to it because of large advertisement and publicity done for it. The result of this is that the demand for Coca-Cola has increased very much. In economics we would say that the demand curve for Coca Cola has shifted upward. On the contrary when any good goes out of fashion or people’s tastes and preferences no longer remain favourable to it the demand for it decreases. In economics we say that the demand curve for these goods will shift downward.

2. *Changes in the Prices of the Related Goods:*

The demand for a good is also affected by the prices of other goods, especially those which are related to it as substitutes or complements. When we draw a demand schedule or a demand curve for a good we take the prices of the related goods as remaining constant. Therefore, when the prices of the related goods, substitutes or complements, change the whole demand curve would change its position; it will shift upward or downward as the case may be. When price of a substitute for a good falls, the demand for that good will decline and when the price of the substitute rises, the demand for that good will increase.

For example, when price of the tea as well as the incomes of the people remains the same but price of the coffee falls, the consumers would demand less of tea than before. Tea and coffee are very close substitutes, therefore when coffee becomes cheaper, the consumers substitute coffee for tea and as a result the demand for tea declines. The goods which are complementary with each other, the change in the price of any of them would affect the demand of the other. For instance, if price of the milk falls, the demand for sugar would also be affected. When people would take more milk or would prepare more khoya, burfi, rasgullas with milk; the demand for sugar will also increase. Likewise, when price of cars falls, the demand for them will increase which in turn will increase the demand for petrol. Cars and petrol are complementary with each other.

3. *The Number of Consumers in the Market:*

We have already explained that the market demand for a good is obtained by adding up the individual demands of the present as well as prospective consumers or buyers of a good at various possible prices. The greater the number of consumers of a good, the greater the market demand for it. Now, the question arises on what factors the number of consumers of a good depends. If the consumers substitute one good for another, then the number of consumers of that good which has been substituted by the other will decline and for the good which has been used in its place, the number of consumers will increase.

Besides, when the seller of a good succeeds in finding out new markets for his good and as a result the market for his good expands the number of consumers of that good will increase. Another Important cause for the increase in the number of consumers is the growth in population. For instance, in India the demand for many essential goods,

especially food-grains, has increased because of the increase in the population of the country and the resultant increase in the number of consumers for them.

4. *Changes in Propensity to Consume:*

People's propensity to consume also affects the demand for them. The income of the people remaining constant, if their propensity to consume rises, then out of the given income they would spend a greater part of it with the result that the demand for goods will increase.

On the other hand, if propensity to save of the people increases, that is, if propensity to consume declines, then the consumers would spend a smaller part of their income on goods with the result that the demand for goods will decrease. It is thus clear that with income remaining constant, change in propensity to consume of the people will bring about a change in the demand for goods. Similarly, when the consumers hope that in the future they will have good income, then in the present they will spend greater part of their incomes with the result that their present demand for goods will increase.

5. *Income Distribution:*

Distribution of income in a society also affects the demand for goods. If distribution of income is more equal, then the propensity to consume of the society as a whole will be relatively high which means greater demand for goods. On the other hand, if distribution of income is more unequal, then propensity to consume of the society will be relatively less, for the propensity to consume of the rich people is less than that of the poor people.

Consequently with more unequal distribution of income, the demand for consumer goods will be comparatively less. This is the effect of the income distribution on the propensity to consume and demand for goods. But the change in the distribution of income in the society would affect the demand for various goods differently. If progressive taxes are levied on the rich people and the money so collected is spent on providing employment to the poor people, the distribution of income would become more equal and with this there would be a transfer of purchasing power from the rich to the poor.

As a result of this, the demand for those goods will increase which are generally purchased by the poor because the purchasing power of the poor people has increased and, on the other hand, the demand for those goods will decline which are usually consumed

by the rich on whom progressive taxes have been levied.

6. *Advertisement Expenditure:*

Advertisement expenditure made by a firm to promote the sales of its product is an important factor determining demand for a product, especially of the product of the firm which gives advertisements. The purpose of advertisement is to influence the consumers in favour of a product. Advertisements are given in various media such as newspapers, radio, and television. Advertisements for goods are repeated several times so that consumers are convinced about their superior quality. When advertisements prove successful they cause an increase in the demand for the product.

6.5 FACTORS AFFECTING MARKET DEMAND

When examining demand factors, especially for businesses, it is important to realize that there is a relationship between Individual and Market Demand. These two, though slightly different, share the same causes and are impacted by macro and micro economic variables in the same way, but not the same magnitude.

The demand changes as a result of changes in price, other factors determining it being held constant. These other factors determine the position or level of demand curve of a commodity. It may be noted that when there is a change in these non-price factors, the whole curve shifts rightward or leftward as the case may be. The following factors determine market demand for a commodity.

6.5.1 PRICE OF GOOD

Individual and market demand are affected by the price of the good or service being offered. The law of demand shows that there is an inverse relationship between price and demand. An increase in one will cause a decrease in the other. This holds true at both the individual and market level.

6.5.2 PRICE OF COMPLIMENTARY GOODS

A complimentary good is one that is used with another good. For example, when you buy a cooker, you have to buy cooking gas or electricity. Another example would be a car and gas. By buying one good, you have to buy the other in order to use it. When the price a complimentary good increases all other factors remaining constant and the demand

for the others good decreases with it. With an increase in the price of cars, less people will buy gas.

6.5.3 PRICE OF SUBSTITUTE GOODS

Substitute goods are goods that compete for consumption. When you take one, you substitute it for the other. You consume either one or the other. This is as long as the substitute is seen as matching or being better in terms of quality. For both individual and market demand, when the price of substitute goods change, there is an effect on the demand.

6.5.4 INCOME

Income is a major factor influencing individual and market demand. When there is an increase in income, demand for goods increase. This is because there is more money to be spent on the good. A good or service that experiences this is called a “normal” good. However, some goods experience a decrease in demand with an increase in income.

These are classified as “inferior goods”. People purchase these goods because they are cheap and that is what they can afford. However, as their income increase, they go for better quality goods and services. For example, some people view public transport as an inferior good.

6.5.5 FUTURE EXPECTATIONS

People aim to place themselves at an advantage when they have information about the future. If they expect, for example, to have a shortage of a vital good, they will increase their demand drastically today to beat the shortage. Every year you know winter is coming, so you buy winter clothing before it happens.

6.5.6 TASTES AND PREFERENCE

Beyond the rational reasons, people purchase simply because they like it. Sometimes they are influenced by fashion trends. Other times it is because a celebrity endorsed a product, or they simply have a taste for it. Out of all the factors influencing individual and market demand, this is probably the hardest to predict. This is because it is influenced by psychological factors, which are difficult to categorise and tabulate.

6.6 DIFFERENCE BETWEEN INDIVIDUAL DEMAND AND MARKET DEMAND

The quantity of a commodity an individual is willing and able to purchase at a particular price, during a specific time period, given his/her money income, his/her taste, and prices of other commodities, such as substitutes and complements, is referred to as the individual demand for the commodity whereas,

The total quantity which all the consumers of the commodity are willing and able to purchase at a given price per time unit, given their money incomes, their tastes, and prices of other commodities, is referred to as the market demand for the commodity.

6.7 SUMMARY

The analysis of total demand for a firm's product plays a crucial role in business decision making. The market demand or the size of the market at a point in time at different prices gives the overall scope of business; it gives prospects for expanding business; and it plays a crucial role in planning for future production, inventories of raw materials, advertisements, and setting up sales outlets. Therefore, the information regarding the magnitude of the current and future demand for the product is indispensable. Theory of demand provides an insight into these problems. From the analysis of market demand, business executives can know:

- The factors that determine the size of the demand
- Elasticities of demand, i.e., how responsive or sensitive is the demand to the changes in its determinants,
- Possibility of sales promotion through manipulation of prices,
- Responsiveness of demand to advertisement expenditures, and
- Optimum levels of sales, inventories and advertisement cost, etc.

The law of demand plays a crucial role in decision-making and forward planning of a business unit. The production planning in a firm mainly rests on accurate demand analysis. The law of demand has theoretical as well as practical advantages. These are as ; Price determination: With the help of law of demand a monopolist fixes the price of his

product. He is able to decide the most profitable quantity of output for him. Useful to government: The finance minister takes the help of this law to know the effects of his tax reforms and policies. Only those commodities which have relatively inelastic demand should be taxed. Useful to farmers: From the law of demand, the farmer knows how far a good or bad crop will affect the economic condition of the fanner. If there is a good crop and demand for it remains the same, price will definitely go down. The farmer will not have much benefit from a good crop, but the rest of the society will be benefited. In the field of planning: The demand schedule has great importance in planning for individual commodities and industries. In such cases it is necessary to know whether a given change in the price of the commodity will have the desired effect on the demand for commodity within the country or abroad. This is known from a study of the nature of demand schedule for the commodity.

6.8 SELFASSESSMENT QUESTIONS

1. Explain the factors influencing market demand?

2. How individual demand schedule and market demand schedule is different from market demand schedule?

3. Briefly illustrates the various types of market demand?

6.9 SUGGESTED READINGS

- Advanced Economic Theory. Micro Economic Analysis, Ahuja, H.L., 2012, S. Chand and Company Ltd, New Delhi.
- Principles of Economics, Mishra and Puri, 2007, Himalaya Publishing House, New Delhi.
- Economic Theory, Chopra, P.N., 2005, Kalyani Publishers New Delhi.

UNIT II

LESSON 7

MARKET DEMAND SCHEDULE

STRUCTURE

- 7.1 INTRODUCTION
- 7.2 OBJECTIVE
- 7.3 DEMAND SCHEDULE
 - 7.3.1 Types of Demand Schedule
- 7.4 TYPES OF MARKET DEMAND
- 7.5 MARKET DEMAND CURVE
- 7.6 SUMMARY
- 7.7 SELF ASSESSMENT QUESTIONS
- 7.8 SUGGESTED READINGS

7.1 INTRODUCTION

The individual demand curve- sometimes also called the household demand curve- that is based on an individual's choice among different goods. In this lesson we show how to build the market demand curve from these individual demand curves. When demand changes due to the factors other than price, there is a shift in the whole demand curve. Apart from price, demand for a commodity is determined by incomes of the consumers, his tastes and preferences, prices of related goods. Thus, when there is any change in these factors, it will cause a shift in demand curve. For example, if incomes of the consumers increase, say due to the hike in their wages and salaries or due to the grant of dearness allowance, they will demand more of a good, say cloth, at each price. This will cause a shift in the demand curve to the right. Similarly, if preferences of the people for a commodity, say colour TV, become greater, their demand for colour TV will increase, that is, the

demand curve will shift to the right and, therefore, at each price they will demand more colour TV. The other important factor which can cause an increase in demand for a commodity is the expectations about future prices. If people expect that price of a commodity is likely to go up in future, they will try to purchase the commodity, especially a durable one, in the current period which will boost the current demand for the goods and cause a shift in the demand curve to the right. As seen above, the prices of related commodities such as substitutes and complements can also change the demand for a commodity. For example, if the price of coffee rises other factors remaining the constant, this will cause the demand for tea, a substitute for coffee, to increase and its demand curve to shift to the right.

If there are adverse changes in the factors influencing demand, it will lead to the decrease in demand causing a shift in the demand curve. For example, if due to inadequate rainfall agricultural production in a year declines this will cause a fall in the incomes of the farmers. This fall incomes of the farmers will cause a decrease in the demand for industrial products, say cloth, and will result in a shift in the demand curve to the left. Similarly, change in preferences for commodities can also affect the demand. For example, when colour TVs came to India people's greater preference for them led to the increase in their demand. But this brought about decrease in demand for black and white TVs causing leftward shift in demand curve for these black and white TVs. The decrease in demand does not occur due to the rise in price but due to the changes in other determinants of demand. Decrease in demand for a commodity may occur due to the fall in the prices of its substitutes, rise in the prices of complements of that commodity and if the people expect that price of a good will fall in future.

7.2 OBJECTIVES

The objectives of this lesson is to:

- Explain the concept of demand curves
- Describe the relationship between individual demand curve and market demand curve.
- Demand schedule and types of demand schedule.
- Types of demand.

7.3 DEMAND SCHEDULE

The relationship between the price of a commodity and the amount demanded is dependent on a large, number of factors, the most important being the nature of a commodity. The response of amount demanded to changes in price of a commodity is known as the demand schedule. It summarises the information on prices and quantities demanded. The table 7.1 showing the prices per unit of the commodity and the amount demanded per period of time.

Table: 7.1

Price per Quintal (Rs.)	Amount Demanded by buyer A	Amount Demand by buyer B	Total Market by buyer B
50	5	10	15
40	15	20	35
30	25	30	55

7.3.1 Types of Demand Schedule

The Demand Schedule may be the Individual Demand Schedule which refers to the prices and amount demanded of the commodity by an individual.

In Price Theory we are mainly interested in the Market Demand Schedule. A market consists of all those individuals who want to purchase a given commodity. Therefore, “Market Demand Schedule is defined as the quantities of a given commodity which all consumers will buy at all possible prices at a given moment of time.” It should be clear that the Individual Demand Schedules when added give us the Market Demand Schedule.

The following table 7.1 shows the Individual Demand Schedules of buyers A and B and the Market Demand Schedule where there are only two buyers.

7.4 TYPES OF MARKET DEMAND

There are mainly three types of demand. They are

1. Price Demand
2. Income Demand and
3. Cross Demand

Price Demand

It refers to the various quantities of the good which consumers will purchase at a given time and at certain hypothetical prices assuming that other conditions remain the same. We are generally concerned with price demand only. In the explanation of the law of demand given above, we dealt in detail with price demand only.

Income demand

Income demand refers to the various quantities of a commodity that a consumer would buy at a given time at various levels of income. Generally, when the income increases, demand increases and vice versa.

Cross Demand

When the demand of one commodity is related with the price of other commodity is called cross demand. The commodity may be substitute or complementary. Substitute goods are those goods which can be used in case of each other. For example, tea and coffee, Coca-cola and Pepsi. In such case demand and price are positively related. This means if the price of one increased then the demand for other also increases and visa versa. Complementary goods are those goods which are jointly used to satisfy a want. In other words, complementary goods are those which are incomplete without each other. These are things that go together, often used simultaneously. For example, pen and ink. Tennis rackets and tennis balls, cameras and film, etc. In such goods the price and demand are negatively related. This means when the price of one commodity increases the demand for the other falls. Tennis rackets and tennis balls, cameras and film, etc. In such goods the price and demand are negatively related. This means when the price of one commodity increases the demand for the other falls.

Other Types of Demand

Joint demand

When several commodities are demanded for a joint purpose or to satisfy a particular want. It is a case of a joint demand. Milk, sugar and tea dust are jointly demanded to make tea. Similarly, we may demand paper, pen and ink for writing. Demand for such commodities in bunch is known as joint demand. Demand for land, labour, capital and organisation for producing commodity is also a case of joint demand.

Composite demand

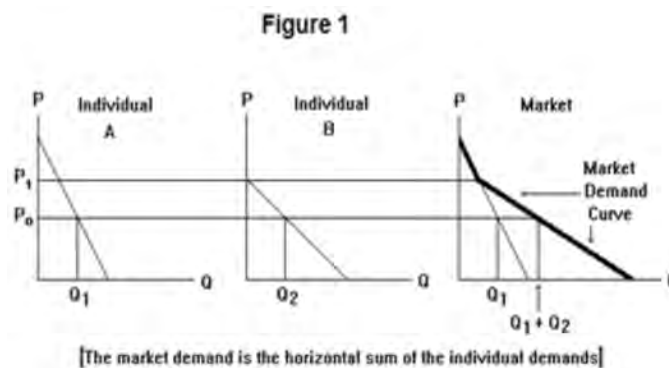
The demand for a commodity which can be put to several uses is a composite demand. In this case a single product is wanted for a number of uses. For example, electricity is used for lighting, heating, for running the engine, for the fans etc. Similarly coal is used in industries, for cooking etc.

Direct and Derived demand

The demand for a commodity which is for direct consumption, i.e.. Demand for ultimate object, is called direct demand, e.g food, cloth, etc. Direct demand is called autonomous demand. Here the demand is not linked with the purchase of some main products. When the commodity is demanded as a result of the demand for another commodity or service, it is known as the derived demand or induced demand. For example, demand for cement is derived from the demand for building construction; demand for tires is derived from the demand for cars or scooters, etc.

7.5 MARKET DEMAND CURVE

The relationship between the demand curves of individual buyers and the market demand curve is shown in Figure 1. In that figure we suppose, for the sake of argument, that there are only two buyers in the market—Individual A and Individual B. Each of these individuals will choose to purchase a particular quantity at each possible price. To find the total market demand at each price we simply add together the quantities demanded by the two individuals at that price.



For example, the quantity demanded by Individual A at price P_0 in the Figure is Q_1 and the quantity demanded by Individual B is Q_2 . The quantity demanded in the

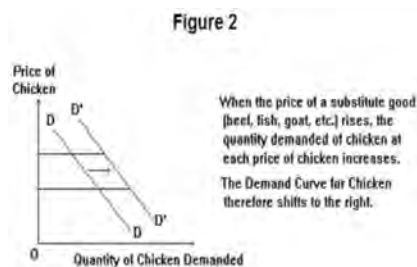
market as a whole is therefore $Q_1 + Q_2$. The market demand curve is simply the horizontal sum of the individual buyers' demand curves.

As can be seen from the above Figure, an important reason why the market demand curve is negatively sloped (that is, why the quantity demanded in the market increases as the price falls) is the entry of new consumers as the price falls. Individual B chooses not to consume any of the product at prices above P_1 . As the price falls below that level she enters the market. In general, more and more buyers will enter the market as the price falls, adding their demands to the market demand.

There are also important reasons why the individual consumers' demand curves are negatively sloped. Individuals consume in order to satisfy certain wants—food, shelter, entertainment, self-image, etc. Different commodities are substitutes for each other in supplying these wants. One can eat chicken, fish or goat instead of beef, or abandon all of these for a vegetarian diet. What one does will depend on the relative prices of these meats. If the price of beef rises substantially, with all other prices remaining the same, many consumers will choose to consume less beef and more fish, goat or chicken.

Broad categories of consumption are also substitutes for each other. For example, a substantial rise in rents relative to the costs of dining out, frequenting bars and going to the cinema may lead some consumers to maintain smaller and cheaper apartments and spend more leisure time on outside entertainment. This tendency to substitute cheaper goods and services for ones whose prices have risen is called the *substitution effect*. The substitution effect of a price change is always negative—a rise in a good's price reduces the quantity of it demanded.

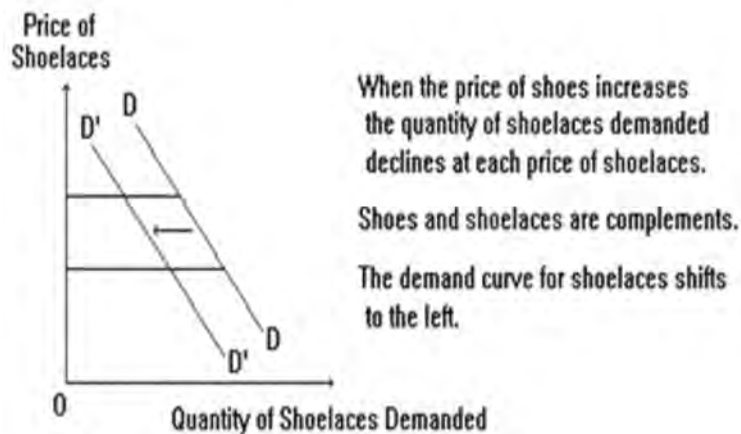
It should be obvious from the above that the quantity of a good demanded depends not only on its own price but on the prices of substitute goods. For example, consider the demand curve for chicken, plotted in Figure 2.



A fall in the price of chicken, holding all other prices constant, will bring about an increase in the quantity of chicken demanded—the price-quantity combination moves downward to the right along the demand curve. At the same time, a rise in the price of beef (or fish, or goat) will also increase the quantity of chicken demanded at every price of chicken. This will shift the demand curve in Figure 2 to the right. A change in the commodity's own price leads to a movement along the demand curve, while changes in the prices of substitute commodities cause the demand curve to shift. In general, the increase in the price of a substitute good shifts the demand curve for a commodity to the right—more of the commodity is demanded at each price.

Increases in the prices of other goods do not always cause the quantity demanded of a commodity to increase. Consider, for example, the market for shoelaces. A rise in the price of shoes will cause the quantity demanded of shoes to fall as people repair old shoes and wear them longer. Since there will be a smaller demand for shoes, there will also be a smaller demand for shoelaces. A rise in the price of shoes thus leads to a decline in the demand for shoelaces—the demand curve for shoelaces shifts to the left. People substitute other goods for both shoes and shoelaces. In this case, shoes and shoelaces are said to be *complementary goods* or *complements*. The effect of an increase in the price of a complementary good on the quantity of a good demanded is shown in Figure 3.

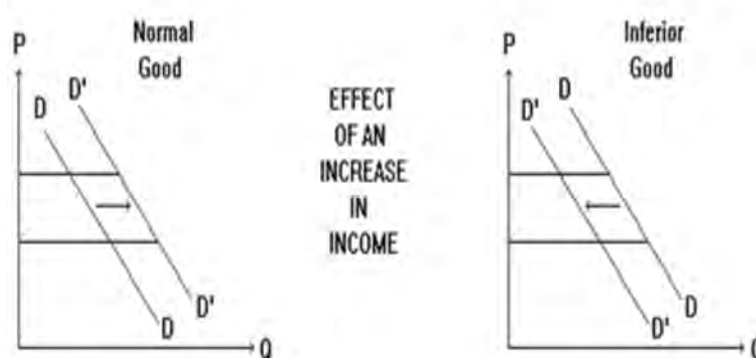
Figure 3



The quantities demanded of commodities are also affected by the level of income.

People's entire income must be spent on something (saving is treated here as an expenditure on future goods). When that income rises and more is therefore available to spend it is necessarily the case that consumers' expenditure on goods will, on average, rise. If a good is a *normal good*, people's expenditure on it will increase as their income increases. The quantity demanded of the good will increase at each price of that good. This is shown in the left panel of Figure 4.

Figure 4



Not all goods are normal. Consider, for example, rice consumption in mainland China. As the country's income rose with the influx of capital from the rest of the world and the development of new enterprises, people were likely to decide that they can now afford to add a bit more meat to their diet and rely less heavily on rice.

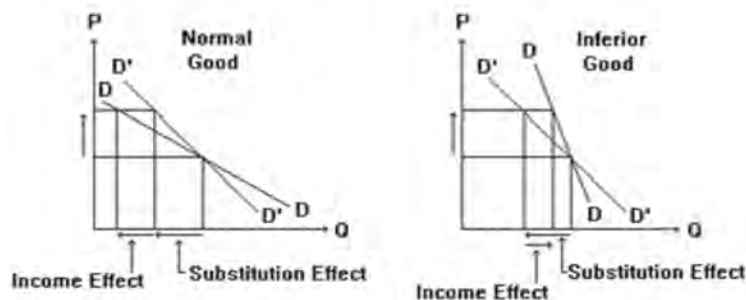
One's primary goal is to survive. To survive at low levels of income it may be necessary to spend all available funds on rice, meat being too expensive. At higher incomes, one can purchase much more rice than would be necessary for sustenance. It is then worthwhile to substitute a bit of meat for some of that rice and have a more enjoyable diet. For this reason, the demand curve for rice might well shift to the left with an increase in income. Rice is in this instance an *inferior good*. This is shown in the right panel of Figure 4 above. When income rises, the demand curves for normal goods shift to the right and the demand curves for inferior goods shift to the left.

Up to this point we have argued that the demand curve is negatively sloped because of the *substitution effect*-when the price of a good rises consumers substitute other goods

whose prices have not risen. But an increase in the price of a good also has an *income effect* on the quantity of it demanded.

Suppose that you earn \$1000 per month and spend \$500 of it on rent. Assume that your rent goes up to \$600—that is, by 20 percent. The cost of your original consumption bundle is now \$1100, so you have to cut your consumption of something—either housing or other goods or both—by \$100. Your real income has thus declined by 10 percent. If housing is a *normal good*, you will allocate some of this cut in overall consumption to it. So there will be a decline in the quantity of housing demanded additional to any substitution of other goods for housing you make on account of the substitution effect. This will make the demand curve for housing flatter than it would otherwise have been, as is shown in the left panel of Figure 5.

Figure 5



There is, of course, the possibility that the commodity whose price has risen may be an *inferior good*. In this case the income effect will make the demand curve steeper. The adverse effect on real income of an increase in the price of rice, for example, may make it necessary for people to consume less meat and more rice. This is shown in the right panel of Figure 5.

In the case of normal goods, the income and substitution effects work in the same direction; in the case of inferior goods they work in opposite directions.

It turns out that the income effect is unlikely to be of much importance in practice. People spend tiny fractions of their income on most goods so that the effects on their real incomes of changes in the prices of those goods is likely to be trivial.

7.5 SUMMARY

The market demand reflects the total quantity purchased by all consumers at alternative hypothetical prices. It is the sum-total of all individual demands. It is derived by adding the quantities demanded by each consumer for the product in the market at a particular price. The table presenting the series of quantities demanded of all consumers for a product in the market at alternative hypothetical prices is known as the Market Demand Schedule. If the data are represented on a two dimensional graph, the resulting curve will be the Market Demand Curve. From the point of view of the seller of the product, the market demand curve shows the various quantities that he can sell at different prices. Since the demand curve of an individual is downward sloping, the lateral addition of such curves to get market demand curve will also result in downward sloping curve.

7.7 SELF ASSESSMENT QUESTIONS

1. Distinguish between individual demand and market schedule?

2. List the major purposes of demand analysis from the management point of view?

3. What is meant by the elasticity of demand?

7.8 SUGGESTED READINGS

- Advanced Economic Theory. Micro Economic Analysis, Ahuja, H.L., 2012, S.

Chand and Company Ltd, New Delhi.

- Principles of Economics, Mishra and Puri, 2007, Himalaya Publishing House, New Delhi.
- Edward Shapiro, Macro Economic Analysis, Tata McGraw Hill, New Delhi.
- Jhingam, M.L. & Stephen, J.K, Managerial Economics, Vrinda Publications Pvt. Ltd. Delhi.
- Dingra, I.C Managerial Economics, Sultan Chand, New Delhi.

Unit-II

LESSON-8

ECONOMIC SLOWDOWN

STRUCTURE

- 8.1 INTRODUCTION
- 8.2 OBJECTIVES
- 8.3 ECONOMIC SLOWDOWN
 - 8.3.1 Measuring changes in GDP
 - 8.3.2 Business cycle
- 8.4 REASONS FOR ECONOMIC SLOWDOWN
- 8.5 IMPACT OF ECONOMIC SLOWDOWN
- 8.6 SUMMARY
- 8.7 SELF ASSESSMENT QUESTIONS
- 8.8 SUGGESTED READINGS

8.1 INTRODUCTION

The emerging market economies have experienced impressive growth over the past 20 years, substantially boosting their share of global economic output and worldwide trade. Recently, however, economic momentum has tailed off considerably in a large number of emerging market economies, and the growth lead they once enjoyed over the industrial countries has narrowed. At first, many thought this was due to cyclical strains, notably the short-lived lull in demand in the industrial countries. The fact that the slowdown is so persistent suggests, however, that it is rather the underlying path of expansion that has flattened. Given the advanced stage of the convergence process, it could be said that this is a “natural” easing of the rate of expansion. Nevertheless, such is the scale of the slowdown that a number of additional factors are also likely to be at play in several emerging market economies. In China, the weaker pace of growth can probably be partly explained by the

decreasing structural change at the sectoral level and the lessening impact of growth impulses stemming from earlier market reforms. For the emerging market economies specialising in the export of raw materials, the end of the commodities boom appears to be a relevant factor. In the emerging market economies of eastern Europe, the reduced pace of growth reflects a return to more normal circumstances, now that the high rates of growth seen immediately prior to the financial crisis have proven to be unsustainable. More moderate investment levels and neglect of the economic policy reform course are also holding back economic growth.

The predominantly structural nature of the slowdown would suggest that the aggregate pace of growth in the group of emerging market economies will remain muted in the years ahead. Growth could diminish further still if things take a turn for the worse. For the advanced economies, this outlook means that the underlying pace of their exports to the emerging market economies is likely to be lower in the foreseeable future. If the Chinese economy were to undergo a sharp downturn, the ripple effects would also be felt in Germany. The slowdown in the pace of aggregate growth in the emerging market economies shows that a speedy and buoyant catch-up process cannot be taken for granted. The emerging market economies need new reform stimuli to put growth back on a higher trend path over the medium term.

8.2 OBJECTIVES

The objective of this lesson is:

- To understand the concept of economic slowdown
- To explain the effect of economic slowdown on market demand

8.3 ECONOMIC SLOWDOWN

An economic slowdown occurs when the rate of economic growth slows in an economy. Countries usually measure economic growth in terms of GDP (Gross Domestic Product), which is the total value of goods and services produced in an economy during a specific period of time.

8.3.1 Measuring changes in GDP

The rate of economic growth or decline is calculated by determining the percentage

change in GDP from one period to another. For example, the value of a country's GDP in the second quarter of this year may have increased 2% from the value from the first quarter GDP. On the other hand, if GDP rose only 1.5% between the second quarter and the third quarter, we can say that the economy is slowing down because it is not growing as fast.

8.3.2 Business cycle

Economic fluctuations are explained by the business cycle. The cycle starts at an economic peak where growth has reached its highest point in the cycle, which is then followed by a decline in growth-the economic slowdown.

When growth becomes negative for a specific period of time, the economy has entered a recession. If the negative growth lasts long enough or is severe enough, the economy may enter a depression. Eventually, the economy will bounce off the bottom, and it will enter a recovery period characterised by economic growth until it reaches a new peak and cycle starts over again.

8.4 REASONS FOR THE DECLINE IN TREND GROWTH

The slowdown in trend growth in the emerging market economies suggests that a “natural” easing of the rate of expansion has occurred, after the rapid convergence process had moved many countries closer to the very limits of their technological capabilities. However, a very wide gap still remains. There are calculations, for instance, which indicate that labour productivity in China and in other major emerging market economies had each reached less than one-tenth of the corresponding level in the United States in 2011. Similarly, total factor productivity, a measure which also incorporates capital input, continues to show that China and other countries trail a long way behind the United States.¹² From this perspective, it seems reasonable to assume that a number of additional factors were behind the relatively sharp downturn in trend growth witnessed in recent years. Trend growth has slackened since 2006-07 in roughly two-thirds of the 135 economies observed overall. One of these is economic heavyweight China, where trend growth plummeted from around 12% to 7%. Other countries which have seen a marked downturn in the underlying pace of economic activity include a remarkably large number of economies specialising in the export of commodities.

1. ***Breaking down trend growth to single out the contributions made by labour input and labour:*** productivity sheds greater light on China's macroeconomic slowdown. It reveals that labour input, as measured in terms of the number of persons working in the overall economy, has only ever contributed minimally to the increase in economic output due to its weak upward tendency. The main driver here is the rise in labour productivity, which has experienced marked decline in recent years and is behind the slowdown in trend growth, whereas the low positive contributions attributable to labour input have remained more or less unchanged.
2. ***Increasing productivity in economy as a whole curbed by flagging structural Change:*** The flagging pace of structural change appears to be partly to blame for the lower rise in labour productivity. One major factor driving overall productivity growth in China is the migration of rural agricultural labour to urban areas, where they take up employment in the significantly more productive industrial or services sector.
3. ***Positive effects of past structural reforms petering out:*** Probably of even greater significance than the waning pace of sectoral structural change is the slowdown in productivity gains at the sectoral level, with the dwindling positive effects of previous structural reforms likely to have played a major role in this.
4. ***Evidence of lower investment efficiency:*** Another factor that contributed to the sharp rise in intra sectoral productivity was exceptionally dynamic investment activity on the back of high levels of domestic saving. Growth in gross fixed capital formation gained even more traction during the global financial and economic crisis, sending its share of GDP higher still from 38% in 2007 to 44% in 2009. This ratio of capital formation, which is decidedly high by international standards, raises

8.5 IMPACT OF ECONOMIC SLOWDOWN

Recession or economic slowdown reduced industrial output, job opportunities, liquidity in the Indian economy. It also brings GDP down and brought change in consumer behaviors and their purchasing power.

8.5.1 Impact of Recession on Indian Industrial output: During Recession industrial growth faltering India's industrial sector which are suffering from the depressed demand

condition in its export market as well as from suppressed domestic demand due to the slow generation of employments. The domestic demand due to the India's economic downturn leaves middle classes fearing the worst. After the 2008 world economic crisis India recorded 9% GDP growth for at least two years but in recent the rupee was tumbled, losing a sixth of its value against the dollar. Share prices were fallen, commodity prices were on rise, investment was stalled and growth was slow. Few experts termed as "It is a crisis" while some experts trace the problem to the failure of Manmohan Singh's government to push through structural reforms that could boost growth. Notably, India imports much more than it exports, and so the current account deficit is at an unsustainable 4.8% of GDP. Until it is brought down, there can be very little hope of reviving investor confidence in the economy. Gold has played an important role in skewing the trade deficit. A century ago, the economist John Maynard Keynes wrote that India's irrational love for gold was "ruinous to her economic development", and the obsession still runs deep. India's annual production of gold is barely 10 tonnes, so last year it imported 860 tonnes, which were made into jewellery or stored as coins and bars in family safes.

8.5.2 Impact of Global Meltdown on the Indian Economy: The Indian economy has shown negative impact of the recent global financial meltdown. Though the Public sector in India, including nationalized banks could somehow insulate the injurious effects of globalization as we are also part of the globalisation strategy of neo liberalisation, there is a limit of our ability to resist global recession, which may change into a great depression. The impact of the crisis was significantly different for the Indian economy as opposed to the western developed nations.

The most immediate effect of this global financial crisis on India is an out flow of foreign institutional investment (FII) from the equity market. This withdrawal by the FIIs led to a steep depreciation of the rupee. The banking and non-banking financial institutions have been suffering losses. The recession generated the financial crisis in USA and other developed economies have adversely affected India's exports of software and IT services. India's exports are adversely affected by the slowdown in global markets. This is already evident in certain industries like the garments industries where there have been significant job losses with the onset of the crisis. This along with a squeeze in the high-income service sectors like financial services, hospitality and tourism etc. led to a reduction in consumption spending and overall demand with the domestic economy. A direct consequence of this

was a simultaneous loss of informal employment and lower generation of new non-farm employment in the economy. The depreciation of rupee could not positively affect the exports bill of India.

- This declining trend has affected adversely the industrial activity, especially, in the manufacturing, infrastructure and in service sectors mainly in the construction, transport and communication, trade, hotels etc. Service export growth was also likely to slow as the recession deepens and financial services firms, traditionally large users of out-sourcing services were restructured.
- A financial crisis could cause workers' earnings to fall as jobs were lost in formal sector demand for services provided by the informal sector declined and working hours and real wages were cut. When formal sector workers who have lost their jobs entered the informal sector, they put additional pressure on informal LABOUR markets.
- During recession industrial growth was also faltering. India's industrial sector has suffered from the depressed demand conditions in its export markets, as well as from suppressed domestic demand due to the slow generation of employment.
- The most immediate effect of that crisis on India has been an outflow of foreign institutional investment from the equity market. Foreign Institutional Investment (FIIs), which need to retrench assets in order to cover losses in their home countries and were seeking havens of safety in an uncertain environment, have become major sellers in Indian markets. As FIIs pull out their money from the stock market, the large corporate no doubt have affected, the worst affected was likely to be the exports and small and marginal enterprises that contribute significantly to employment generation.
- The currency depreciation may also affect consumer prices and the higher cost of imported food hurt poor individuals and households that spend much of their income on food.
- Faster than expected reduction in inflation. The decline inflation should support consumption demand and reduce input costs for corporate.
- The foreign exchange market came under pressure because of reversal of capital

flows as part of the global decelerating process. Foreign exchange reserves were depleting.

- The shrinking of aggregate in the world market as a consequence of the crisis has hurt the exporting manufacturing industries in the country.
- On the demand side, much higher investments replaced government stimulus. Wholesale price inflation has been around 10 percent between February and May 2010 after remaining in negative during much of 2009. Food inflation, however, declined from 18 percent to 12 percent over the same period. Global commodity prices have rebounded after the financial crisis but price pressures are remained under control.

8.5.3 Change in consumer behaviours due to recession: Not only in India but recession has affected all over the world now-a-day. Economic slowdown resulted many companies loses their contract, probably it influence the employees and fails to get enough money and losing jobs. So in our daily activities it affects different problems in life and our lifestyle turns very worse. But if people have a mentality to overcome this situation he himself decreases his expenses and should follow the tables. Easily his life will go happiness. The fact that recession is changing the consumer behaviours as well as the attitudes in the current retail market .The customer has become more loyal & they stick to the supermarket which gives them value for money. I am not sure how the income tracker of an average middle class family this year, but average family has seen less spending per month. Even during an economic downturn, consumer spending continues. However, buyer attitudes and behaviour patterns alter substantially in recession as consumers delay replacing serviceable products and focus on achieving value for money, seeking out deals and eliminating indulgences. This insight explores how consumers prioritise spending during a recession and provides implications and recommendations for action.

8.5.4 Impact of The Slowdown On India's Exports: Global demand plays an important role in determining the export growth of a product. With a rise in global incomes, demand for normal and luxury products rises while for inferior products it may decline. Income elasticity of demand for luxury products is expected to be greater than one, while for normal goods it is expected to be between 0 and 1. The kind of products a country exports, i.e., the income elasticity of demand of the product, is an important factor which

determines the impact of a slowdown on the country's exports. Along with income elasticity, price competitiveness may also determine the impact of a slowdown on exports. If the products exported are less price sensitive, then in the case of a slowdown the option of lowering prices to maintain market shares may not be feasible. The empirical evidence of low price elasticity and high income elasticity of export demand in general has important implications for exports of developing countries. Firstly, this suggests that the export growth of developing countries is highly dependent on the economic performance of developed countries. Secondly, it implies that the developing countries may have limited feasibility of using price competition to maintain or increase exports.

8.6 SUMMARY

A recession is slowdown or a massive contraction in economic activities. Its' a period of temporary economic decline during which trade and industrial activity are reduced; generally identified by a fall in GDP (gross domestic product) in two or more successive quarters. A recession normally takes place when consumers lose confidence in the growth of the economy and spend less. This leads to a decreased demand for goods and services, which in turn leads to a decrease in production, lay-offs and a sharp rise in unemployment. Investors spend less as they fear stocks values will fall and thus stock markets fall on negative sentiment. The economy of India is the tenth-largest in the world by nominal GDP and the third-largest by purchasing power parity (PPP). The country is one of the G-20 major economies and a member of BRICS. IMF (International Monetary Fund) report reveals "on a per-capita-income basis, India ranked 141 by nominal GDP and 130 by GDP (PPP) in 2012". India is the 19th-largest exporter and the 10th-largest importer in the world. The economy slowed to around 5.0% for the 2012–13 fiscal year compared with 6.2% from past fiscal. Due to India's rapid and growing integration into the global economy India has been hit by the global meltdown. To combat these effects of the global crisis on the Indian economy and to prevent future collapse, an effective departure from the dominant economic philosophy of the neo-liberalism is required.

8.7 SELFASSESSMENT QUESTIONS

1. Explain the effects of economic slowdown on market demand?

-
-
2. Explain the factors influencing market demand?

-
-
3. What is economic slowdown? Explain the impact of economic slowdown on Indian economy.

8.8 SUGGESTED READINGS

- Advanced Economic Theory. Micro Economic Analysis, Ahuja, H.L., 2012, S. Chand and Company Ltd, New Delhi.
- Principles of Economics, Mishra and Puri, 2007, Himalaya Publishing House, New Delhi.
- Economic Theory, Chopra, P.N., 2005, Kalyani Publishers New Delhi.

UNIT- III

LESSON 9

PRICING POLICY

STRUCTURE

- 9.1 INTRODUCTION
- 9.2 OBJECTIVES
- 9.3 PRICE DEFINED
 - 9.3.1 The Customer's View of Price
 - 9.3.2 Price from a Societal Perspective
 - 9.3.3 The Marketer's View of Price
- 9.4 PRICING OBJECTIVES
- 9.5 FACTORS DETERMINING PRICING POLICY
- 9.6 PRACTICAL ASPECT OF PRICING DECISION
- 9.7 SUMMARY
- 9.8 SELF ASSESSMENT QUESTIONS
- 9.8 SUGGESTED READINGS
- 9.1 INTRODUCTION**

Pricing is a crucial managerial decision. Most companies do not encounter it in a major way on a day-to-day basis. But there is need to follow certain additional guidelines in the pricing of the new product. The marketing of a 'new product' poses a problem for any firm because new products have no past information. Here the firm is also not in a position to determine consumer reaction. The question is, what do we mean by a new product? New products for our purposes will include original products, improved products, modified products and new brands that the firm develops through its own R&D efforts. When fixing the first price, the decision is obviously a major one. When the company

introduces its product for the first time, the whole future depends heavily on the soundness of initial pricing decision. Top management is accountable for the new product's success record and therefore establish specific criteria for acceptance of new product ideas especially in a large multidivisional company where all kinds of projects bubble up as favourites of various managers. There are always competitors who would also like to produce it at the earliest opportunity. Pricing decision assumes special importance when one or more competitors change their prices or products or both. Sometimes, the competitors may introduce a new brand without altering the price of an existing brand. If the new brand is perceived to compete with a given brand more effectively, then the firm in question may have to think on its pricing policy once again.

From a customer's point of view, value is the sole justification for price, Many times customers lack an understanding of the cost of materials and other costs that go into the making of a product. But those customers can understand what that product does for them in the way of providing value. It is on this basis that customers make decisions about the purchase of a product. Effective pricing meets the needs of consumers and facilitates the exchange process. It requires that marketers understand that not all buyers want to pay the same price for products, just as they do not all want the same product, the same distribution outlets, or the same promotional messages. Therefore, in order to effectively price products, markets must distinguish among various market segments. The key to effective pricing is the same as the key to effective product, distribution, and promotion strategies. Marketers must understand buyers and price their products according to buyer needs if exchanges are to occur. However, one cannot overlook the fact that the price must be sufficient to support the plans of the organisation, including satisfying stockholders. Price charged remains the primary source of revenue for most businesses,

9.2 OBJECTIVES

The objectives of this lesson is:

- To understand the concept of pricing.
- To know about the factors affecting pricing decisions.

9.3 PRICE DEFINED

Although making the pricing decision is usually a marketing decision, making it

correctly requires an understanding of both the customer and society's view of price as well. In some respects, price setting is the most important decision made by a business. A price set too low may result in a deficiency in revenues and the demise of the business. A price set too high may result in poor response from customers and, unsurprisingly, the demise of the business. The consequences of a poor pricing decision, therefore, can be dire.

9.3.1 The Customer's View of Price

As discussed in an earlier chapter, a customer can be either the ultimate user of the finished product or a business that purchases components of the finished product. It is the customer that seeks to satisfy a need or set of needs through the purchase of a particular product or set of products. Consequently, the customer uses several criteria to determine how much they are willing to expend in order to satisfy these needs. Ideally, the customer would like to pay as little as possible to satisfy these needs. Therefore, for the business to increase value (i.e., create the competitive advantage), it can either increase the perceived benefits or reduce the perceived costs. Both of these elements should be considered elements of price,

9.3.2 Price from a Societal Perspective

Price, at least in dollars and cents, has been the historical view of value. Derived from a bartering system-i.e., exchanging goods of equal value-the monetary system of each society provides a more convenient way to purchase goods and accumulate wealth. Price has also become a variable society employs to control its economic health. Price can be inclusive or exclusive. In many countries, such as Russia, China, and South Africa, high prices for products such as food, health care, housing, and automobiles, means that most of the population is excluded from purchase. In contrast, countries such as Denmark, Germany, and Great Britain charge little for health care and consequently make it available to all. There are two different ways to look at the role price plays in a society: rational man and irrational man. The former is the primary assumption underlying economic theory, and suggests that the results of price manipulation are predictable.

9.3.3 The Marketer's View of Price

Price is important to marketers, because it represents marketers' assessment of

the value customers see in the product or service and are willing to pay for a product or service. A number of factors have changed the way marketers undertake the pricing of their products and services.

1. Foreign competition has put considerable pressure on U.S. firms' pricing strategies. Many foreign-made products are high in quality and compete in U.S. markets on the basis of lower price for good value.
2. Competitors often try to gain market share by reducing their prices. The price reduction is intended to increase demand from customers *who* are judged to be sensitive to changes in price.
3. New products are far more prevalent today than in the past. Pricing a new product can represent a challenge, as there is often no historical basis for pricing new products. If a new product is priced incorrectly, the marketplace will react unfavourably and the "wrong" price can do long-term damage to a product's chances for marketplace success.
4. Technology has led to existing products having shorter marketplace lives. New products are introduced to the market more frequently, reducing the "shelf life" of existing products. As a result, marketers face pressures to price products to recover costs more quickly. Prices must be set for early successes including fast sales growth, quick market penetration, and fast recovery of research and development costs.

9.4 PRICING OBJECTIVES

Firms rely on price to cover the cost of production, to pay expenses, and to provide the profit incentive necessary to continue to operate the business. We might think of these factors as helping organisations to: (1) survive, (2) earn a profit, (3) generate sales, (4) secure an adequate share of the market, and (5) gain an appropriate image.

1. **Survival:** It is apparent that most managers wish to pursue strategies that enable their organisations to continue in operation for the long term. So survival is one major objective pursued by most executives. For a commercial firm, the price paid by the buyer generates the firm's revenue. If revenue falls below cost for a long period of time, the firm cannot survive.

2. ***Profit:*** Survival is closely linked to profitability. Making a \$500,000 profit during the next year might be a pricing objective for a firm. Anything less will ensure failure. All business enterprises must earn a long-term profit. For many businesses, long-term profitability also allows the business to satisfy their most important constituents-stockholders. Lower-than-expected or no profits will drive down stock prices and may prove disastrous for the company.
3. ***Sales:*** Just as survival requires a long-term profit for a business enterprise, profit requires sales. As you will recall from earlier in the text, the task of marketing management relates to managing demand. Demand must be managed in order to regulate exchanges or sales. Thus marketing management's aim is to alter sales patterns in some desirable way.
4. ***Market Share:*** If the sales of Safeway Supermarkets in the Dallas-Fort Worth metropolitan area account for 30% of all food sales in that area, we say that Safeway has a 30% market share. Management of all firms, large and small, are concerned with maintaining an adequate share of the market so that their sales volume will enable the firm to survive and prosper. Again, pricing strategy is one of the tools that is significant in creating and sustaining market share. Prices must be set to attract the appropriate market segment in significant numbers.
5. ***Image:*** Price policies play an important role in affecting a firm's position of respect and esteem in its community. Price is a highly visible communicator. It must convey the message to the community that the firm offers good value, that it is fair in its dealings with the public, that it is a reliable place to patronise, and that it stands behind its products and services.

9.5 FACTORS DETERMINING PRICING POLICY

The pricing decisions for a product are affected by internal and external factors.

A. Internal Factors:

1. Cost

While fixing the prices of a product, the firm should consider the cost involved in producing the product. This cost includes both the variable and fixed costs. Thus,

while fixing the prices, the firm must be able to recover both the variable and fixed costs.

2. The predetermined objectives

While fixing the prices of the product, the marketer should consider the objectives of the firm. For instance, if the objective of a firm is to increase return on investment, then it may charge a higher price, and if the objective is to capture a large market share, then it may charge a lower price.

3. Image of the firm

The price of the product may also be determined on the basis of the image of the firm in the market. For instance, HUL and Procter & Gamble can demand a higher price for their brands, as they enjoy goodwill in the market.

4. Product life cycle

The stage at which the product is in its product life cycle also affects its price. For instance, during the introductory stage the firm may charge lower price to attract the customers, and during the growth stage, a firm may increase the price.

5. Credit period offered

The pricing of the product is also affected by the credit period offered by the company. Longer the credit period, higher may be the price, and shorter the credit period, lower may be the price of the product.

6. Promotional activity

The promotional activity undertaken by the firm also determines the price. If the firm incurs heavy advertising and sales promotion costs, then the pricing of the product shall be kept high in order to recover the cost.

B. External Factors:

1. Competition

While fixing the price of the product, the firm needs to study the degree of competition in the market. If there is high competition, the prices may be kept

low to effectively face the competition, and if competition is low, the prices may be kept high.

2. Consumers

The marketer should consider various consumer factors while fixing the prices. The consumer factors that must be considered includes the price sensitivity of the buyer, purchasing power, and so on.

3. Government control

Government rules and regulation must be considered while fixing the prices. In certain products, government may announce administered prices, and therefore the marketer has to consider such regulation while fixing the prices.

4. Economic conditions

The marketer may also have to consider the economic condition prevailing in the market while fixing the prices. At the time of recession, the consumer may have less money to spend, so the marketer may reduce the prices in order to influence the buying decision of the consumers.

5. Channel intermediaries

The marketer must consider a number of channel intermediaries and their expectations. The longer the chain of intermediaries, the higher would be the prices of the goods.

Some other factors need to be considered while fixing price for a product are:

- ***Determine primary and secondary market segments.*** This helps you better understand the offering's value to consumers. Segments are important for positioning and merchandising the offering to ensure maximized sales at the established price point.
- **Assess the product's availability and near substitutes.** Underpricing hurts your product as much as overpricing does. If the price is too low, potential customers will think it can't be that good. This is particularly true for high-end, prestige brands. One client underpriced its subscription product, yielding depressed

response and lower sales. The firm underestimated the uniqueness of its offering, the number of close substitutes, and the strength of the consumer's bond with the product. As a result, the client could increase the price with only limited risk to its customer base. In fact, the initial increase resulted in more subscribers as the new price was more in line with its consumer-perceived value.

- ***Survey the market for competitive and similar products.*** Consider whether new products, new uses for existing products or new technologies can compete with or, worse, leapfrog your offering. Examine all possible ways consumers can acquire your product. I've worked with companies that only take into account direct competitors selling through identical channels. Don't limit your analysis to online distribution channels.

Competitors may define your price range. In this case, you can price higher if consumers perceive your product and/or brand is significantly better; price on parity if your product has better features; or price lower if your product has relatively similar features to existing products. An information client faced this situation with a premium product. Its direct competitors established the price for a similar offering. As the third player in this segment, its choices were price parity with an enhanced offering or a lower price with similar features.

- ***Examine market pricing and economics.*** A paid, ad-free site should generate more revenue than a free ad-supported one, for example. In considering this option, remember to incorporate the cost of forgone revenue, especially as advertisers find paying customers more attractive.

To gain additional insight from this analysis, observe consumers interacting with your product to better understand their connection to it. This can yield insights into how to package and promote the offering that can affect on pricing, features, and incentives.

- ***Calculate the internal cost structure and understand how pricing interacts with the offering.*** A content client promote its advertising-supported free e-zines to incent readers to register. The client believed the e-zines had no value as the content was repurposed from another product, so it didn't advertise them. Yet the repurposed content was exactly what readers viewed as a benefit. By

undervaluing its offering, the client missed an opportunity to increase registrations and, hence, advertising revenues with a product that effectively had no development costs.

- ***Test different price points if possible.*** This is important if you enter a new or untapped market, or enhance an offering with consumer-oriented benefits. To determine price, MarketingExperiments.com tested three different price points for a book. It found the highest price yielded the greatest product revenue. Interestingly, the middle price yielded greater revenue over time, as it generated more customers to whom other related products could be marketed.
- ***Monitor the market and your competition continually to reassess pricing.*** Market dynamics and new products can influence and change consumer needs. Determine price based on a number of factors. Most important is what potential customers are willing to pay and their value to your company over time.

9.6 PRACTICAL ASPECT OF PRICING DECISION

Practical aspect of pricing decision explained here with the help of a case study.

CASE STUDY: PRICING IN THE PACKAGE HOLIDAY MARKET

UK holidaymakers take some 36 million overseas holidays each year. Of these, almost half are “packaged holidays” - where the consumer buys a complete package of accommodation, flight and other extras - all bundled into one price. This is a highly competitive market with a small number of large tour operators (including Thomson Holidays, Air tours, First Choice, JMC) battling hard for market share. Package holidays were devised partly as a way of achieving high sales volumes and reducing unit costs by allowing tour operators to purchase the different elements (flight, catering, accommodation, etc.) in bulk, passing some of the savings on to consumers.

Low margins require high asset utilisation

Estimates of tour operating margins vary, but fairly low average figures - of the order of 5% (or around £22 on the typical holiday price of around £450) are widely assumed in the mainstream segment of the market. It should however be noted that vertically integrated holiday operators (where the tour operator also owns an airline and a travel

agency) will normally also generate profit from consumers. Accordingly, the gross margins on the total operations of the integrated operators may be larger than those on their tour operation activities alone. Tour operators need to operate at high levels of capacity utilisation (figures of the order of 95% or more in terms of holidays sold) in order to maintain profitability. Matching capacity and demand is therefore critical to profitability, especially since package holidays are perishable goods - a given package loses all its value unless it is sold before its departure date. Perishable goods markets require highly flexible production and distribution systems so that supply and demand can be closely matched and 'waste' production minimised. But suppliers of package holidays are severely hampered in precisely aligning capacity and demand. They need to 'produce' (i.e. contract for the necessary flights, accommodation, etc.) virtually the whole of what they expect to sell a long time before it is 'consumed' (i.e. when the consumer departs for the holiday destination, or at the earliest, when the consumer pays the bulk of the price - usually around 8 weeks before departure).

Long-term management of capacity

Tour operators' capacity plans, and the associated contracts with hoteliers and airlines, are typically fixed 12-18 months ahead of the holiday season. Some adjustments are possible after this date. However, within about 12 months of departure date, once the booking season has begun (i.e. from about the summer of 2002 for departures in summer 2003) the scope for changes is severely limited. This is due to the inflexibility of many commitments with suppliers and the problems associated with changing dates, flights, hotels, etc., of customers who have already booked. Only by contracting for their expected needs well ahead of time, enabling suppliers to plan ahead, can tour operators obtain a sufficiently low price to attract an adequate volume of profitable sales. Tour operators therefore need to encourage early bookings. These improve cash flow - a substantial deposit (usually around £100 per person, equivalent to around 25% of a typical short-haul holiday price) is paid by consumers on booking; the balance is payable two months in advance of departure (except, naturally, for 'late' bookings). Tour operators also reduce the risk of unsold holidays, and the consequent need for discounting, later on. Adding capacity is easier than reducing it during a season, although in some instances, e.g. where a particular resort is proving especially popular, all suitable accommodation (and/or flights to the relevant airport) will already have been reserved, at least for the peak period. But it

is generally difficult for tour operators to 'unwind' their contracts, especially those for air transport, without substantial penalties. The tour operator, accordingly, bears almost all of the risk of any contracted capacity remaining unsold.

The price mechanism

Faced with this limited ability to reduce output in the short term (i.e. once the brochures are published and the selling season has started), tour operators can, for the most part, only try to match supply and demand via the price mechanism - in other words, by discounting once it becomes clear that sales of their holidays appear unlikely to match the supply that they have contracted.

The fixed costs of tour operation (mainly, the cost of the airline seat and most of the accommodation and catering costs) make up a high proportion of total costs, so that relatively high levels of discount can be applied if necessary to clear unsold stock. Reductions of up to 25% off the initial brochure price are available on some 'late' sales - although consumers will often in such cases be required to accept the operator's choice of hotel, or even the resort, according to availability. Discounting of holidays during this 'late' part of the selling season is a similar phenomenon to that of 'end of season stock clearance' sales in other retail sectors (e.g. clothing). However, the impact of discounting on 'late' in a normal season should be seen in the context of the operator's turnover for the season; it is effectively reduced by only about 5% (25% off 25% of holidays sold). Discounts (or equivalent incentives such as 'free child' places or 'free insurance') for early purchase are also offered, but they are much less significant both as to the amount of the reduction (5-10% appears typical) and its impact on costs and turnover. About three-quarters of all package holidays typically are sold at or close to the brochure price. The fundamental rigidities in the market have important consequences for competition. They make suppliers closely dependent on each other from a strategic, as well as a short-term, viewpoint. In particular, any decision by a tour operator to try to increase market share by increasing capacity (i.e. offering more holidays for sale) will lead to a fall in prices unless competitors reduce their share by an equivalent amount by cutting capacity.

9.7 SUMMARY

This chapter begins by defining price from the perspective of the consumer, society, and the business. Each contributes to our understanding of price and positions it as a

competitive advantage. The objectives of price are fivefold: (1) survival, (2) profit, (3) sales, (4) market share, and (5) image. In addition, a pricing strategy can target to: meet competition, price above competition, and price below competition. Several pricing tactics were discussed. They include new product pricing, price lining, price flexibility, price bundling, and the psychological aspects of pricing. The most important pricing objective is revealed to be maintenance of existing customers, followed by the attraction of new customers and the satisfaction of customers' needs. Other important objectives are cost coverage, the creation of a prestige image for the company, its long-term survival, and service quality leadership. Objectives related to profit, sales and market share are less important, perhaps because of the difficulties associated with maximising profits or sales in reality. The least important objective is discouraging new competitors from entering the market, perhaps because of the high barriers to market entry that exist among some of the sectors examined in the study. Also the companies regard quantitative objectives (those related to, for example, the firm's profits, sales, market share and cost coverage) as less significant than qualitative objectives, which are associated with less quantifiable goals such as the relationship with customers, competitors and distributors, plus the long-term survival of the firm and the achievement of social goals. Moreover, companies seem to pursue more than one objective, perhaps because of the complexity of pricing decisions.

9.8 SELFASSESSMENT QUESTIONS

1. Discuss the objectives which pricing policies can be established to accomplish?

2. Why is price an important part of the marketing mix?

3. Who typically has responsibility for setting prices in most organisations? Why?

9.9 SUGGESTED READINGS

- Mishra, S.k., and Puri, V.K., modern macro economic theory, Himalayan Publishing house.
- Edward Shapiro, Macro Economic Analysis, Tata McGraw Hill, New Delhi.
- Jhingam, M.L. & Stephen, J.K, Managerial Economics, Vrinda Publications Pvt. Ltd. Delhi.
- Dingra, I.C Managerial Economics, Sultan Chand, New Delhi.

UNIT-III

LESSON 10

PRICING METHODS

STRUCTURE

- 10.1 INTRODUCTION
- 10.2 OBJECTIVE
- 10.3 METHODS OF PRICING
 - 10.3.1 Pricing a New Product
 - 10.3.2 Pricing of Multiple Products
 - 10.3.3 Product-Line Pricing
 - 10.3.4 Pricing over the Life Cycle of a Product
 - 10.3.5 Cyclical Pricing
 - 10.3.6 Transfer Pricing
 - 10.3.7 Differential Pricing
 - 10.3.8 Cost-Plus or Full-Cost Pricing
- 10.4 SUMMARY
- 10.5 SELF ASSESSMENT QUESTIONS
- 10.6 SUGGESTED READING

10.1 INTRODUCTION

Pricing is the most neglected element of the marketing mix. The pricing objectives of service firms provide directions for action. They range from, for example, maximising profits, or sales, or market share, to avoiding price wars or achieving social goals. Pricing methods, meanwhile, are explicit steps or procedures by which firms arrive at marketing decisions. They can be cost based (such as adding a profit margin to the average cost of

the service), competition based (such as pricing similar to competitors or according to the market's average prices) or demand based (such as setting the price so as to satisfy the customer's needs).

10.2 OBJECTIVES

The objectives of this lesson are:

- To explain various pricing strategies
- To know the practical aspect of pricing decision

10.3 METHODS OF PRICING

10.3.1 Pricing a New Product

Pricing is a crucial managerial decision. Most companies do not encounter it in a major way on a day-to-day basis. But there is need to follow certain additional guidelines in the pricing of the new product. The marketing of a new, 'product poses a problem for any firm because new products have no past information.

Here the firm is also not in a position to determine consumer reaction. The question is, what do we mean by a new product? New products for our purposes will include original products, improved products, modified products and new brands that the firm develops through its own R&D efforts.

When fixing the first price, the decision is obviously a major one. When the company introduces its product for the first time, the whole future depends heavily on the soundness of initial pricing decision. Top management is accountable for the new product's success record.

Top management must establish specific criteria for acceptance of new product ideas especially in a large multidivisional company where all kinds of projects bubble up as favourites of various managers. There are always competitors who would also like to produce it at the earliest opportunity. Pricing decision assumes special importance when one or more competitors change their prices or products or both.

Sometimes, the competitors may introduce a new brand without altering the price of an existing brand. If the new brand is perceived to compete with a given brand more effectively, then the firm in question may have to think on its pricing policy once again.

The price fixed for the new product must:

- (i) Earn good profits for the firm over the life of the product;
- (ii) Provide better quality at a cheaper price and at a faster speed than competitors;
- (iii) Face rising R & D, manufacturing and marketing costs and
- (iv) Satisfy public criteria such as consumer safety and ecological compatibility.

The firm can select two types of strategy:

- (A) Skimming Pricing
- (B) Penetration Pricing

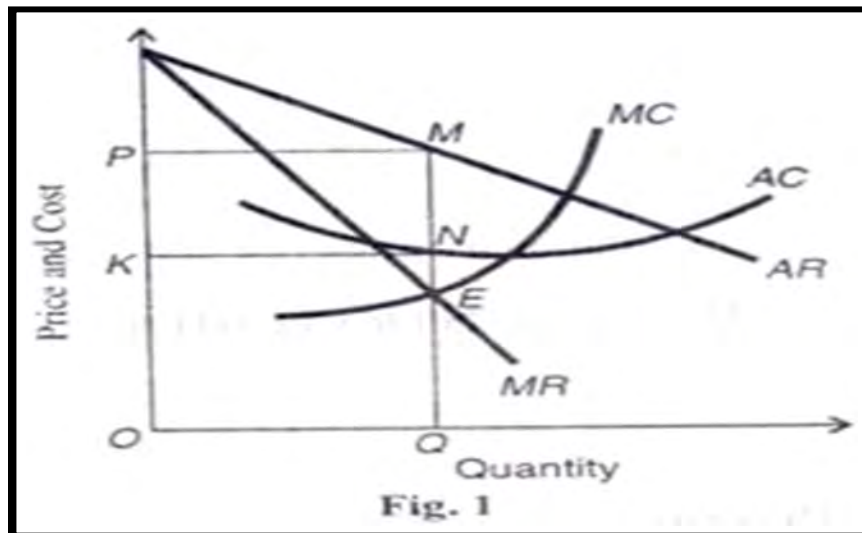
(A) Skimming Pricing:

Skimming pricing is known as charging high price in initial stages. This can be followed by a firm by charging skimming price for a new product in pioneering stage. When demand is either unknown or more inelastic at this stage, market is divided into segments on the basis of different degree of elasticity of demand of different consumers.

This is a short period device for pricing. The demand for new products is likely to be less price elastic in the early stages, that is, the initial high price helps to “Skim the Cream” of the market which is relatively insensitive to price.

This policy is shown in Fig. 1, where the manufacturer of new product initially determines OP price and sells OQ quantity. Thus he receives KPMN abnormal profit. Under this policy, consumers are distinguished by the producers on the basis of their intensity of desire for a commodity.

For example, in the beginning the prices of computers, T.Vs, electronic calculators, etc., were very high but now they are declining every year. A high initial price together with heavy promotional expenditure may be used to launch a new product if conditions are appropriate.



These conditions are listed below:

- (i) Demand is likely to be less price elastic in the early stages than later. The cross elasticity demand should be very low.
- (ii) Launching a new product with a high price is an efficient device for breaking the market into segments that differ in price elasticity of demand.
- (iii) When the demand elasticity is unknown, high introductory price serves as a refusal price during the stage of exploration.
- (iv) High initial prices help to finance the floatation of the product. In the early stages, the cost of production and organisation of distribution are high. In addition, research and promotional investments have to be made.

(B) Penetration Pricing:

Penetration price is known as charging lowest price for the new product. This is aimed to quick in sales, capture market share, utilise full capacity and economies of scale in productive process and keep the competitors away from the market.

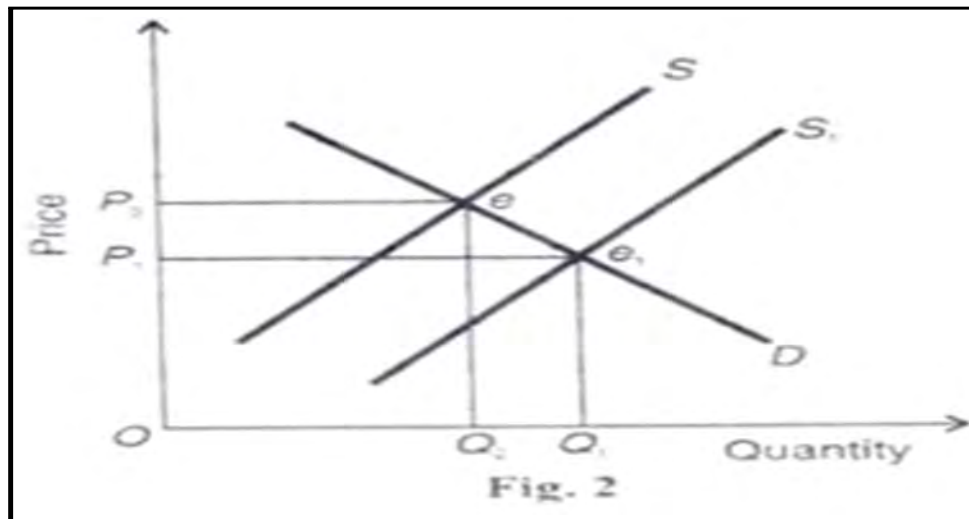
Penetration price policy can be adopted in the following circumstances:

- (i) There is very high price elasticity of demand.

- (ii) There are substantial cost savings due to enhanced production process.
- (iii) By nature the product is acceptable to the mass of consumers.
- (iv) There is no strong patent protection.
- (v) There is imminent threat of potential competition so that a big share of the market must be captured quickly.

Penetration price is a long term pricing strategy and should be adopted with great caution. Penetration pricing is successful also when there is no elite market. When a firm adopts a penetrating pricing policy, adjustments to price throughout the product life cycle are minimal. Since this policy prevents competition, it is also referred to as 'Stay-out' price policy.

Penetration price is explained in Fig. 2, where market price is OP_0 , and quantity demanded is OQ_0 . Now the producer of a new product fixes the price less than the market price i.e., OP_1 and sells OQ_1 more quantity. Obviously, it has a wide potential market.



The comparison between skimming pricing and penetration pricing is that high skimming price policy needs vigorous and costly promotional effort to back it but low penetration price would require low promotional expenditures.

But the policy is inappropriate where

- (i) The total market is expected to stay small, and
- (ii) The new product calls for capital recovery over a long period.

10.3.2 Pricing of Multiple Products

The traditional theory of price determination is based on the assumption that the firm produces a single homogeneous product. But firms usually produce more than one product. When firms produce several products, managers must consider the interrelationships between those products.

Such products may be joint products or multi-products. Joint products are those where inputs are common in productive process. Multi-products are creation of the product line activity with independent inputs but common overhead expenses. Pricing of multi-product or joint product requires little extra caution and care.

For evolving price policy for multi-product firm, certain basic considerations involved in decision making are:

- (i) Price and cost relationship in product line,
- (ii) Demand relationship in product line, and
- (iii) Competitive differences.

They are explained as follows:

(I) Price and Cost Relationship:

For evolving a price policy for any product, price and cost relationship is the basic consideration. Cost conditions determine price. Therefore, cost estimates should be correctly made. Although a firm must recover its common costs, it is not necessary that prices of each product be high enough to cover an arbitrarily apportioned share of common costs.

Proper pricing does require, however, that prices at least cover the incremental cost of producing each good. Incremental costs are additional costs that would not be incurred if the product were not produced. As long as the price of a product exceeds its incremental costs, the firm can increase total profit by supplying that product.

Hence decisions should be based on an evaluation of incremental costs. A price that offers maximum contribution over costs is generally acceptable but in multi-product cases, incremental cost becomes more essential to make such decisions.

A set of alternative price policies should be considered and they are:

- (a) Prices of multi-products may be proportional to full cost. This price may produce equal per-centage of profit margin for all products. If the full cost for all products are assumed equal then the pricing will be equal.
- (b) Pricing for multi-products may be proportional to incremental cost.
- (c) Prices of multi-products may be assessed with reference to their contribution margin as proportional to conversion cost.
- (d) Prices of multi-product may be fixed differently keeping into consideration market segments.
- (e) Prices for multi-products may be fixed as per the product life cycle of each product.

(II) Inter-relation of Demand for Multi-product:

Demand inter-relationships arise because of competition in which case they become substitutes or they may be complementary goods. Sale of one product may affect the sale of another product. Different demand elasticity of different consumers may allow the firm to follow policies of price discrimination in different market segments. Two products of the same price may be substitutes to each other with cross elasticity of demand due to high degree of competitiveness.

In such a situation, pricing of the multi-products will have to be done in such a long way that maximum return could be obtained from each market segments by selling maximum products. Demand inter-relationships in the case of multiple products make it clear that we should take into account a thorough analysis of the total effect of the decision on the firm's revenues.

(III) Competitive Differences:

Yet another important point should be considered for making price decisions, for a product line is the assessment of degree of competitiveness. Such an assessment will set

up market share for each product. A product having large market share can stand a high makeup and can contribute to bear the losses.

There is competition among a few sellers of a relatively homogeneous product that has enough cross elasticity of demand so that each seller must in his pricing decisions take account of rivals' reaction. Each producer is actually aware of the disastrous effects that an announced reduction of his own price would have on the prices charged by competitors. The firm should also analyse whether the competitors have free entry to the market or not.

IV Marginal Technique for Pricing of Multi-products:

Marginal technique for pricing multi-products is based on the logic that when the firm has spare capacity, unutilised technical resources, managerial and organisational abilities and capabilities, the firm enters into production of various other products with most profitable uses of alternatives.

The product is technically independent in the production process. For selecting these alternatives, the firm considers marginal costs of each such alternative and adopts those which offer higher margin on cost through sales.

Since each additional unit produced entails an additional cost as well as generates additional rev-enue, the logic of profit maximisation stresses that production should be stabilised at a point where MR just covers MC. 'Marginal cost more accurately reflects those changes in costs which result from a decision. Marginal pricing is more useful because of the prevalence of multi-product firms.

A firm shall produce the multi-product to the level where MR from sales of all these products equals the MC. If MC is more than MR then the firm shall stop producing and selling one of the products which offer less MR than MC.

V Pricing of Joint Products:

Products can be related in production as well as demand. One type of production interdependency exists when goods are jointly produced in fixed proportions. The process of producing mutton and hides in a slaughter house is a good example of fixed proportion in production. Each carcass provides a certain amount of mutton and hide.

There is little that the slaughter house can do to alter the proportion of the two products. When goods are produced in fixed proportion they should be thought of as a 'product package'. Because there is no way to produce one part of this package without also producing the other part, there is no conceptual basis for allocating total production costs between the two goods.

VI Pricing of joint products can be explained under two different circumstances:

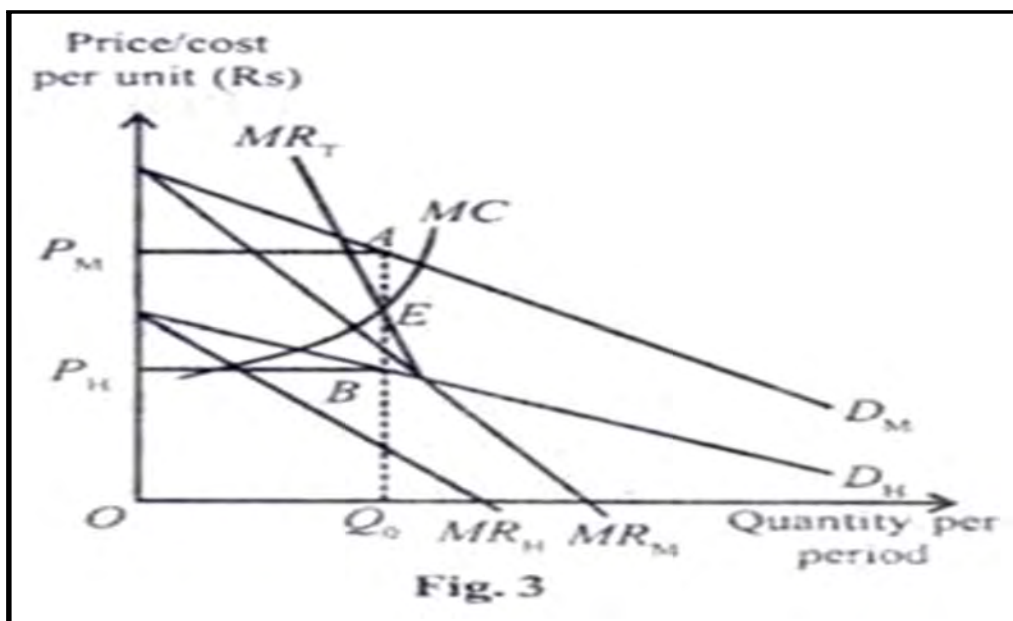
- (i) When there is fixed proportion of products.
- (ii) When there is variable proportion of products.

(i) Joint Products with Fixed Proportion:

In joint product case with fixed proportion of quantity, there is no possibility of increasing one at the expense of another. In this situation, the costs are joint and cannot be increased at the expense of another. In this situation, the costs are joint and cannot be allocated to each product on any sound basis. Although the two goods are produced together, their demands are independent.

However, there is a single marginal cost curve for both products. This reflects the fixed proportion of production, i.e., the marginal cost is the cost of supplying one more unit of the product package. Where goods are jointly produced as in the case of mutton and hides, pricing decision should take this interdependency into account.

Figure 3 indicates how profit maximising prices and quantities are determined. P_M and P_H represent the most profitable prices for the joint products. The figure carries the assumption that each product is produced in fixed proportion because the output point for both is one and the same whereas their demand and marginal revenue curves are separate for different markets existing for them. MR_M and MR_H are the marginal revenue curves for mutton and hides respectively. But when an additional animal is processed at a slaughter house both mutton and hide become available for sale. Hence the marginal revenue associated with sale of a unit of the product package is the sum of the marginal revenues.

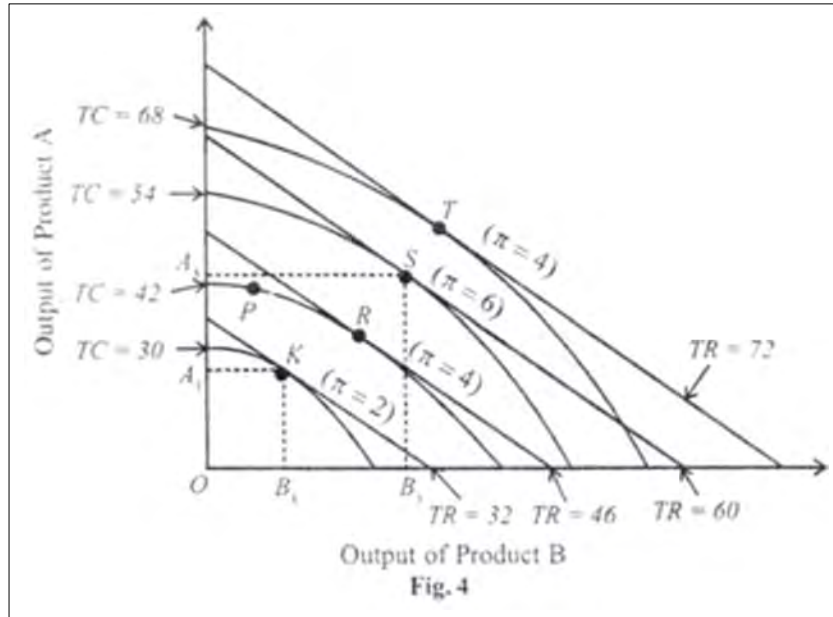


This sum is represented by the line MR_T . MR_T is determined by adding MR_M and MR_H for each rate of output. Graphically, it is the vertical sum of the marginal revenue curves of the two products. The profit maximising output Q_O is determined by the intersection of MR_T and MC curve at point E with price of mutton OP_M and of hides OP_H .

(ii) Joint Products with Variable Proportions:

Pricing of joint products which can be produced with variable proportions presents interesting analysis of price, cost and output. When it is possible for a firm to produce joint products in different proportions, the total cost has to be divided among different products because there cannot be a being e marginal cost curve.

Figure 4 Illustrates the pricing method of multiple products with variable proportions wherein three main things are to be observed:



- (i) The production possibility curve is concave to the origin indicating imperfect adaptability of productive resources in producing products A and B. In other words, it indicates the quantity of A and B which can be produced with the same total cost. It is the isocost curve labelled as TC in the figure.
- (ii) The iso-revenue lines define the prices which the firm receives for the two products irrespective of any combination of their output. They are shown as TR in the figure.
- (iii) The best combinations are the points of tangency of isocost curves and iso-revenue lines for optimum production and maximisation of sales revenues or profits.

Thus the optimal output combination is at a point where an iso-revenue line is tangent to an isocost curve. We can find the optimal combination by comparing the profit level at each tangency point and choosing the point with the highest profit level, given fixed product prices.

Suppose a firm produces and sells two products A and B, given their prices. Each isocost curve, TC, shows the quantities of these products that can be produced at the

same cost. Each iso-revenue line shows the combinations of outputs of A and B that yield the same revenue.

The problem facing the firm is to determine the outputs of joint products A and B. To solve it, let us start with an output combination where an iso-revenue line is not tangent to the iso-cost curve. Let us take such a point as P in the figure. This cannot be the optimal output combination because it is possible to increase revenue without changing cost by moving to point R on the same isocost curve where the iso-revenue line is tangent to the isocost curve.

Besides, the firm has to take into consideration the profit maximisation optimal output of combination A and \hat{A} products. For this, it compares the level of profit at each tangency point and chooses that point where the profit level is the highest. In the figure, there are four tangency points K, R, S and T corresponding to the profit levels = Rs 2 crore, = Rs, 4 crore, = Rs 6 crore and = Rs 4 crore respectively.

It is clear from the above that the firm will choose the optimal output combination at point S where it produces and sells OA_3 units of product A and OB_3 units of product \hat{A} and earns the highest profit Rs. 6 crore. It cannot produce at the higher output combination point T as compared to S because its profit level will fall to Rs 4 crore.

10.3.3 Product-Line Pricing

Product line pricing is an important practical problem for most modern industrial enterprises. Since almost every firm makes several related products, product line pricing is an important phase of price policy. Product line pricing refers to the determination of prices of the individual products which form units of an output package. From the viewpoint of management a typical modern firm produces multiple models, styles or sizes of output each of which can be considered a separate product. Although product line pricing requires same economic concepts used for single product pricing, the analysis becomes complicated, however, by demand and production externalities which arise because of substitutability or complementary between the products on the demand or the production side.

The problem of product line pricing is to find the proper relationship among the prices of members of a product group. Product line pricing can include use-differentials (e.g., fluid milk vs. cheese milk), seasonal differentials (e.g., morning movie specials) and

style cycle differentials. These are all phases of product line pricing. Our analysis of product line pricing is divided into two parts, the first sets forth a general approach, to the problem, and the second applies this approach to some specific cases.

General Approach:

We discuss, in this section, problems of exploring demand relationships and competitive differences and of making and using cost estimates for pricing related products.

Alternative Policies of Price Relationship:

A logical approach to product line pricing is to start with a picture of the alternative kinds of policy regarding the relationships among prices of members of a product line.

Let us examine some systematic patterns below:

(i) Prices that are Proportional to Full Cost:

Prices that are proportional to full cost, i.e., that produce the same percentage net profit margin for all products. Here cost plus pricing is followed.

(ii) Prices that are Proportional to Incremental Costs:

Prices that are proportional to incremental costs i.e., that produce the same percentage contribution margin over incremental costs for all products. Incremental cost is the additional cost of added units.

(iii) Prices with Profit Margins that are Proportional to Conversion Cost:

Prices with profit margins that are proportional to conversion cost, i.e., that take no account of purchased materials cost. Conversion costs refer to costs incurred to convert the raw materials into finished products.

(iv) Prices that produce Contribution Margins that depend upon the Elasticity of Demand:

Buyers with high incomes are usually less sensitive to price than those that make up the mass market and it is often profitable to put higher profit margins as products for the plushy class markets than for the rough and tumble mass markets.

(v) Prices that are systematically related to the Stage of Market and

Competitive Development of Individual Members of the Product Line:

Many products pass through life cycles. A product line pricing policy that specifically recognises that a company's various products is at different stages in their life cycles and hence face different market acceptance and competitive intensity has much to command it. This method emphasises that the firm should charge high price for those products in the line which are in their pioneering stage and prices are kept low for products in the maturity stage.

VI Competitive Differences:

An analysis of competition is frequently a vital phase of product line pricing because differences of competitive selling among products call for differences in profit margins or distribution margins. Even though it is not possible to measure the relevant aspect of competitive differences among products. Differences in competitive condition depend upon the firm's share of each product in the market. Here two aspects of competition, existing and potential, have to be considered.

Existing competition can be measured indirectly by several of its symptoms:

- (i) The number of competitors,
- (ii) The market share, and
- (iii) The degree of similarity of the competitive products.

In general, the fewer the competing sellers, the higher the margins, aside from other dimensions of competition. A product with a dominant market share can stand a higher mark-up since the presumption is that it has competitive superiority. The degree of similarity of the competitive product indicates that differentiated or unique products can have higher prices.

Potential competition can use indices like:

- (i) Incentives for competitive entry,
- (ii) Patent barriers,
- (iii) Financial barriers, and
- (iv) Technological barriers.

Existing profits of the firm are the index to the entry of other firms. Higher profits will attract other firms. Patent barriers to future competition depend upon the ability to initiate the production process. Financial barriers can be quantified by guessing how much money it would require to develop a competitive product and sell it. Technical barriers are similar to patent barriers.

VII Cost Estimates:

The cost should be the dominant if not the sole consideration in determining the relationship of prices within a product line. Cost estimates are indispensable for accurate analysis of almost every kind of pricing problems. Cost estimates are needed in product line pricing to project roughly the effects upon profits of different price structures.

Specific Problems:

Other dimensions that have to be considered in the philosophy of products line pricing are:

- (i) Pricing products that differ in size
- (ii) Pricing products that differ in quality
- (iii) Charm prices
- (iv) Pricing special designs
- (v) Load factor price differentials
- (vi) Pricing repair path
- (vii) Pricing leases and licenses

They are explained as under:

(i) Pricing Product that differs in Size:

The intensity of competition often varies with size. The logical role for size as a pricing criterion is as a measure of value of the buyer. In selecting the pattern of relationship of price to size, much depends upon whether the typical buyer has freedom to substitute one size of product for another. The best example of size-differential pricing problems is given with reference to fractional page advertising rate in newspapers.

(ii) Pricing Products that differ in Quality:

The pricing decision here depends primarily upon the strategic objectives of having products that differ in quality. Sometimes the purpose of high quality items is to bring prestige to the entire line. The firm may also produce products of lower quality to compete with the low priced product in the market. The low quality products are introduced at low prices to face competition.

(iii) Charm Prices:

Charm price theory is based upon consumer psychology that prices ending in odd figures e.g. Rs. 4.95 and Rs. 9.95 have greater effect than odd or even prices such as Rs. 5 and Rs.10. This is a point of controversy and empirical research, yet it does not permit a conclusive answer. Newspaper advertisements are dominated by prices ending in odd numbers. Another explanation is that odd figures convey the notion of a discount or bargain.

(vi) Pricing Special Designs:

Pricing special designs is a common practice to estimate normal full cost, then add to cost a fixed percentage to represent a fair or desirable profit. The price decision as special order is really a decision as to whether or not to produce the product at all. Here cost plays a peculiar role in special order pricing. An important base for special order pricing is good judge men estimating accurately the future cost of unfamiliar products.

(v) Load Factor Price Differentials:

Here firms charging different prices at different times the same product or service in order to improve the sellers' load factor have important profit potentiates for many producers. Such load factor price differentials are part of peak load pricing theory.

Examples of load factor price differentials are off peak rates for electric energy, morning movies, summer discounts on winter clothing, etc. It need not be for the same product at different period. Analysis of demand, cost and competition should enter into this consideration.

(vi) Pricing Repair Parts:

All producers of durable goods face the problems of pricing the repair parts or

spare parts. Some firms even experience higher sales receipts from repair parts production than from new equipment. Spare parts pricing has an element of monopoly. This monopoly power is however always restricted by competition of various forms.

Pricing of spare parts should not be related to relative average cost or to relative weight. Parts that are readily available should be sold at relatively low prices. Parts that the buyer can himself rebuild or get it made, for them prices should be low.

(vii) Pricing Leases and Licenses:

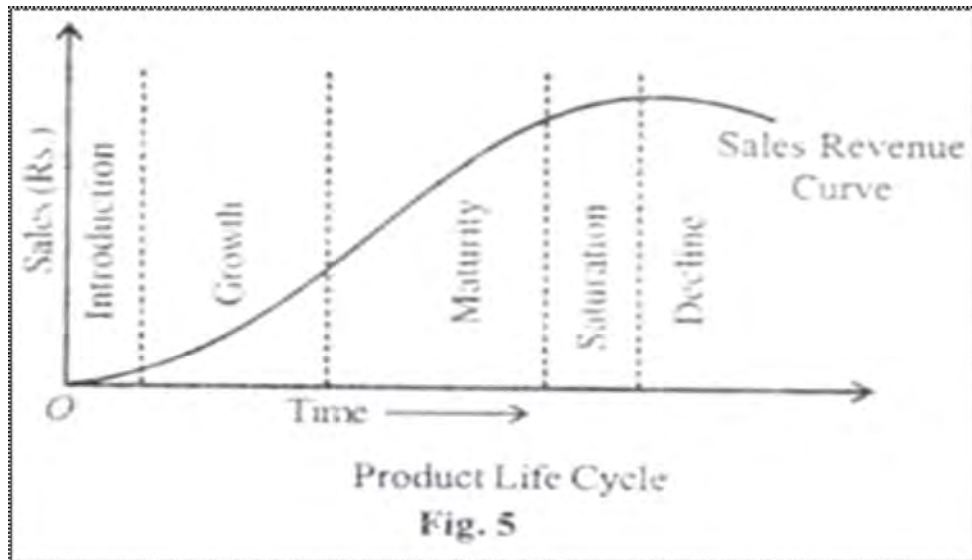
Royalty licensing and leasing of capital goods and patents reflect application of market segmentation pricing. Uniform price cannot be charged. The price charged on these is closely related to the benefits the firm receives. This pricing practice reaps for the seller-a share of the gains of the most advantageous users.

Benefits are determined by the purpose for which the equipment is obtained, the rate of utilisation, the efficiency of alternatives and so forth. As far as royalty price is concerned, it need not consider the development costs that were incurred in creating the equipment.

10.3.4 Pricing over the Life Cycle of a Product

The cycle begins with the invention of the new product. The innovation of a new product and its degeneration to a common product is termed as the life cycle of a product. It is an important concept in marketing that provides insights into a product's competitive dynamics. The life cycle of a product portrays distinct stages in the sales history of a product.

Corresponding to these stages are distinct opportunities and problems with respect to market strategy and profit potential. By identifying the stage that a product is in, or may be headed toward, companies can formulate better marketing plans. Figure 5 depicts the life cycle of a product.



Every product moves through a life cycle having five phases as shown in the figure and they are:

(i) Introduction:

This is the first stage in the life cycle of a product. This is an in-fant stage. The product is a new one. The product is put on the market, awareness and acceptance are minimal. There are high pro-motional costs. Therefore, the profit may be low. The firm can use two types of pricing policy, i.e., skimming price policy or centralising price policy in this stage.

(ii) Growth:

In this stage, a product gains acceptance on the part of consumers and businessmen. The product begins to make rapid sales gains because of the cumulative effects of introductory promotion, distribution work or mouth influence. The product satisfies the market. For the purpose of pricing, there is not much difference between growth and maturity stages.'

(iii) Maturity:

At this stage, keen competition increases. Sales growth continues, but at a diminishing rate, because of the declining number of potential customers. Competitors go

for mark-down price. Additional expenses are involved in the product's modification and improvement, thus profit margin slips. This period is useful because it gives out signals for taking precaution in pricing policy.

(iv) Saturation:

In this stage, the sales are at the peak and further increase is not possible. The demand for the product is stable. The rise and fall of sale depend upon supply and demand. There is little additional demand to be stimulated, it happens to be its replacement demand. Therefore, the product pricing in the saturation stage is full cost plus normal mark-up.

(v) Decline:

Sales begin to diminish absolutely as the customers begin to tire of a product. The competitors have entered the market with substitutes and imitations. Price becomes the competitive weapon. The product should be reformulated to suit the consumers preferences, it is possible in the case of few commodities.

Throughout the cycle, changes take place in price and promotional elasticity of demand as also in the production and distribution costs of the product. Therefore, pricing policy must be adjusted over the various phases of the cycle.

10.3.5 Cyclical Pricing

Cyclical pricing refers to the pricing decisions of the firm which are taken to suit the fluctuations in the business conditions. To simplify decision making in response to the alterations in the entire economic system, it is necessary for the firm to have some kind of policy based on cyclical price behaviour. It is more apparent to say that prices are slashed during recession and pegged up during a demand-pull or a demand-push.

In formulating a policy of cyclical pricing, various factors such as demand, competition, cost- push, price rigidity, price fluctuations, fluctuations due to substitutes, purchasing power, market share and demand fluctuation should be taken into account.

They are explained as under:

(i) Demand:

The commodities are divided into durable and non-durable goods. The necessities

fall under non-durable goods and demand for them is constant and inelastic. The purchase of necessary goods cannot be postponed but the purchase of durable goods can, however, be postponed. Under imperfect market conditions, demand plays an important role.

(ii) Competition:

If the market is imperfect, firms compete against each other and there is an element of interdependence. A policy change on the part of one firm will have immediate effects on competitors. Price cuts lead to price war. Therefore, adjustments have to be made.

(iii) Cost-push:

Producers tend to pass on increase in cost of production to consumers in the form of higher prices.

This may happen due to:

- (a) Wage increases higher than output;
- (b) Inadequate investment in plant may reduce output;
- (c) Shortages of factors of production; and
- (d) Increase in price of basic raw materials.

In these conditions costs are bound to rise. Under this situation, what kind of pricing policy should be followed by the firms? It is difficult to answer this question.

Joel Dean suggests that in formulating a policy of cyclical prices, the following factors may be considered:

(a) Price Rigidity:

Firms do not believe that prices change because of business cycles. The cyclical fluctuations are caused by economic factors like income, profit and psychological factors like expectations of the consumers. They have control over these factors. They are also of the opinion that it is not healthy to change prices in response to cyclical fluctuations.

(b) Price Fluctuation:

Price fluctuations conform to cost changes at current full cost, standard full cost, and incremental cost. Confirming cyclical changes in prices to changes in company costs is

another popular cyclical policy. It amounts to stabilising some sort of unit profit margin.

(c) Fluctuation due to Substitutes:

The use of substitute product as a cyclical pricing guide is an appropriate price policy in many situations. It may also stabilise the industry's share of the vast substitute market.

(d) Purchasing Power:

If prices can be reduced because of a fall in the purchasing power of the people during a depression, then we have what is known as the blanket index of the purchasing power. Purchasing power index is only an average that covers up great disparities. Therefore component prices are more important.

(e) Market Share:

Market share is determined by many factors and price is an important determinant. Price policy has a profound effect upon the larger share of the substitute market. A reduction in price would increase the market share. Market share can be a useful pricing guide for cyclical pricing.

(f) Demand Fluctuations:

If there are shifts in demand, they should be taken into account in setting prices. They are more important than the elasticity of demand. One recession pricing policy is to change prices in relationship to some appropriate index of shifts in demand for the product.

This pricing method assumes:

- (i) That flexible rather than rigid prices are appropriate,
- (ii) That changes in prices in the past have adjusted for changes in demand correctly,
- (iii) That these past pricing objectives are today's objectives, and
- (iv) That cost behaviour and competitive reactions will be the same as in similar periods in the past.

10.3.6 Transfer Pricing

Transfer pricing is one of the most complex problems in pricing. The growth of

large scale multi-divisional organisations has given rise to the problem of pricing commodities that are transferred inter-nally from one division to another.

The divisional organisations are preferred due to the following reasons:

- (i) It provides a systematic way of delegation and decision making
- (ii) For proper evaluation of contribution, and
- (iii) For the precise evaluation of manager's performance.

This involves the problem of sub-optimisation. The transfer price must satisfy the following two criteria:

- (i) It should help establish the profitability of each division or department.
- (ii) It should permit and encourage maximisation of the profits of the company as a whole.

For determining the transfer price there are three alternative methods. They are explained as follows:

(i) Market Price Basis:

The suitable system of transfer of goods from one division to another under the same management to another company is the market price basis. The market price should be the transfer price. Wherever a market price exists for a product, the inter-divisional transfer price should equal the market price to avoid sub-optimization. This method definitely avoids the possibility of passing the inefficiencies of one department to the other departments.

(ii) Cost Basis:

In case the product produced by a division of the firm can be sold only to another division of the firm, the inter-divisional transfer should be priced at the level of the actual cost of production. Here transfer prices will be useful to achieve the best joint level of output. It will maximise profits.

(iii) Cost plus Basis:

Under this method the goods and services of each department are charged on the basis of actual cost plus a margin by way of profit. The major defect of this method is that

the transferring department may add a high margin so as to raise the profit of the department. It may result in setting the ultimate price unduly high thereby affecting sales.

Transfer Price Determination:

Objectives:

Firms have the following objectives while determining the transfer price:

1. The aim of the firm is to ensure that its goal coincides with that of the related divisions.
2. The price of the transferred product should be so determined that the profitability of each division could be ensured.
3. The price should be such that it could induce profit-maximisation of the company as a whole rather than of a particular division.

Large firms often divide their operations into various divisions or departments. One division uses the product of the other division. In such a situation, firms are faced with the problem of determining an appropriate price for the product transferred from one division or sub-division to the other.

In other words, transfer pricing refers to the price determination of goods and services transferred among interdependent units or divisions within the organisation. This operates as a measure of the economic achievements of profit making divisions in the organisation. It is necessary to consider various situations while determining transfer price.

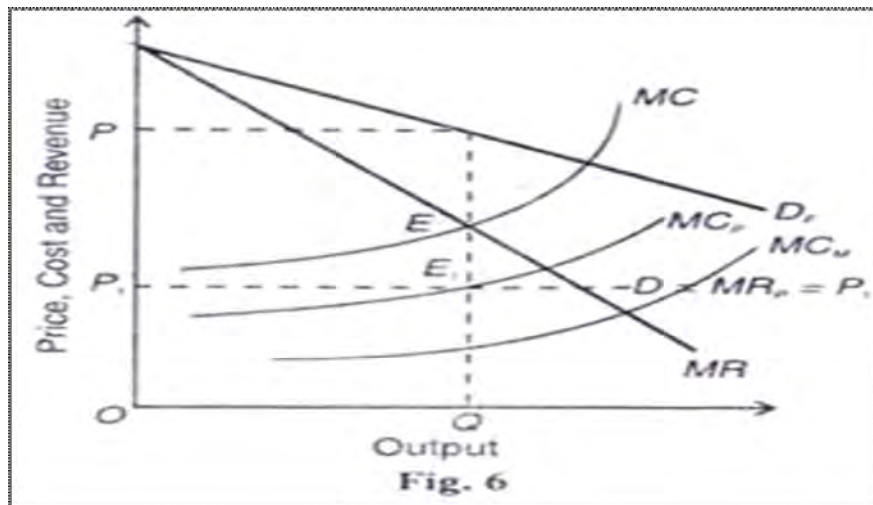
1. Transfer Pricing: Absence of an External Market:

If an intermediate product has no external market, transfer pricing will be according to the marginal cost of the producer. Suppose that a firm has two independent divisions: production division and marketing division. The Production division produces one product that is sold to the marketing division of the same firm.

The price at which it sells is called transfer price. Further, the marketing division presents that product as a final product by packaging it and sells it to the public. We also assume that the product manufactured by the production division has no market outside the firm.

In other words, the marketing division completely depends upon the production division for the supply of the product and the production division depends on the marketing division for its demand. Therefore, the total quantity of the product manufactured by the production division must be equal to the amount sold by the marketing division.

In Fig. 6 MC_P and MC_M are the cost curves of production division and marketing division respectively and MC is the firm's cost curve. This curve is the summation of MC_P and MC_M curve D_F is the firm's demand curve and MR is the marginal revenue curve for the final product. The firm will be in equilibrium at point E where its MC curve cuts its MR curve. The firm will be selling OQ quantity of the product at OP price.



Now, the question is how much price the production division should charge for its product from the marketing division? The transfer price is equal to the marginal revenue of the production division. The transfer price once determined is always stable because the demand curve of production division is horizontal on which the marginal revenue of production division is equal to the transfer price, i.e., $D = MR_P = P_1$. The production division will earn the maximum profit for its intermediate product at that point where Price (P_1) which is also its marginal revenue (MR_P), is equal to its marginal cost (MC_P), i.e. $P_1 = MR_P = MC_P$. This situation is at point where the MC_P curve cuts the $D = MR_P = P_1$ curve from below.

2. Transfer Pricing: Presence of an External Market:

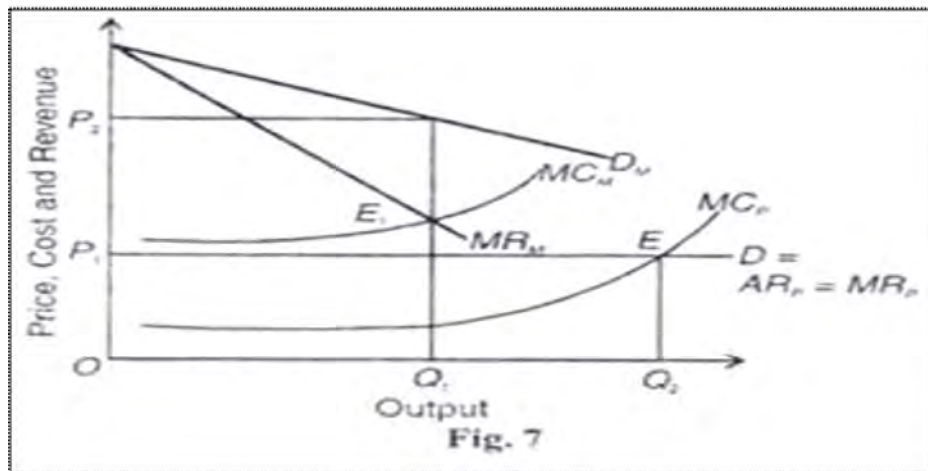
If there is an external market for the intermediate product, the production division

may produce more product than the marketing division needs and may sell the surplus product in the external market. On the other hand, it may produce less than the needs of the marketing division and the marketing division and the market division can obtain the rest of its requirements from the external market. Thus, it is more free for maximising its profit.

(1) Transfer pricing: In a Perfectly Competitive External Market:

In the case of a perfectly competitive external market, where the intermediate product can be sold or bought from the perfectly competitive outside market by the firm, the quantity produced by the production division may not be equal to the required quantity for the marketing division.

In such a situation transfer price of intermediate product is the market price of that product. The firm can be in the maximum profit situation only when all its divisions operate at their related MR — MC points. In these conditions, we explain transfer pricing in terms of Figure 7.



In the figure, D is the demand curve of intermediate product which is a horizontal line. This curve shows marginal revenue (MR_p), average revenue (AR_p) and price (P) of the production division. According to the figure, the production division will receive the maximum profit at OQ_2 output level because at this level marginal cost of production (MC_p) is equal to its marginal revenue (MR_p) which determines OP_1 price. Here the equilibrium is at point E where the MC_p curve cuts the $D=AR_p=MR_p$ curve from below.

To maximise total profit of the firm in the perfectly competitive market, it will be

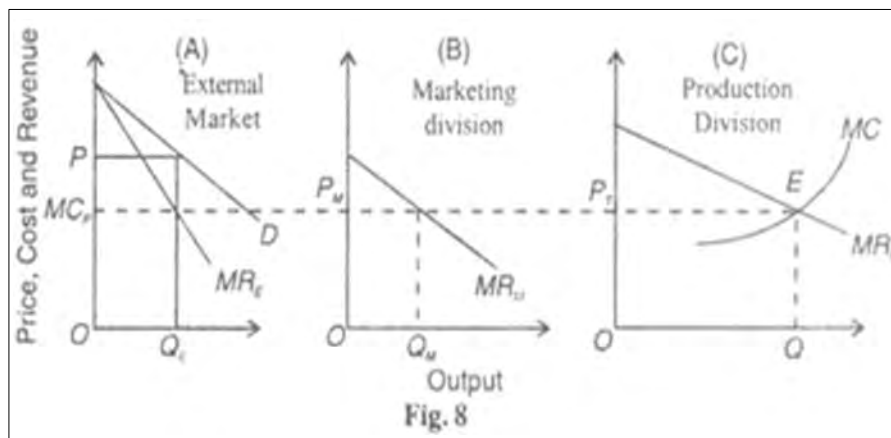
appropriate to keep transfer price at OP_1 level. It is at this price that the production division will sell its intermediate product to the marketing division or to outside customers, and the marketing division will also give only OP_1 price for the intermediate product to the production division.

The marginal cost curve of the marketing division is MC_M which is the summation of marginal marketing cost and transfer price P_1 . To maximise its profit, marketing division will have to purchase OQ_1 quantity where its marginal cost MC_M is equal to its marginal revenue MR_M at point In the figure, the maximum profitable quantity for the production division will be OQ_2 and that for the' marketing division OQ_1 Hence, the production division will sell $OQ_2 - OQ_1 = Q_2Q_1$ portion of its output in the external market.

(2) Transfer Pricing:

In Imperfectly Competitive External Market, Here we discuss trans-fer pricing in that market situation where the production division sells its product in imperfectly com-petitive external market as well as to the marketing division. In such a situation, an important problem of price differentiation arises in different markets.

The production division will get the maximum profit, when the marginal revenue in each market is equal to marginal revenue for the total market, and total market marginal revenue is equal to marginal cost. In other words, transfer price for the marketing division should be equal to the marginal cost of production division. Transfer price determination in the case of imperfectly competitive external market is shown is Fig. 8.



Panel (A) of the figure is related to an imperfectly competitive external market in

which D is its demand curve and MR_E is its marginal revenue curve. Panel (B) is related to the marketing division in which MR_M is the net marginal revenue curve of the marketing division. In other words, $MR_M = (P_T - MC_p)$. Here, transfer price (P_T) is equal to the marginal cost of the production division (MC_p). Panel (C) is related to the production division.

Its marginal revenue curve MR_p is the summation of marginal revenue of the marketing division within the firm (MR_M) and marginal revenue of the external market (MR_E). The optimum production level of the production division is OQ when MR_p curve is equal to MC curve at point \hat{A} and the transfer price is OP_T . The marketing division will buy OQ_M quantity of output at OP_T transfer price from the production division and the production division can sell OQ_E units of its production at OP price in the external market.

10.3.7 Differential Pricing

Differential pricing is a method that is used by some sellers to tailor their prices to the specific situation of buyers. The firm may charge the same or different prices for the same product. It is a practical device available to management to enlarge profits. It exploits the difference in demand elasticities.

The most common ones include quantity differentials, location differentials, product use differentials and time differentials. To achieve differential pricing, it is necessary to segment markets. The common techniques utilised for market segmentation are differences in product design, quality, choice of channel, time of sale, patents, packaging and advertising.

The important reasons for the price differentials are the following:

- (i) The location of purchase,
- (ii) The amount of purchase,
- (iii) The time of purchase,
- (iv) The status of the buyer,
- (v) The promptness of payment, and
- (vi) The personal situation.

The major goals of price differentials are the following:

- (i) Implementation of different market strategy,
- (ii) To achieve profitable market segmentation,
- (iii) To attract new customers,
- (iv) To face competition, and
- (v) To solve production problem.

(A) Distributor Discounts:

The differential prices often take the form of price discount. Modern business extends over a very wide area. The whole market may be divided into different areas or regions, thereby trade channel is formed. The manufacturer puts his product in the trade channel through various intermediaries or distributors. He allows certain rate of discount to the distributors. Such discounts are called distributor discounts. They refer to discounts or price deductions allowed to various distributors in the channel.

Factors Determining Distributor's Discounts:

Discounts given to distributors will depend on the following:

(i) Services of the Distributor:

The role played by the distributor is different for each product. In general, the merchandise business distributor himself will have to decide the investment and there is any sort of help from the manufacturer. On the other hand, the people who run specialised business like electronic gadgets have to devote themselves exclusively to the products of only one firm. The distributor discount is generally at a low and fixed level and for the specialised distributors, the discounts are normally high.

(ii) Operating Cost of the Distributor:

The aim of allowing discounts to the distributor is to cover the operating costs and normal profits of distributors. The operating costs depend upon the various functions they perform. The producer himself may take up the function of a distributor and thus assess the cost. This may provide a basis for assessing the operating cost.

(iii) Discount Structure of Competitors:

Many close substitutes are available in a competitive market. Different manufacturers will be providing different discount rates. The discounts given by rival sellers are very practical guide.

(iv) Effect of Discounts on Ultimate Buyers.

A producer must take into account the effect of discount allowed to a distributor on the ultimate buyers. He should watch whether the distributor at-tempts to expand sales or not. Some distributors may forego a part of their discounts by disposing of the product below the list price.

(v) Effect of Distributor Population:

The manufacturers must adopt an attractive discount policy expand the distributor population quickly. A manufacturer must also take into account whether he wants to have a wide network of small distributors or only a few big distributors

(vi) Cost of Selling to Different Channels:

The cost of distributing the commodity to different channels of distribution is yet another criterion. In certain cases, the distributor will receive the orders and pass on to the manufacturer. In mail order channels, the rate of discount is low. Apart from this the distance, local taxes, and mode of transport engaged may also cause variations in the cost of distribution.

(vii) Opportunities for Market Segmentation:

In some cases, the market is sub-divided into several sub-markets. The sub-market may have its own demand and competitive characteristics. These markets are characterised by variation in the elasticity of aggregate demand and cross demand.

(B) Quantity Discounts:

Quantity discounts relate to the quantity purchased. These are important pricing tools for most modern firms.

There are two main considerations involved in this:

- (i) The type of discount system to be chosen, and

- (ii) The size of quantity discount to be allowed.

For the type of discount system to be chosen, certain guidelines have to be adopted.

The important guidelines have to be based on:

- (i) The way the size is measured
- (ii) On the measurement of the quantity of individual product
- (iii) The form of calculation
- (iv) The number of transaction.

The size of quantity discount to be allowed involves two considerations:

- (i) Specific market objectives; and
 - (ii) Legality of the discount.
- (i) Under specific market objectives, quantity discounts can help to induce the customers to give the seller bigger lots. They can stimulate the same customers to give the seller a larger share of their total business. It is to overcome competition through hidden price reduction.
 - (ii) Under legality of the quantity discount, all quantity discounts are discriminatory and applied to suppress competition. The question of legality arises when quantity discount tends to suppress competition.

(C) Cash Discounts:

Cash discounts are reduction in the price which depend upon promptness of payment. It relates to cash sales. Cash discounts are allowed by the producers to dealers and dealers to customers. The cash discount is a convenient way to identify bad credit risks. If a buyer wants to buy on credit, he may have to forego discount. By discouraging customers from credit buying, the producer is able to reduce the working capital.

(D) Geographical Price Differentials:

It is another commonly practised differential pricing. This is based on buyer's location. It revolves round the nature of transportation cost and certain legal considerations.

They take a variety of forms:

(i) F O.B. Factory Pricing:

Under FOB pricing, the buyer is required to bear the entire cost of transport and is responsible for the risks occurring during transport except those are assumed by the carrier. Since the product is priced at the seller's plant, the buyers can choose the method of transportation. It assures uniform net price on all shipments regardless of where they go. The seller is responsible for delay in carriage and no risk is assumed by the seller.

(ii) Postage Stamp Pricing:

Postage stamp pricing means charging the same delivered price for all destinations irrespective of buyer's location. The price naturally includes the estimated average transport cost. It is most commonly employed for goods of popular brands and having nationwide distribution. This pricing gives a manufacturer access to all markets regardless of his location.

(iii) Zone Pricing:

Under zone pricing, the seller divides the country into zones and regions and charges the same delivered price within each zone, but different prices between different zones. It is preferred where transport cost on goods is too high to permit, the sale, though cost on goods is too high.

(iv) Basic Point Pricing:

A basic point price consists of a factory price plus transportation charges calculated with reference to a particular basic point! Under the system, the delivered price may be computed by using either single basic point or multiple basic points. If the delivered price is computed by using a single basic point it is called single basic point pricing. If more than one basic points are selected for pricing, it becomes multiple basic pricing.

10.3.8 Cost-Plus or Full-Cost Pricing

Cost-plus is a short cut method in pricing a product. It means the addition of a certain percentage of the costs as profits to the cost of production to arrive at the price.

This is known as à this is precisely cost-plus pricing. This method suggests that the price of a product should cover f cost and generate the returns as investments at a fixed mark-up percentage.

Full cost is full average cost which includes average direct costs (AVC) plus average overhead costs (AFC) plus a normal margin for profit:

$$p = AVC + AFC + \text{profit margin or mark-up.}$$

Thus, of the two elements of cost-plus price, one is the cost and the other one is mark-up. These two components are separately analysed.

Cost is an important factor in determining price. The cost is the base on which is grounded the percentage of profit. Costs carry main influence on price and are long-term price determinants are different methods of computing the cost.

Broadly speaking, there are three methods of computing the cost:

- (i) The actual cost,
- (ii) The expected cost, and
- (iii) The standard method of costing.

The actual costs are those which are actually incurred on the production of an item. It includes the wage rate, material cost and overhead expenses.

The expected cost is a forecast of the actual expenses for the pricing period. Suppose a product is planned to be introduced in the market, say three months from today, the firm first arrives at the cost of producing one unit at current prices. Then the prices of various components are projected for the next three months to arrive at the expected cost.

Under the standard method of costing, the capacity of the plant is taken into account. For exam-ple, the plant may be present by running at 70 per cent capacity. It may be that when it runs at 90 per cent, the cost may be normal or optimum. This is a factor that will have to be taken into account.

The second aspect is the percentage mark-up. In determining appropriate mark-up, the firm should carefully evaluate cost, demand elasticity and degree of competition

faced by the product. The firm should also take into account the brand image and long run strategy in fixing mark-up. Once the mark-up is fixed, it should be added to the cost of a product.

Cost-plus pricing can be classified into two categories on the basis of mark-up and they are (i) rigid cost-plus, and (ii) flexible cost-plus.

Rigid Cost-Plus Price:

In rigid cost-plus pricing, it is customary to add a fixed percentage to the cost to get price. Only variable costs are taken and a fixed mark-up percentage is added to it. This method is simple to calculate and is consistent with profit motive.

Flexible Cost-Plus Pricing:

In flexible cost-plus pricing, mark-up is not rigidly fixed as cost but it is allocated on different heads of variable and fixed costs. It considers all aspects of costs, viz., labour, material, machine hours and all overheads.

Hall and Hitch suggest the following reasons for the firm to observe full cost-pricing:

- (i) Consideration of fairness,
- (ii) Ignorance of demand,
- (iii) Ignorance of potential reaction of competitors,
- (iv) The belief that the short-run elasticity of market demand is low,
- (v) The belief that increased prices would encourage new entrants, and
- (vi) Administrative difficulties of a more flexible price policy.

Mark-up and Turn over:

Mark-up may have direct link with turnover. High turnover items may carry low mark-up. This is due to the following reasons:

- (i) Customers are aware of the prices of such items and would shift to other source of supply, and

- (ii) For high turnover goods, storing space is a big problem and opportunity cost of space utilisation and inventory buildup should be taken into account.

Mark-up and Rate of Return:

There is another way of arriving at the price which is known as the rate of return pricing. In cost-plus pricing the question of mark-up poses a problem. To bypass this problem, the rate of return pricing method may be followed. Under this method, the price is determined by the planned rate of return on the investment which is expected to be converted into a percentage of mark-up.

For fixing rate of return mark-up on cost, three steps are necessary:

- (i) To estimate the normal rate of production and the total cost of a year's normal production over a cycle,
- (ii) To calculate the ratio of invested capital to a year's standard cost, and
- (iii) To modify the capital turn over by rate of return. This gives us on the mark-up percentage.

Determination of Cost-Plus Price:

The determination of cost-plus price is explained below in terms of Prof. Andrews's version. Prof. Andrews in his study, *Manufacturing Business*, 1949, explains how a manufacturing firm actually fixes the selling price of its product on the basis of the full-cost or average cost.

The firm finds out the average direct costs (AVC) by dividing the current total costs by current total output. These are the average variable costs which are assumed to be constant over a wide range of output. In other words, the AVC curve is a straight line parallel to the output axis over a part of its length if the prices of direct cost factors are given.

The price which a firm will normally quote for a particular product will equal the estimated average direct costs of production plus a costing-margin or mark-up. The costing-margin will normally tend to cover the costs of the indirect factors of production (inputs) and provide a normal level of net profit, looking at the industry as a whole.

The usual formula for costing-margin (or mark-up) is,

$$M = P - AVC / AVC \dots(1)$$

where M is mark-up, P is price and AVC is the average variable cost and the numerator P-AVC is the profit margin.

If the cost of a book is Rs 100 and its price is Rs 125,

$$M = 125 - 100 / 100 = 0.25 \text{ or } 25\%$$

If we solve equation (1) for price, the result is

$$P = AVC (1 + M) \dots(2)$$

The firm would set the price,

$$P = \text{Rs } 100 (1 + 0.25) = \text{Rs } 125.$$

Once this price is chosen by the firm, the costing-margin will remain constant, given its organisation, whatever the level of its output. But it will tend to change with any general permanent changes in the prices of the indirect factors of production.

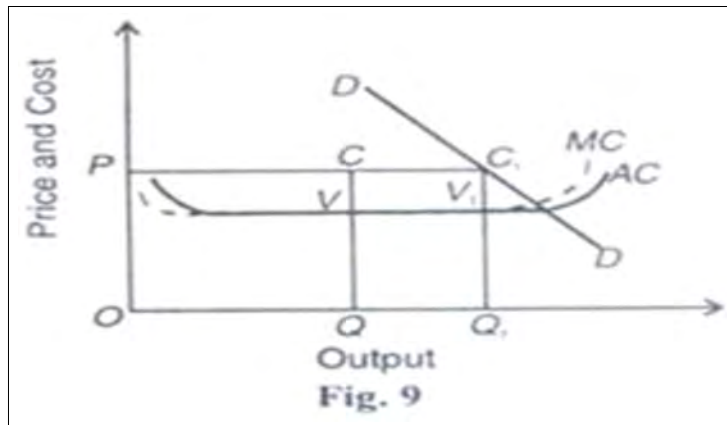
Depending upon the firm's capacity and given the prices of the direct factors of production (i.e., wages and raw materials), price will tend to remain unchanged, whatever the level of output. At that price, the firm will have a more or less clearly defined market and will sell the amount which its customers demand from it.

But how is the level of output determined? It is determined in either of the three ways:

- (a) As a percentage of capacity output; or (b) as the output sold in the preceding production period; or (c) as the minimum or average output that the firm expects to sell in the future. If the firm is a new one, or if it is an existing firm introducing a new product, then only the first and third of these interpretations will be relevant. In these circumstances, indeed, it is likely that the first will coincide roughly with the third, for the capacity of the plant will depend on the expected future sales.

The Andrews version of full-cost pricing is illustrated in Figure 9 where AC is the average variable or direct costs curve which is shown as a horizontal straight line over

a wide range of output. MC is its corresponding marginal cost curve. Suppose the firm chooses OQ level of output.



At this level of output, QC is the full-cost of the firm made up of average direct cost QV plus the costing-margin VC. Its selling price OP will, therefore, equal QC. The firm will continue to charge the same price OP but it might sell more depending upon the demand for its product, as represented by the curve DD. In this situation, it will sell OQ_1 output.

“This price will not be altered in response to changes in demand, but only in response to changes in the prices of the direct and indirect factors.”

Advantages:

The main advantages of cost-plus pricing are:

1. When costs are sufficiently stable for long periods, there is price stability which is both cheaper administratively and less irritating to retailers and customers.
2. The cost-plus formula is simple and easy to calculate.
3. The cost-plus method offers a guarantee against loss-making by a firm. If it finds that costs are rising, it can take appropriate steps by variations in output and price.
4. When the firm is unable to forecast the demand for its product, the cost-plus method can be used.

5. When it is not possible to gather market information for the product or it is expensive, cost-plus pricing is an appropriate method.
6. Cost-plus pricing is suitable in such cases where the nature and extent of competition is unpredictable.

Criticisms:

The cost-plus pricing theory has been criticised on the following grounds:

1. This method is based on costs and ignores the demand of the product which is an important variable in pricing.
2. It is not possible to accurately ascertain total costs in all cases.
3. This pricing method seems naive because it does not explicitly take into account the elasticity of demand. In fact, where the price elasticity of demand of a product is low, the cost plus price may be too low, and vice versa.
4. If fixed costs of a firm form a large proportion of its total cost, a circular relationship may arise in which the price would rise in a falling market and fall in an expanding market. This happens because average fixed cost per unit of output is low when output is large and when output is small, average fixed cost per unit of output is high.
5. Cost-plus pricing method is based on accounting data for total cost and not the opportunity cost that the sale of product incurs.
6. This method cannot be used for price determination of perishable goods because it relates to long period.
7. The full-cost pricing theory is criticised for its adherence to a rigid price. Firms often lower the price to clear their stocks during a recession. They also raise the price when costs rise during a boom. Therefore, firms often follow an independent price policy rather than a rigid price policy.
8. Moreover, the term 'profit margin' or 'costing margin' is vague. The theory does not clarify how this costing margin is determined and charged in the full cost by a firm. The firm may charge more or less as the just profit margin depending on its

cost and demand conditions. As pointed out by Hawkins, “The bulk of the evidence suggests that the size of the ‘plus’ margin varies it grows in boom times and it varies with elasticity of demand and barriers to entry.”

9. Empirical studies in England and the U.S. on the pricing process of industries reveal that the exact methods followed by firms do not adhere strictly to the full-cost principle. The calculation of both the average cost and the margin is a much less mechanical process than is usually thought. As a matter of fact, businessmen are reluctant to tell economists how they calculated prices and to discuss their relations with rival firms so as not to endanger their long-run profits or to avoid government intervention and maintain good public image.
10. Prof. Earley’s study of the 110 ‘excellently managed companies’ in the U.S. does not support the principle of full-cost pricing. Earley found a widespread distrust of full-cost principle among these firms. He reported that the firms followed marginal accounting and costing principles, and the majority of them followed pricing, marketing and new product policies.

10.4 SUMMARY

Pricing is the process of determining what a company will receive in exchange for its product or service. A business can use a variety of pricing strategies when selling a product or service. The price can be set to maximize profitability for each unit sold or from the market overall. It can be used to defend an existing market from new entrants, to increase market share within a market or to enter a new market. The two most popular pricing methods used by service companies in the study are cost-plus, where a profit margin is added to the average cost of the service, and pricing according to the market’s average prices. This may be because both methods are easy to implement. The limited emphasis given to customer-based methods – such as pricing according to customers’ needs or customers’ perceptions of value, or setting a fairly low price for a high quality service – is surprising given that customer-based objectives are the most popular among the companies surveyed. One reason may be the difficulty of determining customers’ demands and needs. Another may be that the cost plus method enables firms to cover their costs and levy competitive prices, and thus both satisfy existing customers and attract new ones.

10.5 SELFASSESSMENT QUESTIONS

1. Explain differential pricing?

2. Explain pricing policy of a new product?

3. Discuss transfer pricing?

4. Critically evaluate various pricing strategies.

10.6 SUGGESTED READINGS

- Managerial economics, Dwivedi D.N., Vikas Publishing House, New Delhi.
- Managerial Economics, Mehta, P.L., S. Chand, Delhi.
- Mithani, D.M., Managerial Economics-Theory & Application, Himalaya publishing House Pvt. Ltd., New Delhi.
- Gupta, G.S., Macro Economic- theory & Application, Tata McGraw Hill Publishing house, New Delhi.
- Vaish, M.C., Macro Economic theory, Vikas publishing house pvt. Ltd., New Delhi.

UNIT III

LESSON 11

PROFIT POLICY

STRUCTURE

- 11.1 INTRODUCTION
- 11.2 OBJECTIVE
- 11.3 CONCEPT OF PROFIT IN BUSINESS
- 11.4 PROFIT POLICY
 - 11.4.1 Objectives of Profit Policy
 - 11.4.2 The Measurement of Profit
- 11.5 SUMMARY
- 11.6 SELF ASSESSMENT QUESTIONS
- 11.7 SUGGESTED READINGS

11.1 INTRODUCTION

Profit may imply monopoly profit. It is earned by a firm through extortion, because of its monopoly power in the market. It is not related to any useful specific function. Thus monopoly profit is not a functional reward. Profit may sometimes be in the nature of a windfall. It is an unexpected reward earned by a firm just by mere chance, an inflationary boom.

11.2 OBJECTIVES

The objective of this lesson is to provide information about:

- The concept of profit
- Meaning of profit policy
- Objectives of profit policy

11.3 CONCEPT OF PROFIT IN BUSINESS

The concept of profit entails several different meanings. Profit may mean the compensation received by a firm for its managerial function. It is called normal profit which is a minimum sum essential to induce the firm to remain in business. Profit may be looked upon as a reward for true entrepreneurial function. It is the reward earned by the entrepreneur for bearing the risk. It is termed as supernormal profit analysis.

Profit is the earning of entrepreneur. To the economist, the most significant point about profit is that it is a residual income. However, the term profit has different connotations.

In short, the following are the distinctive features of profit as a factor reward:

- (i) It is not a predetermined contractual payment.
- (ii) It is not a fixed remuneration.
- (iii) It is a residual surplus.
- (iv) It is uncertain.
- (v) It may even be negative. Other factor rewards are always positive.

Gross Profit and Net Profit:

In ordinary parlance, profit actually means gross profit.

Gross profit is a term in which the following items are included in addition to the net profit due to the entrepreneur:

- (i) Remuneration for factors of production contributed by entrepreneur himself.
- (ii) Depreciation and maintenance charges.
- (iii) Extra personal profits.
- (iv) Net profit.

Net profit is the exclusive reward for the entrepreneur for the following functions performed by him:

- (i) Reward for co-ordination

- (ii) Reward for risk taking
- (iii) Reward for uncertainty bearing, and
- (iv) Reward for innovation.

In short,

Gross Profit = Net profit + implicit rent + implicit wages + implicit interest + normal profit + depreciation and maintenance charges + non-entrepreneurial profit.

Net Profit = Gross profit – (implicit rent + implicit wages + implicit interest + normal profit + depreciation and maintenance charges + non-entrepreneurial profit)

In fact, Net Profit = economic profit or pure business profit. It is the net profit which may be positive or negative. A negative profit means a loss.

Accounting Profit and Economic Profit:

An accountant looks at profit as a surplus of revenues over costs, as recorded in the books of accounts. An accountant is interested in accounting, auditing, planning and budgeting profit. The accountant does not take care of implicit or opportunity cost. Accounting profit is also called residual profit.

For the business firm, accounting profit is very important. Accounting profit is defined as the revenue realised in a given period after providing for expenses incurred during the production of a commodity. A firm while making accounting profits may be incurring economic losses. Such a firm would have to withdraw from business in the long run. In the balance sheet of a firm, accounting profit occupies an important place.

The economist, however, does not agree with the accountant's approach to profit. The accountant would only deduct the explicit or actual costs from the revenues to determine profit. The economist points out that in addition to the deduction of explicit cost, imputed cost, i.e., the cost that would have been incurred in the absence of the employment of self owned factors, should also be deducted.

Their examples are:

- (i) Entrepreneur's wages that he could earn by working for someone else,

- (ii) Rental income on self-owned land and building employed in the business, and
- (iii) Interest on self owned capital that could have been earned by investing it elsewhere.

Thus the profit arrived at after deducting both explicit and imputed costs may be called economic profit. From the managerial point of view, economic profit is very important because this alone shows the viability of a firm.

Normal Profits and Supernormal Profits:

Normal profits refer to the imputed returns to capital and risk-taking just necessary to prevent the owners from withdrawing from the industry. The normal profits are usually defined as the supply price or opportunity cost of entrepreneurship. Such cost must be covered if the firm is to stay in business in the long run.

When competition among entrepreneurs is perfect, the market price of the product is equal to average cost which itself includes 'normal profit'. Normal profit is the minimum to induce the entrepreneur to remain in the business in the long run.

It is possible that the entrepreneur may not get normal profit in the short run and may have to sell his product at a loss, but in the long run every entrepreneur must get at least the normal profits. It is assumed to be part of the price. In the words of Mrs. Joan Robinson, "Normal profit is that profit which neither attracts a new firm to enter into the industry nor obligates the existing firm to go out of the industry."

Supernormal profit is defined as the surplus over the normal profit. It is obtained by the super-marginal firms. The marginal firm gets only the normal profit, but determines the supernormal profit of the intra marginal firm.

Profit as Functional Reward:

Some economists consider profit as a functional reward. According to them, profit is a reward for the entrepreneur for his entrepreneurial functions. Some have said that organising and coordinating other factors of production are the main functions of the entrepreneur. Some others have said that risk-taking and decision making are the important functions of the entrepreneur.

They say that since the entrepreneur takes risks in business, he earns profit. Schumpeter said that the entrepreneur is performing the role of an innovator and therefore

profit is a reward for his innovation. Prof. Knight opined that profit is due to his risk taking and uncertainty bearing.

Monopoly Profit:

When a firm possesses monopoly power, it can restrict output and obtain a higher profit than it could under competitive conditions. Profit is the result of continued scarcity. It can exist only in an imperfect market where output is for various reasons restricted and the consumers are deprived of the opportunity of alternative sources of supply.

Sources of such powers are usually found in legal restrictions, sole ownership of raw materials or access of sale to particular markets. Even some degree of uniqueness in a firm's product confers some monopoly power. Summarising, it can be said that profits may come to exist as a result of monopoly.

Windfall Profit:

Some consider profit as a windfall gain. According to them, profit is not a reward for any entrepreneurial function or monopoly power. It is merely a windfall gain. It arises due to changes in the general price level in the market. If the producer or trader buys his inputs and raw materials when the prices are low and sells the output when the prices have abruptly gone up due to some unforeseen external factors, we call the profit as windfall profit. This is also included under net profit.

Earning of Management:

The entrepreneur having good bargaining power, purchases raw materials at reasonable prices. He makes suitable arrangements to store the raw materials properly. By proper inventory building, he maintains the supply of raw materials regularly.

He hires labour at normal wages and borrows working capital at reasonable rates of interest. Thus he manages and controls explicit costs. Ensuring of supply of capital is the most important function of profit. A certain percentage of net profit is set apart for better management of business.

11.4 PROFIT POLICY

It is generally held that the main motive of a firm is to make profits. The volume of profit made by it is regarded as a primary measure of its success. Economic theory

advocates profit maximisation as the chief policy of a firm. Modern business enterprises do not accept this view and relegate the profit maximisation theory to the back ground. This does not mean that modern firms do not aim at profits. They do aim at maximum profits but aim at other goals as well. All these constitute the profit policy.

(i) Industry Leadership

Industry leadership may involve either the achievement of the maximum sales volume or the manufacture of the maximum product lines. For the attainment of leadership in the industry, there has to be a satisfactory level of profit consistent with capital invested, labour force employed and volume of output produced.

(ii) Restricting the Entry

If a firm follows a policy of restricting its profit, no competitors are likely to enter the market. Reasonable profits which guarantee its survival and growth are essential. According to Joel Dean, "Competitors can invade the market as soon as they discover its profitability and find ways to shift the patents and make necessary changes in design, technique, and production plant and market penetration."

(iii) Political Impact

High profits are considered to be suicidal for a firm. If the government comes to know that the firms are earning huge returns, it may resort to high taxation or to nationalisation. High profits are often considered as an index of monopoly power and to prevent the government may introduce price control and profit regulation policies.

(iv) Consumer Goodwill

Consumer is the foundation of any business. For maintaining consumer goodwill, firms have to restrict the profit. By maintaining low profit, the firms may seek the goodwill of the consumers. Consumer goodwill is valued so much these days that firms often make organised efforts through advertisements.

(v) Wage Consideration

Higher profits may be taken as an evidence of the ability to pay higher wages. If the labour associations come to know that the firms are declaring higher dividends to the

shareholders, naturally they demand higher wages, bonus, etc. Under these circumstances in the interest of harmonious relations with employees, firms keep the profit margin at a reasonable level.

(vi) Liquidity Preference

Many concerns give greater importance to capital soundness of a firm and hence prefer liquidity to profit maximisation. Liquidity preference means the preference to hold cash to meet the day to day transactions. The first item that attracts one's attention in the balance sheet is the ratio of current assets to current liabilities. In order to give capital soundness, the business concerns keep less profit and maintain high cash.

(vii) Avoid Risk

Avoiding risk is another objective of the modern business for which the firms have to restrict the profit. Risk element is high under profit maximisation. Managerial decision involving the setting up of a new venture has to face a number of uncertainties. Very often experienced managements avoid the possibility of such risks. When there is oligopolistic uncertainty, firms may focus attention at minimising losses. The guiding principle of business economics is not maximisation of profit but the avoidance of loss.

Alternative Profit Policies

Economists have suggested different profit policies which business firms may adopt as an alternative to profit maximisation.

These alternative profit policies are listed below

Prof. K. Rothschild observes, "Profit maximisation has until now served as the wonderful market key that opened all doors leading to an understanding of the behaviour of the entrepreneur. It was always realised that family pride, moral and ethical considerations, poor intelligences and similar factors may modify the results built on the maximum profit assumption, but it was right by assuming that these disturbing phenomena are sufficiently exceptional to justify their exclusion from the main body of price theory. But there is another motive which cannot be so lightly dismissed and which is probably a similar order of magnitude as the desire for maximum profits, namely the desire for secure profits". He has suggested that the primary motive of an enterprise is long run survival.

According to him, the assumption of profit maximisation is no doubt valid to the situation of perfect competition or monopolistic competition. Under monopolistic condition, the aim of the firm is to secure monopoly profits. In the case of oligopoly, he says that the assumption of profit maximisation is not sufficient.

W.J. Baumol puts forth the maximisation of sales as the ultimate aim of the firm. He says while maximising sales the producer will not regard costs incurred as output and profits to be made. If the sales of the company increase, it means that the producer is not only covering costs but also making a usual rate of return on investment. Baumol's theory of sales maximisation as a rational behaviour of the producer is considered as an alternative to the theory of profit maximisation.

Benjamin Higgins, Mekin Reder and Tibor Scitovsky have developed another alternative to the theory of profit maximisation, that of utility maximisation, if the producer is supposed to maximise his satisfaction. In this approach, they have introduced leisure as a variable. Leisure is an essential ingredient of an individual welfare. If more work is put in by the producer, the less leisure he will be able to enjoy. It is said that the producer would get maximum satisfaction where his net profit is optimum.

Donaldson and Lorsch are of the opinion that career managers prefer policies that favour long term stability and growth of their firms which are possible only when they get maximum current profits. For the survival, self sufficiency and success, the top managers strive hard and augment corporate wealth. The more the wealth, the greater the assurance of the means of survival.

11.4.1 Objectives of Profit Policy

The firm seeks to achieve many objectives and profit making is the main objective but it is not the only objective. Profit making is no doubt necessary. In addition to adequate profit, the firm often pursues multiple and even contradictory objectives. If a firm makes sufficient profits, it can give good dividends and attractive salaries, etc. The firm can fix a target rate for profits as its investment. There is a problem in determining the target rate of profits.

They are:

- (i) Competitive rate of profit

- (ii) Historical profit rate
- (iii) Rate of profit sufficient enough to protect the equity, and
- (iv) Plough back of profit rate.

Competitive rate of profit is the rate earned by other companies in the same industry or of selected companies in other industries working under similar conditions. It may be slightly different from the rate of profit of other companies.

Historical rate of profit is the rate of profit determined as the basis of past earnings in the normal times. The rates should be sufficient enough to attract equity capital, have provided adequate dividend to share holders and have not encouraged much competition.

Rate of profit sufficient enough to protect the equity is the rate sufficient enough to attract equity capital and the rate of return on investment should protect the interest of present shareholders. Plough back of profit rate is that rate of profit which should be such that there is a surplus after paying the dividends to finance further growth of the industry. Cyert and March have focused on five objectives which represent main operative organisational goals.

They are:

- (i) Production goal
- (ii) Inventory goal
- (iii) Sales goal
- (iv) Marketing share goal and
- (v) Profit goal

Production Goal

The firms want to maintain the production of the product at a stable level to ensure stable employment and growth. The basic requirement is that the production does not fluctuate.

Inventory Goal

To ensure a complete and convenient stock of inventory throughout the production,

a minimum level of inventory has to be maintained so that the firm can prevent fluctuations in prices.

Sales Goal

It is considered as very important from the point of view of stability and survival of the firm. Increasing sales mean progress of the firm. Sales strengthen the organisation. The more are the sales, the more is the profit.

Market Share Goal

Company sales do not reveal how well the company is performing. If the company's market share goes up, the company is gaining as a competitor, if it goes down the company is losing relative to competitors.

Profit Goal

Profits are a function of the chosen price, advertising and sales promotion budgets. Normal profit is essential not only to pay dividends but also to ensure additional resources for reinvestment.

11.4.2 The Measurement of Profit

The problem of profit measurement has always been a difficult affair. In the present business world, the tendency is to discard the word 'profit' and use a neutral expression as "business income". In the accounting sense, profit is an ex-post concept. Accountants follow conventions and define their terms by enumeration.

Conventional accounting is largely concerned with historical profits rather than anticipated profits. Economists disagree with conventional techniques and they define their terms functionally. For an economist, profit is an ex-ante concept.

It is a surplus in excess of all opportunity costs or the difference between the cash value of an enterprise at the beginning and end of a period. From the management point of view, economic profits are a better reflection of profitability of business. The economist is basically interested in the theoretical analysis of profit.

The most important points of difference between the economist's and accountant's approaches centre around:

(i) Inclusiveness of Costs

To determine profits, economists include in costs, wages, rent and interest for all the services employed in the business, including both those actually paid for in the market and virtual wage or interest or rent for services rendered by the owner himself.

To determine profits, accountants only deduct explicit or paid out costs from the income. The non-cost items as the entrepreneurial wages, rental income on land and the interest that the capital could earn elsewhere do not appear in the books of accounts.

The economist's costs of production are a payment which is necessary to keep resources out of the next best alternative employment. The economist does not agree with the accountant's approach. The accountant would only deduct actual costs from the revenues, the economist points out that in addition to the deduction of actual cost imputed cost should also be deducted.

(ii) Depreciation

The treatment of depreciation has an important bearing on the measurement of profit. To the economist, depreciation is capital consumption cost. The cost of capital consumption is the replacement cost of the equipment. It has various meanings. In the accounting sense, it refers to the writing off the unamortised cost over the useful life of an asset. In the value sense, it may be defined as the lessening in the value of a physical asset caused by deterioration.

Economists recognise only two kinds of depreciation charges and they are:

- (a) The opportunity cost of the equipment, and
- (b) The exhaustion of a year's worth of limited valuable life.

The former includes the most profitable alternative use of it that is forgone by putting it into its present use, while the latter aims at preserving enough capital so that the equipment may be replaced without causing any loss. Both these concepts are useful to the management.

Causes of Depreciation

The major causes of depreciation may be classified as follows:

- (i) Physical depreciation,

(ii) Functional depreciation, and

(iii) Accidental depreciation.

Physical depreciation resulting in the decline of the physical usefulness of an asset due to normal use is frequently known as physical depreciation. The deterioration may be due to abrasion, shock, vibration, impact and so on.

Functional depreciation arises due to economic factors such as suppression, obsolescence and inadequacy. Here nothing happens to the ability of the asset but the demand for an asset may be suppressed or it becomes so obsolete or it is not adequate enough to accommodate the demand placed upon it.

Accidental depreciation may be the physical damages caused by fire, explosion, collision and wind storm are generally insured and there are some normal risks or business such as minor damages due to natural calamities. All these are, therefore, accounted and treated as depreciation.

Methods of Depreciation

In the economics of an enterprise, the methods of depreciation occupy a very important role. Depreciation is an important internal source of funds and the method of depreciation becomes important as a tool of capital accumulation. Different methods are used to offset depreciation. The main aim of depreciation policy is to reduce the gap between the present depreciated value of the asset and its present book value.

There are many accepted methods of depreciation and they are:

- (i) The straight line method
- (ii) The unit of production method
- (iii) The sinking fund method
- (iv) The declining balance method
- (v) The double declining balance method
- (vi) The sum of the years digits method
- (vii) The revaluation method

- (viii) The repair provision method
- (ix) The retirement accounting method
- (x) The insurance policy method, and
- (xi) The mileage method

(i) The Straight Line Method

It is the simplest and the most commonly used method of depreciation. It is otherwise known as proportional or equal instalments method. This method is based on the assumption that the value of an asset declines at a constant rate. The amount of annual depreciation is calculated by dividing the initial costs of the assets by the estimated life in years, assuming that there is no scrap value. If the asset has scrap value then the amount should be deducted from the initial cost.

(ii) The Unit of Production Method

This method is also known as machine hour rate method. This method of depreciation is more or less a depletion method. Under this method, instead of counting the life of the assets in years, it is estimated in terms of working hours. The speciality of this method is that it utilises production instead of time as the unit of measurement. According to this method, capital expenses of the equipment are recovered on the basis of the expected production. This method is best suited for providing depreciation on costly machine.

(iii) The Sinking Fund Method

Under this method of depreciation, the amount written off as depreciation is calculated by means of fixed periodic charges and is deposited in readily saleable securities at compound interest which accumulates to provide a sum equal to the original cost of the asset. The securities are then sold and the new asset is purchased with the sale proceeds. This method is useful if the asset has to be replaced when it becomes a scrap. It is best suited for the replacement of machinery and plant.

(iv) The Declining Balance Method

It is differently known as “fixed percentage method or Matheson method of depreciation.” Under this method, a constant percentage of depreciation is charged each

year as the value of the asset as it stands in the books at the beginning of the year. The basic idea behind the use of this method is to provide for a more or less uniform total cost of production of the asset over different years of its life. Under this method, depreciation is high in the early part of the asset's life but it declines in the later years.

(v) The Double Declining Balance Method

Under this method, depreciation is provided at a uni-form rate on the book value of the asset as it stands at the beginning of the year. The book value is the balance of the unamortised cost of the asset as well as depreciation expenses and both go on declining at a constant rate. Any method of calculating depreciation that allows huge amounts in the initial years is preferred by management, as it helps in the quick recovery of the major part of the original investment.

(vi) The Sum of the Years Digit Method

Previously, this method was known as Cole method. Under this method, annual depreciation charge also declines each year. The economic advantage of this method is that it allows one to write off investment very rapidly. The very idea of this method is similar to that of the declining balance method.

The amount of depreciation in the beginning of the life of the asset is higher and it declines with the span of time. This method is realistic. It takes into account the immediate drop in the value of the asset and makes the decision to sell and replace the asset earlier before the expiry of its estimated life.

(vii) The Revaluation Method

This method is frequently used in the case of small items such as loose tools, laboratory glassware, livestock, jigs, packages, patterns, etc. where it is not possible to provide for depreciation on mathematical basis. The method of providing depreciation by means of periodic deductions each of which is equal to the difference between the value of such assets and their revalued value at the close of the financial year is considered as the amount of depreciation.

(viii) The Repair Provision Method

According to this method, the cost of repairs is added to the cost of the equipment.

This method provides for the aggregate of depreciation and maintenance cost by means of periodic charges each of which is a constant proportion of the aggregate of the cost of the asset depreciated and the expected maintenance cost during its life. This method is commonly used by the public works contractors while hiring their own plants to other contractors. This method not only deals with depreciation but with repairs and maintenance too.

(ix) The Retirement Accounting Method

This method stresses that we shall charge the cost of capital less salvage value as depreciation only when the asset is worn out. This method is considered one of the most objective methods. The validity of the method is that the total cost of the capital is charged as depreciation once and for all.

(x) Insurance Policy Method

This method is similar to sinking fund method. According to this method, an endowment policy is taken as the life of the asset so that at the end of a definite period the insurance company will pay the assured money and with the help of that money a new asset can be purchased. This method is suitable for leases where the life of the asset is definitely known.

(xi) The Mileage Method

This method is otherwise known as ‘use method’. This method appears to be fair as the depreciation charged will be according to the use to which the asset is put. This technique is followed in the case of those assets the use of which can be measured in terms of miles, e.g. automobiles.

So far we have discussed the different methods of depreciation but not about the methods used in actual practice. The suitability of methods of depreciation depends on the nature of assets concerned and their owner’s discretion. But a liberal depreciation policy is helpful to stimulate capital formation and encourages risky investments.

(iii) Treatment of Capital Gains and Losses

All the assets of a firm are subject to windfalls due to inflation or natural calamities or legal judgements. It plays an important role in the economics of a firm. These changes generally result in larger losses than gains. Conservative concerns never record such changes.

The gains accruing from revaluation of assets are usually transferred to capital reserves.

Certain concerns add capital gains to the profit of the year in which such gains occur. Capital losses are charged either to current profits or to retained earnings. Economists are least interested in recording these windfalls. They are concerned about the future. Economists are of the view that most of these gains or losses can be foreseen before they are realised.

11.5 SUMMARY

Profit estimates play a pivotal role in business decision. For measuring profits, accountants rely on historical costs rather than current prices. Economists are concerned with income, assets and net worth in the future. Gross profits for the economist come much closer to the accountant's net profits.

11.6 SELFASSESSMENT QUESTIONS

1. Explain the concept of profit?

2. What strategies the management has to follow while fixing pricing policy?

3. How accounting profit is different from economic profit?

11.6 SUGGESTED READINGS

- Managerial economics, Dwivedi D.N., Vikas House, New Delhi.

- Managerial Economics, Mehta, P.L., S. Chand, Delhi.
- Mithani, D.M., Managerial Economics-Theory and Application, Himalaya publishing house Pvt. Ltd., New Delhi.
- Gupta, G.S., Macro Economic- theory and Application, Tata McGraw Hill Publishing House, New Delhi.
- Vaish, M.C., Macro Economic theory, Vikas Publishing House Pvt. Ltd., New Delhi.
- Mishra, S.K., and Puri, V.K., Modern Macro Economic theory, Himalayan Publishing House.

Unit-III

LESSON 12

PROFIT PLANNING AND CONTROL

STRUCTURE

- 12.1 INTRODUCTION
- 12.2 OBJECTIVES
- 12.3 PROFIT PLANNING
 - 12.3.1 Essential Elements in Profit Planning
 - 12.3.2 Steps in Profit Planning
 - 12.3.3 Need for Profit Planning
 - 12.3.4 Aids to Profit Planning
- 12.4 CONTROL OF PROFIT
- 12.5 PROFIT POLICY AND FORECASTING
 - 12.5.1 Profit Forecast
 - 12.5.2 Approaches to Profit Forecasting
- 12.6 PROBLEMS IN SETTING A PROFIT POLICY
- 12.7 SUMMARY
- 12.8 SELF ASSESSMENT QUESTIONS
- 12.9 SUGGESTED READINGS
- 12.1 INTRODUCTION**

As we know that objectives of business firms can be various. There is no unanimity among the economists and researchers on the objective of business firms. One thing is, however, certain that the survival of a firm depends on the profit it can make. So whatever

the goal of the firm-sales maximisation, maximisation of firms, growth, maximisation of managers' utility function, long-run survival, market share, or entry-prevention-it has to be a profitable organisation. Maximisation of profit in technical sense of the term may not be practicable, but profit has to be there in the objective function of the firms. The firms may differ on 'how much profit' but they set a profit target for themselves. Some firms set their objective at a 'standard profit', some at a 'target profit' and some at a 'reasonable profit'. 'A reasonable profit' is the most common objective.

12.2 OBJECTIVES

After reading this Lesson, you will be able:

- To understand the concept of profit planning
- To know about the measurement of profit

12.3 PROFIT PLANNING

Profit planning is a disciplined method whereby the environments encroaching on an organisation are analysed, the available resources and internal competence identified, agreed objectives established and plans made to achieve them. Profit planning is largely routine and covers a definite time span.

Strategy is a word often used in conjunction with profit planning. Profit planning and strategy formulation are complementary. Profit planning is often a reasonable substitute for the fair and imagination need of the entrepreneurs.

12.3.1 Essential Elements in Profit Planning

The following are the essential elements in profit planning:

1. Objectives and results are established and measured at all management levels.
2. The role of the chief executive is often vital in ensuring success.
3. The system should become the major framework in guiding and controlling management performance.
4. The system should be totally pervasive, especially in framing objectives.
5. The system is recognised as the key method of management in the organisation.

6. Planners have been trained in economics or associated disciplines.
7. Budgeting, cost control, and contribution analyses are the key elements in controlling a profit plan.

12.3.2 Steps in Profit Planning

Some rudimentary form of planning may already be in existence in most organisations. Many of the techniques used in profit planning may be in use. The following activities will need to be introduced or improved or enhanced if they are undertaken at present.

1. Establish Suitable Objectives

Objectives can cover many factors of the business survival, profits or increase in net worth. The way in which objectives are determined is nearly as important as the types that are pursued. It will be essential to take account of past performance, resource availability, management competence, environment changes, competitors' activities and so on. Objectives should not be imposed.

2. Establish Suitable Control System

Profit planning and control may have grown out of budgetary control systems. It is necessary to have some form of budgetary cost control, plan monitoring and management information systems which will serve to enable profit planning to be effective.

3. Establishing Job Responsibilities

Often job responsibilities are too imprecise to provide the information on which performance standards can be established and then judged. It is necessary to have job breakdowns in such detail that the need for resources can be identified.

4. Carry Out a Situation Audit

It entails an audit of all the factors both internal and external that will have an influence on company affairs. It should include establishing the skills of competition, the economic situation which will impinge on company performance and the potential and actual social, technological and cultural changes to be accommodated.

5. Gap Analysis

This is an activity where the desired company objectives are compared with the probable results of continuing current trends. A gap will almost certainly be obvious between the two. Profit planning is largely concerned with how the gap can be closed.

6. Establishing Base Data

Often the base data essential for profit planning is either nonexistent or set out in a way that is inappropriate for planning purposes. The data include product and operational costs, production speeds, material utilisation, labour efficiency, etc.

7. Establish Appropriate Plans and Strategies

The management should ensure that there is plan integration. Strategies are the results of choosing between alternatives in the use of the company resources through which it is hoped that the corporate objectives will be achieved. They can be highly complex and appropriate alternatives need to be set out.

12.3.3 Need for Profit Planning

The need for profit planning arises:

- (i) To improve management performance.
- (ii) To ensure that the organisation as a whole pulls in the right direction.
- (iii) To ensure that objectives should be set which will stretch but not overwhelm managers.
- (iv) To encourage strict evaluation of manager's performance in monetary terms.
- (v) To run a company in a more demanding way.

12.3.4 Aids to Profit Planning

The following are the aids to profit planning in an organisation:

1. Organisation

Profit planning organisation must ensure that it is sensitive to environmental changes

and that such changes are speedily reflected in profit plans. To carry profit planning, the organisation must be designed accordingly. A high state of expertise is required and this should be reflected in the profit planning organisation.

Involvement and participation are more important. Wherever possible, decentralisation should be established. It is essential that the organisation should be dynamic. The organisation must help goal identification and problem resolution.

2. Information System

Management information systems are an essential factor in profit planning and control. This system must help to provide the means for allocation of resources and the measurement of results. It should help to identify the various strategy alternatives and help for the integration of various main plans and sub-plans.

3. The Computer

A computer can be applied in profit planning modelling. Information of all kinds can be obtained much faster than when normal files are used. The computer should be able to help management to make profit planning decisions. The interactive nature of many planning decisions can be generated more cheaply. Application programme changes are simplified and amendments to output requirements take less time and cost.

4. Use of Modelling

A model is a representation of a real life situation. A model is fabricating and integrating the relationships. Models have been used to aid decision making and forecasting. A model provides an opportunity to manipulate a situation. It is the only way in which a solution to the problem can reasonably be obtained.

5. Planning Techniques

Profit planning should be a management activity that guides the use of company resources at all management levels. Profit planning can itself be regarded as a technique. Most techniques used by management services like forecasting, investment appraisal, risk analysis, decision theory, and organisational development might be applied in profit planning.

12.4 CONTROL OF PROFIT

The main goal of the business firm is to produce and market the goods and services which satisfy the buyers and thereby earn a profit sufficient for the survival and growth of business. Profit making is no doubt an essential function of a business firm.

Profit as such is not at all a defective objective. The future growth of the economy depends upon generation and reinvestment of profit. Profit should serve as a motivation for expansion, diversification and innovation. Therefore, we need some control over it.

Profit control may be achieved by controlling the internal and external factors which have an influence on profits. Some planning at a particular level has to be done to achieve this control. For this, we have to find out the chief factors which influence the volume of profit. In reality, sales revenue and the total cost of production are the chief factors which influence the volume of profit.

Profit is usually interpreted as the difference between the total expenses involved in making or buying of a commodity and the total revenue accruing from its sales. However, sales revenue, the price per unit of output sold, the total cost of production, the volume of inputs and the price per unit of input are all interrelated.

Similarly, provision of depreciation and taxes create measurement problems in profit analysis, as they are likely to vary from firm to firm depending on the method of estimation and taxation laws respectively. A large firm may follow different method of depreciation accounting than a smaller one.

Let us go back to the profit accounting system. For that the relationship between various factors mentioned above are to be understood and established. If profit (P) is the difference between the sales revenue (R) and the total cost of production (C), the relationship is:

$$P = R - C$$

P is gross or net profit which depends on what is included in C. We may express $\tilde{N} = r \cdot K + D$ where \tilde{N} is the total cost of production, r is a rate of return covering depreciation, interest rate and risk premium appropriate to the industry and \hat{E} is capital. D is direct cost such as labour cost, material cost, cost of fuel and power, selling cost, managerial remuneration, etc.

Now the sales revenue (R) is the result of the volume of sale (S), and the price per unit of output sold is (U),

Therefore, the relationship is:

$$R = S.U$$

The total cost of production (C) is the result of the price per unit of input (I) and the volume of inputs (V).

Hence the relationship is:

$$\tilde{N} = I.V$$

Let us re-write the three equations:

$$P = R - C$$

$$R = S.U$$

$$\tilde{N} = I.V$$

$$P = (S.U) - (I.V)$$

To control profits, the volume of sales (S) or the volume of inputs (I) can be manipulated. Therefore, if a firm wants to increase its profits, it may either increase the volume of sales or reduce the volume of inputs.

12.5 PROFIT POLICY AND FORECASTING

A project plays two primary roles in the functioning of the economic system. First, the project acts as a signal to producers to change the rate of output or to enter or leave an industry. Second, profit is a reward that encourages entrepreneurs to organise factors of production and take risk. High profits in an industry usually are a signal that buyers want more output from that industry.

Those profits provide the incentive for firms to increase output and for new firms to enter the market. Conversely, low profits are a signal that less output is being demanded by consumers or that production methods are not efficient. Firms may not maximise profit, but they do have a profit policy. Profit policy and profit planning must go together. The profit policy is more strategy-oriented and the profit planning is more technique-oriented.

The firm has to consider a lot of short run and long run factors in designing its profit policy. The main motive of the businessman is to make profits. The profit that a firm makes should not be at the point of exploitation of consumers. The firm while making profits should also satisfy the requirements of the consumers.

At present, the concept of social obligations has been thrust upon the businessman. The business community is required to safeguard the health and wellbeing of the society. The business people should have concern for the public. They should give priority to the goals set by the government for the betterment of the people. They are expected to solve many social and ecological problems.

There are two issues involved in profit policy decisions and they are:

(i) Setting Profit Standards:

Profit standards involve a choice of a particular measure and concept of profit with reference to which achievements and aspirations may be compared. In profit policy decision, the task is to decide on an acceptable rate of profit. The firm has to consider rate of profit earned by other firms in the same industry, historical profit rate earned by the firm itself in the past, rate of profit sufficient to attract equity capital and rate of profit necessary to generate internal finance for replacement and expansion.

(ii) Limiting the Target Profit:

Apart from setting profit standards, the firm should also consider a set of environmental factors to limit its rate of target profit. The profit target should be limited which means the shareholders do not ask for higher dividends, the wage earners do not ask for higher wages, the government does not impose high taxes, the consumers do not ask for lower prices, the suppliers do not ask for higher rates, and the goodwill of the business is not affected.

Profit policy is programmed through profit planning. Profit planning gives a concrete shape to the profit policy of the firm.

12.5.1 Profit Forecast

It is usual to calculate a profit forecast for each major product group or service

which an organisation offers. It presupposes that it is possible to assume what rates of inflation will occur, the market share the company will obtain and the degree of overall economic activity which the company will enjoy. Profit forecasting means projection of future earnings taking into consideration all the factors affecting the size of business profits. It is an essential part of operation planning. The major factors are the turnover and costs.

1. Turnover

Turnover is the major factor and its element is the product. It must, however, be emphasised at the outset that the product is the starting point for all planning activities. To a manufacturer, the special aspect of a product is most relevant which earns good profit. A higher turnover indicates a healthier performance.

2. Costs

It is the costs that form the basis for many managerial decisions. It is the level of costs relative to revenue that determines the firm's overall profitability. In order to maximise profits, a firm tries to increase its revenue and lower its costs.

The costs can be brought down either by producing the optimum level of output, using the least cost combinations of inputs or increasing factor productivities, or by improving the organisational efficiency. The elements of costs are sales cost, product development, distribution, inventories, production, general administration, depreciation and reserves.

(i) Sales Costs

Sales costs consist of salesmen's compensation, sales promotion, market research and administration. The salesman is the key figure in the economy. Salesmen have to be recruited, trained, directed, motivated and supervised.

There is particular significance in devising a good compensation plan in the case of salesmen because the functions of selling are such that its results can be judged in concrete terms. The level of comparison refers to the overall remuneration paid to salesmen.

Of these, the more common forms of payments are:

- (i) Salary,
- (ii) Commission,

- (iii) A combination of salary and commission, and
- (iv) Bonus.

Sales promotion is designed to supplement and co-ordinate personal selling and advertisement effort. Sales promotion techniques include trading stamps, mail refunds, trade shows, free demonstrations and sales and displays at retail centres. It is expensive but at the same times a controllable variable. It does not involve mass media.

Marketing research has grown into importance very rapidly. It is mainly concerned with market identification, market size, market share, market segmentation and market trends. It is a systematic search for information. It involves data collection, analysis and interpretation. Research cannot drown decisions, but it helps the marketers in the task of decision making. It is also expensive and time consuming.

Administration is the policy making function and a top level activity. Administration handles the current problems arising out of the policies laid down by the management. It requires the services of a large number of personnel. These personnel occupy the various positions created through the process of organising.

Top management is chiefly concerned with performing administrative activities. There are many decisions which the marketing manager takes which have a significant impact on the profitability of the firm. The production manager controls a major part of the investment in the form of equipments, materials and men.

The top management which is interested to ensure that the firm's long term goals are met, finds it convenient to use the financial statements as a means for keeping itself informed of the overall effectiveness of the organisation. Administration expenses will include all accounting, personnel and legal expenses and office expenses.

(ii) Product Development

In many organisations, this activity is part of R&D's responsibility. However, the need for sales to start in the market place suggests that marketing involvement with product development should have a good impact on sales revenue and profit. Product development involves R&D and production engineering.

- (a) R&D implies a function that will promote and defend profitability by maintaining

and improv-ing the company's position in product design, quality and cost and developing new products, materials and production methods where the improvement of current products is not economic. R&D must be used to help to close the gap between the required or desired profit and that anticipated, after all cost reduction and marketing plans have been made.

- (b) Production engineering co-ordinates search for knowledge in rational manner cutting across the entire spectrum of integrated management and processing activities to attain optimal economic objectives of sufficiency. It lays down a disciplined use of strategies for increased productivity with ensured quality and quantity.

Production engineering is the thread of the garland of flowers of agricul-tural, civil and architecture; mechanical, electrical and electronics; metallurgy and mining; chemical and environment; textile; computer and telecommunications; marine and such others.

(iii) Distribution

When a product has been developed and made ready and its price also determined, the next task is distribution, to bring it to the market and reach it to the consumer. Distribution is a key external resource and is much important as the internal operations of research, engineering and production.

It involves two operations and they are:

- (i) Selection of the channel of distribution, and
- (ii) Physical distribution. It involves warehousing, packaging and transport.

The place where the goods are stored is known as warehouse. It implies a house for wares. Warehouse is a building for the accommodation of goods, possessing facilities to perform other market-ing functions. It is meant for final products. It holds the goods as a distribution centre. In the ware-house, allied marketing functions such as grading, standardisation, blending, mixing and packing are performed. It facilitates the user to sell the goods at the best possible price and thus derive better profit.

Packaging is an activity which is concerned with protection, economy, convenience and promo-tional consideration. The packaging of a consumer product is an important

part of the marketing. It prevents breakage, contamination, pilferage, chemical change and insect attack.

Attractiveness is a major consideration in modern packaging. A good package stimulates sales. Packaging is the sub-division of the packing function of marketing. Innovative packaging can bring large benefits to consumers and profits to producers.

Transportation means the physical movement of persons and goods from one place to another. It is the blood stream of a country's economy. It is described as physical marketing. It is the key link between the production and other marketing functions. It develops trade and commerce. It encourages specialisation, division of labour, large scale production and the extent of market. It increases the mobility and widens the market. Both consumers and producers benefit by the extension of the market.

(iv) Inventories

In today's competitive and ever changing environment, it is essential to hold adequate stocks to minimise production holdups and win customer satisfaction. Material constitutes a recurring investment and modern management has recognised that a constant review of inventory can reduce this capital tied up without limbering the production and customer goodwill.

Holding large stocks will mean high inventory carrying charges and possible losses caused by price declines. Similarly, shortages in inventories interrupt production, making machines and men idle and causing sales loss. Hence there is need for inventory control or what is sometimes termed as inventory planning.

It would be appropriate to mention that an effective inventory control system secures various benefits to the concerned business unit. The purpose of holding inventories is to allow the firm to separate the process of purchasing, manufacturing and marketing of its primary products.

Inventory planning involves a forecast of unit requirement during the future period. Both a sales forecast and an estimate of the safety level of support in unexpected sales opportunities are required. The marketing department should also provide pricing information so that higher profit items receive more attention.

(v) Production

Production reflects the ability of the organisation to produce whatever is demanded by the environment. The measures of production include profits, sales, market share, students graduated, clients served and the like. It is concerned with the supply side of the market.

The basic function of a firm is that of readying and presenting a product for sale, presumably at profit. While the broader measurement of profit and return as investment will indicate to some extent the efficiency of the manufacturing units, more appropriate and directly applicable measurements such as added value and resource utilisation of various kinds are needed.

Managers will usually have a major proportion of the company's resources under their control. How they deploy these resources, could have a fundamental effect as the profit plan is being made. It involves labour, materials, manufacturing, overheads and maintenance.

(vi) General Administration

Making policies is the function of administration. In all kinds of business, the function of administration is the same. Administration personnel are normally engaged in two activities. First, routine- covering sales order, processing accounting, secretarial duties, filing, etc. Second, development-activities that can be used to give positive help to other major functions such as the use of the computer, management accounting development, management services, various personnel services, etc.

The two activities need to be planned but with a different emphasis in each case. In a manufacturing organisation, the administration plan should show the relationship between the cost and numbers of administration staff and those in other functions and activities.

(vii) Depreciation

There are two measures of working capital and they are gross working capital and net working capital. Gross working capital is the total of current assets. Net working capital is the difference between the total of current assets and the total of current liabilities.

The working capital of a concern is normally replaced by income from sales and is

available to the owners for the payment of salaries, the purchase of raw materials and the acquisition of productive services. But the originally invested capital wears out or becomes obsolete with the passage of time.

It cannot be recovered when the usefulness of these assets is exhausted. Businessmen, therefore, have realised that in order to state business income properly, some provision should be made to recover that part of the original asset which eventually becomes worthless because of depreciation. Depreciation means a fall in the quality or value of an asset.

An accountant is interested in accounting, auditing, planning and budgeting profit. The accountant does not take care of opportunity costs. On the other hand, the economist is very much concerned with the opportunity cost. The opportunity cost includes the most profitable alternative use of it that is foregone by putting it into its present use. This concept is useful to the management since it is needed for operating problems of profit making.

(viii) Reserves

Reserve is an amount set aside out of profits and other surpluses. It is not designed to meet any existing liability, contingency or diminution of value of assets. Reserves may be divided into two main classes. Reserves arising from normal profits are known as Revenue Reserves. They are available for distribution through the profit and loss account.

Reserves arising out of unusual profit such as sale of fixed assets at a profit on revaluation of assets and liabilities are known as Capital Reserves. There are not generally available for distribution. These are used to write off capital loss such as loss on sale of a fixed asset, discount allowed on shares or debentures, etc.

A Revenue Reserve may be created out of profits in order to strengthen the financial position of the business. This is called a 'General Reserve'. It is a free reserve available for any purpose whatsoever. It may be used for covering unforeseen losses. It may be even distributed among the proprietors, or it may be used as an additional working capital.

A Revenue Reserve may also be created for a specific purpose. It is called Specific Reserve. It is generally created for such purposes as repayment of a long term loan, replacement of an asset, creation of fund for acquiring assets in future, etc. A Specific Reserve is not available for any purpose other than the purpose for which it is created. It

is not available for distribution.

Secret Reserve

Where the existence of a reserve is not disclosed by Balance Sheet, it is called Secret Reserve. It means that the net asset position is stronger than that disclosed by the balance sheet.

Secret Reserves are created by various ways:

- (i) By exclusive depreciation of assets,
- (ii) By under valuation or omission of assets,
- (iii) By making accessing provision for bad debts, and
- (iv) By charging a capital expenditure to revenue.

Reserve Fund

When a reserve is created out of profits and a corresponding amount of cost is withdrawn from the business and invested outside in securities, the reserve is called Reserve Fund. This depends upon the nature of the business and the purpose of the reserve.

Thus reserve is an appropriation of profits. A reserve can be created only when there are profits. The object of a reserve is to strengthen the financial position of the business. A reserve is available for distribution.

12.5.2 Approaches to Profit Forecasting

Profit forecasting is indispensable for profit planning. Profit forecasting means projecting the future profits assuming the factors like growth of the size of the business, the pricing policies of the firm, the cost control policies, depreciation and so on. It is also necessary from the point of view of economic health and stability of the firm to project for certain years the growth of sales increase in costs and consequently the profits also.

According to Joel Dean, there are three approaches to profit forecast-ing:

- (i) Spot projection
- (ii) Environmental analysis, and

(iii) Break-Even analysis

Spot Projection

It relates to projecting the entire profit and loss for a specified period, say five years or seven years or ten years. The projection of profit and loss statements for this period depends on the projection of sales, costs and prices of the same period.

Since profits are surpluses resulting from the forces that shape demand for the company's products and govern the behaviour of costs, their predictions are subject to wide margins of error, from culmination of errors in forecasting revenues and costs, and from the interrelation of the income statement.

Environmental Analysis

It relates the company's profit to key variables in the economic development during the relevant period. The key variables are general business activity and general price level. These are external to the company. These factors are beyond the control of the firm and force the firm to abandon the profit maximising goal. In reality, factors that control profit have a tendency to move in regular and related patterns.

The controlling factors of profit are the rate of output, prices, wages, material costs and efficiency. These are all inter-connected in aggregate business activity. The environmental analysis might show areas where the company has superior competence or advantage of some kind.

Break-Even Analysis

The break-even analysis is a powerful tool for profit planning and management control. Of the three techniques, the break-even analysis is the most important tool of profit forecasting. The break-even analysis involves the study of revenues and costs of a firm in relation to its volume of sales and particularly the determination of that volume at which the firm's costs and revenues will be equal.

The break-even point may be defined as the level of sales at which total revenues equal total costs and the net income is equal to zero. This is also known as no-profit no-loss point. The main objective of the break-even analysis is not simply to spot the BEP, but to develop an understanding of the relationship of costs, price and volume within a

company's practical range.

12.6 PROBLEMS IN SETTING A PROFIT POLICY

The objectives and aims of a business may be different. In fact, most business concerns like to earn a target rate of return on their investment.

There are four criteria to judge the target rate of return and these are:

- (i) Rate adequate enough to attract equity capital
- (ii) Rate earned by other companies in the same industry
- (iii) Normal or historical profits rate of return
- (iv) Rate sufficient to finance growth from internal sources

12.7 SUMMARY

As we know that objectives of business firms can be various. There is no unanimity among the economists and researchers on the objective of business firms. One thing is, however, certain that the survival of a firm depends on the profit it can make. So whatever the goal of the firm-sales maximization, maximisation of firms, growth, maximisation of managers' utility function, long-run survival, market share, or entry-prevention-it has to be a profitable organisation. Maximisation of profit in technical sense of the term may not be practicable, but profit has to be there in the objective function of the firms. The firms may differ on 'how much profit' but they set a profit target for themselves. Some firms set their objective at a 'standard profit', some at a 'target profit' and some at a 'reasonable profit'. 'A reasonable profit' is the most common objective.

12.8 SELFASSESSMENT QUESTIONS

1. Why do modern corporations aim at a "reasonable profit" rather than to profits?

2. What are the criteria for setting standard for a reasonable profit?

3. How should “reasonable profits” be determined?

12.9 SUGGESTED READINGS

- Managerial economics, Dwivedi D.N., Vikas publishing house, New Delhi.
- Managerial Economics, Mehta, P.L., S. Chand, Delhi.
- Mithani, D.M., managerial economics-theory & application, Himalaya publishing house Pvt. Ltd., New Delhi.
- Gupta, G.S., Macro economic- theory & application, Tata Mcgraw hill publishing house, new delhi.
- Vaish, M.C., Macro Economic theory, Vikas publishing house pvt. Ltd., new delhi.
- Mishra, S.k., and Puri, V.K., modern macro economic theory, Himalayan Publishing house.

UNIT-IV

LESSON 13

KNOWLEDGE BASED ECONOMY

STRUCTURE

- 13.1 INTRODUCTION
- 13.2 OBJECTIVES
- 13.3 MEANING OF KNOWLEDGE BASED ECONOMY
- 13.4 FEATURES OF KNOWLEDGE ECONOMY
- 13.5 FRAMEWORK OF KNOWLEDGE ECONOMY
- 13.6 K-PROFIT ANALYSIS
- 13.8 SELF ASSESSMENT QUESTIONS
- 13.9 SUGGESTED READINGS

13.1 INTRODUCTION

The knowledge economy is also seen as the latest stage of development in global economic restructuring. Thus far, the developed world has transitioned from an agricultural economy (pre-Industrial Age, largely the agrarian sector) to industrial economy (with the Industrial Age, largely the manufacturing sector) to post-industrial/mass production economy (mid-1900s, largely the service sector) to knowledge economy (late 1900s – 2000s, largely the technology/human capital sector). This latest stage has been marked by the upheavals in technological innovations and the globally competitive need for innovation with new products and processes that develop from the research community (i.e., R&D factors, universities, labs, educational institutes). In the knowledge economy, the specialised labour force is characterised as computer literate and well-trained in handling data, developing algorithms and simulated models, and innovating on processes and systems. Harvard Business School Professor, Michael Porter asserts that today's economy is far more dynamic and that comparative advantage is less relevant than competitive

advantage which rests on “making more productive use of inputs, which requires continual innovation”.

Consequently, the technical, STEM careers including computer scientists, engineers, chemists, biologists, mathematicians, and scientific inventors will see continuous demand in years to come. Additionally, well-situated clusters, which Michael Porter argues is vital in global economies, connect locally with linked industries, manufacturers, and other entities that are related by skills, technologies, and other common inputs. Hence, knowledge is the catalyst and connective tissue in modern economies.

13.2 OBJECTIVES

The objectives of this chapter is:

- To understand the concept of k-economy
- To know about k-profit analysis

13.3 MEANING OF KNOWLEDGE BASED ECONOMY

The knowledge economy is the use of knowledge to generate tangible and intangible values. Technology and in particular knowledge technology help to transform a part of human knowledge to machines. This knowledge can be used by decision support systems in various fields and generate economic values. Knowledge economy is also possible without technology.

The term was popularised by Peter Drucker as the title of Chapter 12 in his book *The Age of Discontinuity* (1969), that Drucker attributed to economist Fritz Machlup, originating in the idea of “scientific management” developed by Frederick Winslow Taylor.

Other than the agricultural-intensive economies and labour-intensive economies, the global economy is in transition to a “knowledge economy”, as an extension of an “information society” in the Information Age led by innovation. The transition requires that the rules and practices that determined success in the industrial economy need rewriting in an interconnected, globalised economy where knowledge resources such as trade secrets and expertise are as critical as other economic resources.

In other words, the knowledge economy is a system of consumption and production

that is based on intellectual capital. The knowledge economy commonly makes up a large share of all economic activity in developed countries. In a knowledge economy, a significant part of a company's value may consist of intangible assets, such as the value of its workers' knowledge (intellectual capital), but generally accepted accounting principles do not allow companies to include these assets on balance sheets.

13.3.1 Concepts of knowledge economy

A key concept of the knowledge economy is that knowledge and education (often referred to as "human capital") can be treated as one of the following two:

- A business product, as educational and innovative intellectual products and services can be exported for a high value return.
- A productive asset

It can be defined as:

Production and services based on knowledge-intensive activities that contribute to an accelerated pace of technical and scientific advance, as well as rapid obsolescence. The key component of a knowledge economy is a greater reliance on intellectual capabilities than on physical inputs or natural resources.

The initial foundation for the knowledge economy was introduced in 1966 in the book *The Effective Executive* by Peter Drucker. In this book, Drucker described the difference between the manual worker and the knowledge worker. The manual worker, according to him, works with his or her hands and produces goods or services. In contrast, a knowledge worker works with his or her head, not hands, and produces ideas, knowledge, and information. The key problem in the formalisation and modelling of knowledge economy is a vague definition of knowledge, which is a rather relative concept.

For example, it is not proper to consider information society as interchangeable with knowledge society. Information is usually not equivalent to knowledge. Their use, as well, depends on individual and group *preferences* which are "economy-dependent".

13.3.2 Driving forces

Commentators suggest that there are various interlocking driving forces, which

are changing the rules of business and national competitiveness. These driving forces are:

- Globalisation - markets and products are more global.
- Information technology, which is related to next three:
- Information/Knowledge Intensity — efficient production relies on information and know-how; many factory workers use their heads more than their hands.
- New Media – New media increases the production and distribution of knowledge which in turn, results in collective intelligence. Existing knowledge becomes much easier to access as a result of networked data-bases which promote online interaction between users and producers.
- Computer networking and Connectivity – developments such as the Internet bring the “global village” ever nearer.

As a result, goods and services can be developed, bought, sold, and in many cases even delivered over electronic networks.

As regards the applications of any new technology, this depends on how it meets economic demand. It can remain dormant or make a commercial breakthrough.

13.4 FEATURES OF KNOWLEDGE ECONOMY

It can be argued that the knowledge economy differs from the traditional economy in several key respects:

1. The economics are not of scarcity, but rather of abundance. Unlike most resources that are depleted when used, information and knowledge can be shared, and actually grow through application.
2. The effect of location is either:
 - Diminished, in some economic activities: using appropriate technology and methods, virtual marketplaces and virtual organisations that offer benefits of speed, agility, round the clock operation and global reach can be created.
 - or, on the contrary, reinforced in some other economic fields, by the creation of business clusters around centres of knowledge, such as universities and research

centres. However, clusters already existed in pre-knowledge economy times.

3. Laws, barriers, taxes and ways to measure are difficult to apply solely on a national basis. Knowledge and information “leak” to where demand is highest and the barriers are lowest.
4. Knowledge enhanced products or services can command price premiums over comparable products with low embedded knowledge or knowledge intensity.
5. Pricing and value depends heavily on context. Thus, the same information or knowledge can have vastly different value to different people or even to the same person at different times.
6. Knowledge when locked into systems or processes has higher inherent value than when it can “walk out of the door” in people’s heads.
7. Human capital competencies are a key component of value in a knowledge-based company, yet few companies report competency levels in annual reports. In contrast, downsizing is often seen as a positive “cost cutting” measure.
8. Communication is increasingly being seen as fundamental to knowledge flows. Social structures, cultural context and other factors influencing social relations are therefore of fundamental importance to knowledge economies.

These characteristics require new ideas and approaches from policy makers, managers and knowledge workers.

The knowledge economy has manifold forms in which it may appear but there are predictions that the new economy will extend radically, creating a pattern in which even ideas will be recognised and identified as a commodity. Considering the very nature of ‘knowledge’ itself, added to the fact that it is the thrust of this new form of economy, there is a clear way forward for this notion, though the particulars (i.e. the quantum of the revolutionary approach and its applicability and commercial value), remain in the speculative realm, as of now.

13.5 FRAMEWORK OF KNOWLEDGE ECONOMY

The knowledge revolution and the technological and economic changes it implies

clearly entail the need to rethink countries' overall development strategies. Knowledge- and innovation-related policies should be at the core of those strategies, which should be built on four pillars: the country's education and training base, its information and telecommunications infrastructure, the innovation system, and the overall business and governance framework..

A Four-Pillar Framework of knowledge economy

I. Rationales

A knowledge economy (KE) relies on knowledge as the key engine of economic growth. It is an economy in which knowledge is acquired, created, disseminated, and applied to enhance economic development. Intuitively, conditions for a knowledge based development process would seem to include an educated and skilled labour force, a dense and modern information infrastructure, an effective innovation system, and an institutional regime that offers incentives for the efficient creation, dissemination, and use of existing knowledge.

- The labour force should be composed of educated and skilled workers who are able to continuously upgrade and adapt their skills to create and use knowledge efficiently. Education and training systems encompass primary and secondary education, vocational training, higher education, and lifelong learning. The weight placed on the different segments will differ somewhat depending on a country's level of development. For example, basic education will receive more attention at low levels of development, as basic literacy and numeracy are necessary foundations on which more advanced skills are built. Similarly, lifelong learning has increasing importance in the current context of the knowledge revolution, which requires constant adaptation of knowledge and know-how. It also grows in importance as the population ages. Globalisation, meanwhile, is bridging the distance between basic skill needs and advanced skills, forcing countries to cover a wide educational band even at low levels of development to catch up with advanced economies and then remain competitive.
- *A modern and adequate information infrastructure* will facilitate the effective communication, dissemination, and processing of information and knowledge. Information and communication technologies (ICTs)—including telephone,

television, and radio networks—are the essential infrastructure of the global, information-based economies of our time, as railways, roads, and utilities were in the industrial era. They can considerably reduce transaction costs by providing ready access to information. ICT-related policies cover telecommunications regulation as well as the investments needed to build and exploit ICTs throughout the economy and society through various “e-applications”—e-government, e-business, e-learning, etc. Low-income countries should focus first on the basic ICT infrastructure before promoting advanced technologies and applications.

- An *effective innovation system* is composed of firms, research centres, universities, consultants, and other organizations that keep up with new knowledge and technology, tap into the growing stock of global knowledge, and assimilate and adapt it to local needs. Public support for innovation, science, and technology covers a wide range of infrastructure and institutional functions, from the diffusion of basic technologies to advanced research activities. The former should receive a great deal of attention in developing countries. For most developing countries much of the knowledge and technology that nurtures innovation will originate from foreign sources, entering the country through foreign direct investment (FDI), imports of equipment and other goods, and licensing agreements. Foreign sources are important when the economy is less developed, though imports must not be allowed to obscure or marginalize the country’s unique indigenous knowledge assets, such as traditional knowledge. Diffusion of basic technologies should receive a great deal of attention in developing countries.
- The country’s *institutional regime*, and the set of economic incentives it creates, should allow for the efficient mobilisation and allocation of resources, stimulate entrepreneurship, and induce the creation, dissemination, and efficient use of knowledge. The notion covers a vast array of issues and policy areas, ranging from aspects of the macroeconomic framework, to trade regulations, finance and banking, labour markets, and governance. The latter includes the rule of law and its applications (judicial systems), the quality of the bureaucracy as reflected in measures of government effectiveness, and the level of corruption. Mediocre governance resulting in a poor business climate is the single greatest hindrance to economic and social development in general, and to knowledge-based development

in particular.

II. Interactions among the Pillars and Virtuous Development Circles

We have seen that each of the four pillars in the KE framework must function efficiently in order to spur knowledge-driven growth. But more is needed: investments in the four pillars must be balanced and coordinated so that the pillars interact to produce benefits greater than those obtainable from their independent operation.

The purpose of the World Bank's *Knowledge Economy framework* is to evaluate the quality, adaptation, and use of knowledge in an economy, with the goal of creating effective knowledge economies capable of competing in the global economy.

A Knowledge Economy is one that utilises knowledge to develop and sustain long-term economic growth, thus the Knowledge Economy framework focuses on four pillars which it suggests are needed to support a successful knowledge economy.

The first pillar of the framework is an economic and institutional regime that is conducive to the creation, diffusion, and utilisation of knowledge. A regime that provides incentives that encourage the use and allocation of existing and new knowledge efficiently will help to foster policy change. The economic environment must have good policies and be favourable to market transactions, such as being open to free trade and foreign direct investment. The government should protect property rights to encourage entrepreneurship and knowledge investment.

The second pillar is a well-educated and skilled population that creates, shares, and uses knowledge efficiently. Education, especially in the scientific and engineering fields, is necessary to achieve technological growth. A more educated society tends to be more technologically sophisticated, generating higher demand for knowledge.

The third pillar is a dynamic information infrastructure that facilitates the communication, dissemination, and processing of information and technology. The increased flow of information and knowledge worldwide reduces transactions costs, leading to greater communication, productivity and output.

The final pillar is an efficient innovation system of firms, research centres, universities, think tanks, consultants, and other organisations that applies and adapts global

knowledge to local needs to create new technology.

The generation of technical knowledge leads to productivity growth. With these pillars in place, countries can develop a knowledge economy and sustain long-term economic growth.

Example of the framework in use: South Korea after 1997

The Knowledge Economy framework can be applied to the development strategy used by South Korea after its financial crisis in 1997. The World Bank, Organisation for Economic Co-operation and Development, and several think tanks worked together to develop a strategy to develop a knowledge economy. The organisations found that South Korea needed to improve its productivity since it was not getting the returns it expected from massive capital and investment inputs. They determined that updating Korea's economic incentive and institutional regime, including the role the government played, would improve productivity.

A more favourable climate was needed for innovation since universities conducted little research. The specialisation and knowledge exchange among universities, local government, firms, and research institutes would reduce transaction costs and lead to greater productivity. Contrary to expectations, information and communication technology was growing at a fast rate. Thus, no major improvements to the information infrastructure were needed.

However, education was determined to be a huge roadblock in the way of a knowledge economy. The country was only investing 13 percent of its GDP in education, which was deemed inefficient and inappropriate. Reforms included: deregulating the control by the Ministry of Education; implementing outcome-oriented governance; reallocating public and private resources; integrating learning systems; and strengthening links to the global education system.

By implementing good economic policies, adopting a high-growth development programme, and increasing social capital and improving the labour force through enhanced education, Korea was able to transform itself into a knowledge economy.

What sorts of policy advice does the framework deliver?

The Knowledge Economy framework suggests that to be effective knowledge

economies in which knowledge is created, disseminated and used well, economies have to have four pillars in place. Policy advice would focus attention on which of the pillars is in particular need, in terms of appropriate policies, institutions, investments and coordination. The World Bank has produced a guide the Knowledge Assessment Methodology, which can be used to assess what a country needs if it is to become a knowledge economy

III. BREAKING DOWN ‘Knowledge Economy’

Lesser-developed countries tend to have agriculture and manufacturing-based economies, while developing countries tend to have manufacturing and service-based economies, and developed countries tend to have service-based economies. Most countries’ economies consist of each of these three major categories of economic activity but in differing proportions relative to the wealth of that country. Examples of knowledge economy activities include research, technical support and consulting.

In the Information Age, the global economy moved towards the knowledge economy. This transition to the Information Age includes the best practices taken from the service-intensive, manufacture-intensive and labor-intensive types of economies and added knowledge-based factors to create an interconnected and globalized economy where sources of knowledge like human expertise and trade secrets are crucial players in economic growth and are considered as important as other economic resources.

The knowledge economy addresses how education and knowledge — generally called “human capital — can serve as a productive asset or a business product since innovative and intellectual services and products can be sold and exported and can yield profits for the individual, the business and the economy. This component of the economy relies greatly on intellectual capabilities instead of natural resources or physical contributions. In the knowledge economy, the production of services and products that are knowledge-based provides rapid acceleration in the technical and scientific fields, making way for more innovation in the economy as a whole.

IV. Knowledge Workers vs. Manual Workers

The concept of the knowledge economy was first used by Peter Drucker in his 1966 book “The Effective Executive.” In this book, the difference between a knowledge

worker and a manual worker was discussed. According to Drucker, the manual worker uses his hands and other physical capabilities to produce and provide services and other goods. On the other hand, a knowledge worker uses his head and produces knowledge, information and ideas that may be beneficial for the overall system of the business or that may be the key source in building the business in the first place.

V. Technology

The technology requirements for an Innovative System as described by the World Bank Institute must be able to disseminate a unified process by which a working method may converge scientific and technology solutions, and organizational solutions.^[16] According to the World Bank Institute's definition, such innovation would further enable the World Bank Institute's vision outlined in their Millennium Development Goals.

VI. Challenges for Developing Economy

The United Nations Commission on Science and Technology for Development report (UNCSTD, 1997) concluded that for developing countries to successfully integrate ICTs and sustainable development in order to participate in the knowledge economy they need to intervene collectively and strategically. Such collective intervention suggested would be in the development of effective national ICT policies that support the new regulatory framework, promote the selected knowledge production, and use of ICTs and harness their organizational changes to be in line with the Millennium Development Goals. The report further suggests that developing countries to develop the required ICT strategies and policies for institutions and regulations taking into account the need to be responsive to the issues of convergence.

13.6 K-PROFIT ANALYSIS

Some might argue that the knowledge economy is so clearly self-evident that a more precise definition is unnecessary and that knowledge is such a difficult concept to pin down that any measures are bound to be unsatisfactory or even misleading. However, without measurable definitions, the knowledge economy will remain a vague concept. The impact of the knowledge economy on industrial organisation, institutional structures, employment and society would remain more a matter of assertion and intuition rather than

demonstrable proof based on hard facts. It would not be possible to answer basic questions about how big the knowledge economy really is, how many people work in it whether it is growing and at what rate, and how the UK compares with similar OECD economies. And it would be hard if not impossible to offer a set of practical evidence based policy recommendations to policy makers in both the corporate and public sector. However, developing better definitions of the knowledge economy will be challenging.

If the term knowledge economy is to be useful we need to identify distinctive features that we would not expect to find- or at least not in such abundance - in the rest of the economy. A clear distinctive feature is the central role of the use of new information and technologies in allowing knowledge and information to be used in ways that underpin the knowledge economy concept. The rapid fall in price and vast increase in computing power has been a key underlying driver in creating networked systems able to store, analyse and handle knowledge and information flows. Knowledge economy might be defined more precisely in ways that are measurable and therefore, in principle, testable against hard data: Industry sector definitions of knowledge intensive industries and services Occupational based definitions of knowledge workers Innovation related definitions of the share of innovating firms. The knowledge economy is often thought of and sometimes defined in terms of knowledge intensive industries based ICT production or usage and/or high shares of highly educated labour. Industrial definitions initially focused on manufacturing and often used R&D intensity as an indicator to distinguish between high, medium and low-tech sectors. The definition has steadily expanded to include service industries that invest little in R&D but are intensive users of ICT technologies and/or have a highly skilled workforce using the benefits from technological innovation. Defining the knowledge economy in terms of knowledge workers has the advantage of being cross-sectoral, so avoids the shortcomings of industrial definitions. It has the disadvantage that there is no agreed or straightforward definition of who is a knowledge worker. There are (at least) three ways we can work towards a definition of knowledge workers: All those who work in the top three standard occupational classifications (managers, professionals, associate professionals). All those with high levels skills, indicated by degree or equivalent qualifications (NVQ level 4) All those who perform tasks that require expert thinking and complex communication skills with the assistance of computers.

13.7 SUMMARY

Numerous social scientists have documented the transition underway in advanced industrial nations from an economy based on natural resources and physical inputs to one based on intellectual assets. We document this transition with patent data that show marked growth in the stocks of knowledge, and show that this expansion is tied to the development of new industries, such as information and computer technology and biotechnology. The literature on the knowledge economy focuses heavily on knowledge production, however, and attends less to knowledge dissemination and impact. This neglect is unfortunate because a key insight of the productivity debate is that significant gains in productivity are achieved only when new technologies are married to complementary organisational practices.

Information technology that facilitates the broad distribution of knowledge is not successfully tethered to a hierarchical system of control. Thus one cannot assume that there is a natural link between knowledge production and flexible work, as new information technologies open up novel possibilities for both discretion and control.

A focus on knowledge dissemination might also aid the analysis of the skills mismatch thesis. The argument that some classes of workers are highly disadvantaged by technical change is too simple, although clearly older, less-skilled, and minority workers have borne the brunt of the transition to an economy based on intellectual skills. But fine-grained studies of how some less-skilled workers acquired the necessary technical skills to work in new settings are rare, and would be valuable.

The debate over skills also reveals the relative lack of standard metrics in this area of research. Patents have become an appropriate measure of stocks of knowledge, but we lack any comparable indicators of skills, and too often researchers rely on occupational labels or categories.

13.8 SELFASSESSMENT QUESTIONS

1. Explain the concept of knowledge based economy?

2. Discuss the framework of k- economy?

3. Outline the constraints in the growth & development of K- economy?

13.9 SUGGESTED READINGS

- Mithani, D.M., Managerial Economics-theory & Application, Himalaya publishing House Pvt. Ltd., New Delhi.
- Gupta, G.S., Macro Economic- theory & application, Tata Mcgraw hill publishing house, New Delhi.
- Vaish, M.C., Macro Economic theory, Vikas publishing house Pvt. Ltd., New Delhi.
- Mishra, S.K., and Puri, V.K., Modern Macro economic theory, Himalayan Publishinghouse.

UNIT-IV

LESSON 14

GROWTH OF KNOWLEDGE ECONOMY

STRUCTURE

- 14.1 INTRODUCTION
- 14.2 OBJECTIVE
- 14.3 STEPS FOR DEVELOPING KNOWLEDGE ECONOMY
 - 14.3.1 Learning from Others
 - 14.3.2 Adopting Conducive Attitudes
 - 14.3.3 Adapting Policy Actions to Development Levels
 - 14.3.4 Managing Reform Processes
 - 14.3.5 Sequencing Reforms
 - 14.3.6 Exploiting Entry Points: Driving Sectors and Cities
 - 14.3.7 Dealing with a Country's Context
 - 14.3.8 Socio-cultural Issues
- 14.4 CONSTRAINTS TO THE GROWTH OF KNOWLEDGE ECONOMY
 - 14.4.1 Challenges and Opportunities
 - 14.4.2 Future challenges for a knowledge-based economy*
 - 14.4.3 Policies for a knowledge-based economy
- 14.5 SUMMARY
- 14.6 SELF ASSESSMENT QUESTIONS
- 14.7 SUGGESTED READING

14.1 INTRODUCTION

The knowledge economy and the growth of knowledge management, as an essential

competency of organisations, provides new opportunities for librarians and information specialists to expand existing roles and utilise the skills they have honed to meet corporate objectives. The key information management role of both internal and external information, alongside the contribution to information competence and the ability to contextualise information, contributes to organisational excellence, customer benefit and competitive advantage which can be achieved more effectively through collaboration and partnership.

The new Knowledge Economy is a period of rapid change – a paradigm shift – for librarians and libraries. It can be viewed as either the beginning of a new “golden age” for the profession, or the point when librarians and information professionals became marginalized, and perhaps made irrelevant, by the rapid advances in digital computer and telecommunication technologies and the networking power of the Internet, intranets, and extra Librarians and information professionals are in a position to transform themselves into value-adding knowledge professionals. However, this will require a radical change in how they view their roles and jobs within knowledge-based organizations. It will require them to visualize a world of rapid change, instantaneous communications, and the transformation of organizations from those based on identifiable boundaries to networks of business relationships. This is the challenge facing the profession.

The term “*knowledge-based economy*” results from a fuller recognition of the role of knowledge and technology in economic growth. Knowledge, as embodied in human beings (as “*human capital*”) and in technology, has always been central to economic development. But only over the last few years has its relative importance been recognised, just as that importance is growing. The OECD economies are more strongly dependent on the production, distribution and use of knowledge than ever before. Output and employment are expanding fastest in high-technology industries, such as computers, electronics and aerospace.

14.2 OBJECTIVES

The objectives of this lesson are:

- To understand the steps for developing knowledge economy
- To explain the constraints to the growth of K-economy

14.3 STEPS FOR DEVELOPING KNOWLEDGE ECONOMY

14.3.1 Learning from Others

To understand how to build knowledge-based economies, it is useful to look at countries that have succeeded in setting their growth processes on a knowledge and innovation-based track—even if the relevant policy actions were part of broader development strategies and an explicit knowledge economy (KE) approach was only recently identified and named. Several cases throughout the world deserve particular attention. Finland is considered by many to be the world's most competitive country. Canada and Australia also enjoy competitive economies. The Republic of Korea and Ireland initiated explicit KE strategies in the past few decades, starting from a low-income base to achieve leading positions in the world economy.

- i. *Middle-income economies*- A few decades ago, the nations of Chile and Costa Rica in Latin America, Malaysia in East Asia, Tunisia in the Middle East, and Mauritius and Botswana in Africa, instituted multi sector reforms to attract foreign investment and create a KE-oriented environment. Transitional economies. The Baltic countries, notably Estonia, have instituted KE reforms over the past decades that are now paying off. Low-income economies. Vietnam has developed rapidly by taking advantage of globalization. The African countries of Mauritania, Mozambique, Uganda, and Rwanda are also active in instituting KE reforms (if in a fragmented way) and have enjoyed some economic success. China and India. Finally, there are the examples of China and India. These are the two *emerging giants* of our time, and their ascendance has benefited from the selective use of the KE approach. The experiences of these countries offer answers to the questions of *what to do* to build a knowledge economy and *how to do it*. The examples of the Republic of Korea, Ireland, and Finland are examined in detail in this chapter. Although their economies are now fairly advanced, they offer useful and generally applicable lessons. To resolve the crisis and put the economy back on solid footing, the government enacted remedial financial and economic measures, while at the same time launching a nationwide, multi sector KE plan (box 3.5) promoted through an awareness campaign in the nation's main business newspaper. Coordinated by the Ministry of Finance, the plan included reforms across all levels

of the education system, incentives to stimulate R&D (to compensate for the business sector slowdown), the promotion of venture businesses, and the building of a dynamic information society. This last phase, the most successful of the plan, resulted in the creation of an advanced information infrastructure (as measured by Internet access, e-applications, and so on) supported by a very dynamic information technology (IT) industry.

Inspired by these examples, the following sections set out principles for implementing KE (knowledge economy) strategies, including:

- the change of mindset needed for KE strategies
- the general attitudes that should inspire KE strategies
- the adaptation of policy measures to development levels
- the management of reform
- the exploitation of entry points such as driving sectors and cities
- the need to deal with contextual specifics of various types.

14.3.2 Adopting Conducive Attitudes

- i. *A New Mindset for Government Action-* The KE development calls for government action beyond the familiar programs of market liberalisation and selective, modernizing interventions. The new approach complements, rather than replaces, the liberalisation and modernisation views.
- ii. *Key Attitudes-* The general attitudes that should guide knowledge-based strategies: determination, vision, openness, and pragmatism. The same attitudes underpin the successful efforts of other countries as well: *Determination-* A KE-based approach requires determination. Adherence to the so-called Washington Consensus on policy reform-which calls for macroeconomic stability, deregulation, trade liberalization, and privatisation-is not sufficient in itself. Policies need to address all intangible assets and sources of growth-education, research, information, communication, and entrepreneurship-in order to foster and apply knowledge throughout the economy. Determination requires thinking big. Successful knowledge-based strategies require determined action across sectors and fields.

Restricting efforts to a specific policy plank is thinking small. Determination involves the ways and means used to accomplish the basic policy actions needed at a nation's stage of development. While it is difficult to make the transition to a stage of higher development, it is possible to apply modern means to achieve the objectives applicable within a stage. For instance, the use of advanced communication tools and distance learning can facilitate the meeting of education objectives even in the poorest countries. Similarly, the use of basic telephone and Internet facilities in countries at a higher stage of development can rapidly and radically transform the conditions within which entrepreneurs-including farmers and fishermen-do business. The application of these means can be effectively supported by government efforts. Determination is demonstrated by clearly structured industrial policies set to facilitate the development of a strong manufacturing sector. These measures improve the overall environment in which businesses evolve. *Vision*- Countries that advance have started with a vision that, in one way or another, points to a goal and gives a sense of identity. A clear vision gives expression to determination. A vision generally takes the long view, sometimes with the fruition of goals 20 years out. Vision arises from small groups of people, from community or regional leaders, and sometimes even from the head of state. Visionaries need to look for resources in various sectors of society, such as business and education. This is necessary to anchor the vision in reality and to obtain the commitment of the populace. It is crucial to realize a vision in concrete terms quickly-in tangible projects, even if of modest size. The vision thus becomes credible and reinforces national investment and self-confidence. Openness. Another lesson from the Korean, Irish, and Finnish experiences-and from other successful transitions to a KE approach-is the need for openness to the outside world. *Globalization* offers considerable opportunities; chief among them is the opportunity to attract FDI and employ it appropriately. Each country must organise instruments and channels to systematically monitor technologies and knowledge abroad that might be relevant to its activities and goals.

A successful knowledge economy relies on policy exposure, which can be gained through international exchange, study tours, and pilot programs based on policy measures that have proven successful abroad. Pragmatism, Determination, vision, and openness

must be grounded in reality.

Policy makers need to clearly understand the needs and constraints of their economy and temper their ambitions and goals, adapting their efforts to their country's capacities and resources. They must make the best use of their country's competitive advantage, whether in agriculture, tourism, or natural resources, and to direct their attention first to the areas with the highest leverage to position the country on a successful KE track. As the experiences of the Republic of Korea, Finland, and Ireland demonstrate, building a knowledge economy is a gradual process in which efforts, investments, and policy actions are adapted at each stage of development, accompanied by an understanding of the country's specific needs, capabilities, and comparative advantages.

14.3.3 Adapting Policy Actions to Development Levels

The three examples of the Republic of Korea, Ireland, and Finland suggest policy actions appropriate for various stages of development. Progress toward a knowledge economy is measured in relation to the stages of development as defined by the World Bank, and by respective levels of advancement. Low-income countries are at an *early* KE stage and need to build foundations; lower-middle-income countries are at an *upgrading* KE stage and need to raise their KE assets before they can embark on a broad KE strategy for growth; upper-middle-income countries are at an *emerging* KE stage; and high-income countries are ready for a *full-fledged* KE strategy.

Low-Income Countries

Low-income countries at an early KE stage need to establish solid foundations in governance and the business environment. Governments may choose to establish special economic zones (SEZs) with few bureaucratic entanglements and transaction costs. This attracts foreign investment, which introduces new technology and management and creates jobs. Large but vital tasks are (a) the reduction of illiteracy through basic education and (b) the strengthening of a few technical and tertiary institutions to build core competency in advanced technology, engineering, and science. For ICT advancement, low-income countries should first build a minimal telephone infrastructure that takes advantage of mobile technology and then establish fixed-line connections for the Internet (at least 10 percent of the population must be connected in order for the knowledge economy to take off). For educational and cultural advancement, they should also make good use of TV and radio

networks, notably to reach rural areas. In terms of innovation, they should make the best possible use of national and global knowledge to serve the basic needs of the population (for food, healthcare, and housing), and develop basic infrastructure for quality control, metrology, and other services essential for supporting technology diffusion and adaptation throughout the nation, particularly in rural areas. Investments may be directed to selected IT niches if it is possible to take advantage of a literate labour force and entrepreneurial individuals well connected to international markets.

Lower-Middle-Income Countries

Lower-middle-income countries that are upgrading toward a knowledge economy should further improve their business environment by focusing on financial and labour markets and by facilitating the reallocation of both financial and human resources toward an emerging formal private sector. Bureaucratic and regulatory obstacles that prevent expansion should be removed. SEZs should be developed across the economy, and more FDI attracted through targeted strategies and incentives. To achieve full literacy and expand the higher education base by joining networks of advanced institutions worldwide, there must be full access to primary education and increased standards of quality as well as access to secondary and vocational education. Internet access should be expanded to improve governance, logistics, business services, and the delivery of social services. Innovation requires an increased awareness of global developments to identify and import relevant technologies. Extension services designed to increase productivity in agriculture and manufacturing should be increased. While private R&D may be encouraged, the existing public R&D infrastructure should be strengthened. Both must be supported by measures to increase technological and managerial competence. University-industry interaction should be encouraged on a selective basis through appropriate support and incentives.

Upper-Middle-Income Countries

As they move closer to a solid knowledge economy, upper-middle-income countries should further strengthen their business environment. In particular, they must focus on financial and equity markets by facilitating the mobilisation of development and venture capital. The efficiency of government tax collection and expenditure should improve with an educated labour force and improved governance. Access to higher education should continue to widen and the quality of education to improve. Lifelong learning systems

characterised by multiple pathways and providers should be developed. The application and use of Internet-based technology should be further developed, increased, and diversified to further reduce transaction costs and improve economic efficiency. Domestic innovative capacity should be encouraged through appropriate incentives (reimbursable subsidies, tax incentives, and so on), particularly for developing private sector R&D, with a goal of increasing R&D expenditure to 2 percent of GDP. Protection for intellectual property rights (IPR) should also be expanded, although this is less important for low-income countries.

Advanced Countries

For advanced economies, development and maintenance of a true knowledge economy require an immediately responsive and flexible environment. Incentives should be directed toward intangibles such as R&D, education, software, and marketing and should be adapted for a service-based economy. In the education sector, the priority should be to increase access to and quality of the higher education sector. This, in return, becomes part of a larger, seamless, lifelong learning system with a large number of tertiary students, including adults. ICT becomes the basic infrastructure of the economy with a broad development of special applications, including dedicated software and multimedia. Innovation becomes the key engine of growth. International strategic alliances for R&D, production, and marketing are encouraged by government support.

14.3.4 Managing Reform Processes

Timeline and Impact of Reforms

Knowledge Economy reforms can have a very significant impact in a relatively short time, even though their full effect requires sustained action across the four pillars. The effect of measures that improve the business environment may be felt in one or two years-sometimes in only a few month-in areas such as enterprise development and the attraction of FDI. Similarly, investments or actions relating to ICT may show tangible effects in only a few years- witness the rapid spread of cell phones. By contrast, innovation policy requires a minimum of five years to generate significant improvements in technology diffusion, job creation, enterprise growth, and international competitiveness. And education policy reforms will not take full effect until the passing of one to two decades at best. However, measures to retrain workers-and more generally to establish lifelong learning venues-should improve

employment opportunity for much of the population far more rapidly. KE development processes are nonlinear. Unexpected events-such as a crisis that demands immediate decisions or the restructuring of a sector or firm that leads to immediate and unanticipated industrial growth-can effect a major change in direction.

Knowledge Dynamics: Incremental Change

Determination and vision are necessary to build confidence that a new and better era in national development is at hand. However, the conditions for substantial change throughout the institutional system are often not fulfilled even in countries that have been affected by a deep crisis. When effective market mechanisms and government organisations are in their infancy, policy makers may face both market failure and government failure. Under such conditions, pragmatism-adopting and adapting what works-should inform knowledge strategies. The design of institutional solutions for knowledge-based growth does not require full-scale public sector reform. If resources are few and time is constrained, policies that establish institutional shortcuts may be appropriate. Imperfect and idiosyncratic institutions may ensure a functional fit between a country's conditions and the challenges of reform.

For example, many observers have been puzzled by the remarkable success of town and village enterprises in China. These enterprises were owned and controlled by local governments. Standard theory cannot account for their comparative advantage over private enterprises. It seems that the public structure accommodates the particular features of the Chinese economy and society at this point in time. China is not the only country to employ incremental reform. Modest reforms appeared to account for economic growth in India, allowing the nation to exceed its traditional growth rate of 3 percent. In the 1980s, under Rajiv Gandhi, the government relaxed industrial regulations, encouraged imports of capital goods, and rationalised the tax system. Though the reforms were modest, they tipped the balance by encouraging rather than discouraging entrepreneurial pursuits. Entrepreneurship is both a principal route into global knowledge flows and a principal actor in transforming knowledge into wealth. The recent surge of growth in these emerging giants can be traced to their strategy of gaining knowledge that can then be transformed into wealth. The reforms in China and India illustrate incremental changes from the bottom up, offering a favourable balance of risks and returns by encouraging first steps at many and diverse entry points. This incremental process increases the chances of setting the

cycle of institutional reform and knowledge-based development into motion.

Sustaining Knowledge Dynamics: Bottom-Up and Top-Down Initiatives

Since most developing countries need to implement major reforms if they are to move ahead. Developing a consensus for reform agendas can be as challenging as removing the institutional impediments to reform. Finland and the Republic of Korea are good examples of concerted consensus building efforts to engineer successful transitions to knowledge-based economies. In both cases, a national economic crisis compelled the affected actors to define and implement a new agenda through explicit or implicit national consensus on goals and mechanisms for moving forward. Policy makers and private sector leaders extended the time horizon for results from the adopted policies. In both cases, mechanisms already in place anticipated change and the need to undertake or adjust appropriate reforms. These cases show that to overcome institutional rigidities and bottlenecks, a combination of top-down and bottom-up policies is necessary.

14.3.5 Sequencing Reforms

Transitions are required to facilitate the concerted efforts that are crucial to successful reforms. Inspired by successful processes, one may propose a three-stage scheme:

- ***Immediate agenda.*** Through a top-down initiative, create awareness, develop rational indicators to monitor progress toward a knowledge economy, and evaluate ongoing pilot initiatives.
- ***Short- and medium-term agendas.*** Through top-down and bottom-up cooperation, institute a shared vision led by the private sector, institute a national monitoring system linked to budgetary priorities, and consolidate micro level “rapid results” projects and/or pilot projects in visible initiatives across regions and sectors. The priorities of a national monitoring system can be expected to result in significant changes in budgetary priorities.
- ***Longer-term agenda.*** Set a full-fl edged reform agenda that will eliminate or transform major vested interests and will introduce a new incentive structure for major agents.

14.3.6 Exploiting Entry Points: Driving Sectors and Cities

Innovation and growth often arise in specific sectors or locations following the accumulation of a critical mass of talent, resources, and entrepreneurship. There must be an adequate and functioning infrastructure (power, transportation) in place, and a permissive-if not supportive-environment for entrepreneurial initiatives. When these conditions coalesce, competitive industries emerge or clusters develop. There are many examples of this process in advanced countries; the Irish Shannon-Limerick area and Finnish cities are cases in point. There are many examples to be found in lower-income countries as well. The role of government is to facilitate innovation and growth by bringing together the elements and personnel that can make a difference. In its pragmatic approach, China intentionally created enclaves for growth known as export processing zones (EPZs) and technology parks within SEZs that offer financial and regulatory incentives to local and foreign enterprises willing to relocate, along with training facilities. Well-equipped government laboratories or state schools led by visionary leaders and accompanied by an active private sector provide an efficient nucleus for clustering processes.

The city of Bangalore in India offers an example. It began as an active IT service center, drawing on local IT schools and a few private enterprises that had contracts with U.S. firms located in Silicon Valley. With a well-trained and cheap labour force, it grew rapidly. Bangalore now seems to be reaching certain limits, but its success has been emulated by other Indian cities. More generally, IT communities and sectors are plausible entry points throughout the world. They are led by entrepreneurs using new technologies and offering attractive opportunities for employment, for profit, and for exports within a relatively short time. In today's world, ICTs appeal to the public at large and offer an opening into the knowledge and information age.

14.3.7 Dealing with a Country's Context

Development Trajectories and Policy Agendas

The World Bank has recognised the need to adapt development strategies and policy measures to each country's specific context. When considering the development trajectory that is most appropriate for a country, it is crucial to consider different approaches in industrial strategies. Korea developed its industries with technology from abroad, through its licensing policy and systematic OEM agreements. The core *chaebol* industry groups

were family owned. For example, Korea should now expand its indigenous innovative capability and concurrently address the trends toward polarization of its economy and society. Ireland should build a larger research base and diversify its innovation clusters. Finland should maintain its position of technological pioneer and world competition leader by finding new niches. In recognition of the significant differences between countries, the World Bank recently tested a growth diagnostics methodology based on the identification of binding constraints. A government must focus its policy actions on removing these systemic obstacles rather than employing the usual laundry list of measures that touch all areas (trade, investment, finance, governance, labour, and so on). The growth process in Brazil is affected in the first instance by constraints on entrepreneurs-particularly the lack of development capital. The situations thus require very different policy approaches.

14.3.8 Socio-cultural Issues

Sociocultural considerations are of paramount importance in the development process. Whatever the policy actions and strategies for change, slowly changing socio cultural specificities will shape efforts, investments, and growth trajectories. Cultural influences on and implications for countries' economic systems and policies, particularly their knowledge and innovation dimensions, can be approached at the different levels of a "culture tree". There are striking differences between Eastern and Western civilizations. These can be imputed in part to different cognitive processes, with implications for relationships to the world, as well as societal organisation. Two different postures can be identified: in the West much thinking involves a distancing from reality, in the East an immersion in it. These different ways of thinking imply differences in various domains of human activity including medicine, law, science, human rights, and international relations. In science and technology, the Western approach to reality favours a scientific search for causality in understanding natural phenomena, while the Eastern mind favours holistic combinations of existing elements as the basis for technological development. With regard to the legal and institutional environment, Western societies are concerned with the establishment and observance of the rule of law as the basic means of protecting the individual, while Eastern societies tend to emphasize informal relationships regulating collective groupings, such as the Chinese *guanxi*. This leads to two clearly different economic systems with some contrasting features.

The historical experience of nations, and their geographic location, also plays a

vital role in shaping collective mindsets and behaviours. At the level of nations, behaviour and thinking are strongly influenced by history. For the developing world, the impact of colonisation is particularly important. The situation is better when trauma has been limited or the contact has been well integrated. Japan, for example, has maintained its integrity throughout its history, and has thus been able to integrate modern features into its traditions. Botswana is another instance in more recent times, and on a particularly troubled continent. As far as geography is concerned, an island-in geographic and cultural terms-seems to possess a special sense of identity that helps to mobilise the available resources, provided that the country is open enough to external pressures and opportunities. All value judgments should be eliminated. What matters is to understand how deeply rooted factors that have shaped mindsets and behaviours over time and created the true wealth of mankind in all its extraordinary diversity-influence development processes positively or negatively. Cultures and related mindsets and behaviours are very slow to change, and it may be that the globalisation process, instead of leading to uniformity, pushes civilisations and nations to intensify their specificities, thereby contributing to a healthy diversity. Cultural features present both strengths and weaknesses, and the policy implications are clear: build on one's natural strengths while being conscious of one's weaknesses.

14.4 CONSTRAINTS TO THE GROWTH OF KNOWLEDGE ECONOMY

14.4.1 Challenges and Opportunities

It is for all these reasons that the term *knowledge economy* (KE) has been coined. Its meaning is broader than that of *high technology* or the *new economy*, which are closely linked to the Internet, and even broader than the often-used *information society*. Its foundations are the creation, dissemination, and use of knowledge. A knowledge economy is one in which knowledge assets are deliberately accorded more importance than capital and labour assets, and where the quantity and sophistication of the knowledge pervading economic and societal activities reaches very high levels.

1. Coping with Knowledge-Based Economic Competition

Industrialised countries, for which the term *KE* was initially forged (OECD 1996), are coping unevenly with the new realities. The nations of North America seem to have benefited quickly from the new opportunities offered, with a higher growth rate and higher productivity performances over the last 15 years or so. Gaps in income per inhabitant

between North America and Europe have increased. In Europe, small, dynamic economies such as Finland and Ireland have become models of knowledge-based growth and competitiveness, while larger continental economies such as France and Germany-which led the technological and industrial race in past decades-have, had difficulty adjusting. Meanwhile, Japan has experienced a difficult decade, with slow growth caused by a variety of factors, but has continued to build KE assets (by increasing spending on basic research. There is a strong correlation between innovation performance, total factor productivity, and economic growth in OECD countries. Nordic and English-speaking countries have, as a whole, performed better than others. The transition economies of Eastern Europe have had difficulty coping with the new knowledge-based competition, although they benefited from considerable past investments in education and science. Smaller economies such as Hungary, Slovenia, and Estonia have coped well and taken advantage of European enlargement. Estonia, in particular, has adopted an aggressive KE approach. However, a number of other new EU members and candidates are undergoing a more painful adjustment process. The Russian Federation and other countries of the former Soviet Union have yet to demonstrate their capacity to make use of a knowledge potential that was considerable at the time when the Berlin wall fell but eroded rapidly owing to the emigration of highly educated people. Among medium- and low-income countries, Chile, Malaysia, and Tunisia have clearly taken a knowledge-based approach to increasing competitiveness and growth. According to a recent World Bank study on economic growth, countries with successful growth-defined as those that both caught up with advanced countries and sustained growth over time-did so by combining three important factors: capital accumulation, efficient resource allocation, and technological catch-up. The 18 successful countries were China, Vietnam, Republic of Korea, Chile, Mauritius, Malaysia, Lao People's Democratic Republic, India, Thailand, Bhutan, Sri Lanka, Bangladesh, Tunisia, Botswana, Indonesia, Arab Republic of Egypt, Nepal, and Lesotho. The report underscores the importance of technological catch-up and its translation into economic growth through increases in total factor productivity, which accounted for between one-half and three-quarters of economic growth in all countries listed.

The report also confirms that productivity gains should be considered in a wide Sense-not only in terms of technological change, but also including institutional innovations, which are just as important for productivity as breakthroughs in science and technology. Such gains are also stimulated by internal competition, openness to external markets, and

the role of foreign direct investment (FDI) in particular. Each government among the 18 countries listed played a unique role in the growth process. China embarked on a knowledge-based growth track by attracting massive FDI and then building an indigenous knowledge base through huge investments in education and research. India has succeeded by making the best use of its elite institutions and exploiting international IT-related opportunities, in part through the deft use of knowledge assets. There is a distinct KE model and process for countries at all levels of development.

Globalisation and the knowledge revolution present both challenges and opportunities to developing countries. On the one hand, there is the threat of a widening in the existing knowledge gap with industrialised countries. Indeed, research and innovation capabilities-measured by the usual indicators of R&D investments (expenditures, researchers) and outputs (scientific articles, patents) tend to be more concentrated in industrialised countries.

On the other hand, the digital gap-differences in telephone and Internet use- is being gradually reduced, although this does not reflect the considerable inequalities in Internet access among the poor and the rich in developing countries, or the mediocre quality of Internet infrastructures (in terms of bandwidth and soon).

For developing countries, easy access to global knowledge and technology is crucial. Relevant knowledge and modern technology can be decisive in helping such countries reach several of the Millennium Development Goals 8 at a very low cost. Nonetheless, much is needed to become a vibrant knowledge economy-often more than what was needed to succeed among traditional economies. Then, competition was a matter of capital investments in natural resources or low-cost, unskilled labour. Now, facing world competition means climbing up the value chain. And success in the climb means upgrading the labor force and ensuring efficient telecommunications and logistics. A knowledge economy requires a significant segment of highly educated people, not simply a population with a basic education. While low labour costs alone can attract FDI and boost economic growth, on their own they also present the risk of trapping economies in the manufacturing part of the production process.

2. Global Issues

The number of major challenges facing the world's economies is mounting, in part

because of globalisation and the recent technological revolution. Among these challenges are growing fragility in the world community, widening global economic imbalances (all the more difficult to reduce as China and India become major economic players), unsustainable urbanisation, and increasingly evident environmental and resource constraints on economic growth. Knowledge and innovation can help nations face these challenges, several of which are outlined below.

Fragility. Various factors make the world community more fragile, with greater risks of systemic propagation effects and paralysis. These include uncontrolled epidemics such as bird flu, global financial speculation in interconnected markets, terrorist attacks on sensitive points (such as major trade or oil routes), proliferation of weapons of mass destruction, and so on. Such risks result, in part, from the increased integration of economies and societies, which ICTs have accelerated. At the same time, however, these technologies help monitor and control potential dangers.

Imbalances. Economic globalisation has been accompanied by a redistribution of production through off shoring and outsourcing. FDI has tended to concentrate in a few regions, primarily China and Eastern Europe (following the fall of the Berlin wall). For lower-skill industries, this has led to drastic and permanent employment shifts worldwide. High-income countries have lost jobs, and low- to medium income countries have lost export and employment opportunities. This trend will likely increase in the coming years and continue to affect service industries, spurred by the rapid growth of India. Consequences are considerable for regions in great need of employment, such as the Middle East, where it is estimated that some 90 million jobs will have to be created in the next 20 years in order to prevent a further increase in unemployment. At present, 15 percent of the total population-and more than 30 percent of the youth population-is unemployed.

Unsustainable urbanisation. The rapid and anarchic urbanisation that accompanies industrialisation affects developing countries in particular. In 2003, 48 percent of the world's population lived in urban areas- a 33 percent increase from 1990. It is projected that, by 2020, 4.1 billion people (55 percent of the world's population) will live in urban areas. Almost 94 percent of this increase will occur in developing countries. By 2015, there will be 22 megacities (cities or agglomerations with a population of more than 8 million) and 475 cities with populations exceeding 1 million. While urbanisation helps renew cultures and brings innovations into people's lives, it is accompanied by a loss of autonomy and by

violence, human trafficking, and so on. Coping with urbanization and its side effects is a serious challenge. It requires the capacity to conceive, produce, and disseminate technologies that favour autonomous local development processes. This can help prevent the excessive concentration of populations that can lead to dangerous fragmentation.

Environmental and resource constraints. Finally, it is important to recognise that the rapid emergence of China and India, coupled with global warming, means that the world economy cannot continue to use energy and natural resources at the current rate. Production and consumption systems in both developing and industrialised countries will have to change profoundly. Global innovation is challenged-perhaps to a degree never before experienced-as caps on growth are approached.

To conclude Knowledge has always played a determining role in the development of societies. In the last two decades, however, a distinct Knowledge Economy model and process have been observable in successful economies worldwide, and among both industrialised and developing countries. Globalisation and the fast-moving digital age open new opportunities to developing countries to the extent that those countries follow successful economic models. It is urgent that developing countries proceed with the investments and reforms required to build knowledge-based economies. Chief among those requirements are creating jobs, facing competition from China and India, and meeting environmental challenges.

14.4.2 Future challenges for a knowledge-based economy

Not only has there been a general lack of progress towards reaching the Lisbon goals of Europe becoming a more dynamic and competitive knowledge-based economy, but challenges are actually increasing over time, due to demographic changes, increasing competition from China in high value-added goods and from India in services, and the continuing dominance of the United States in KBE sectors such as ICT and biotechnology. There are a number of major structural changes occurring on a global level that are relevant to knowledge-based economies and that will alter the environment for innovation and competition over the next few decades, and consequently, influence the types of indicators that European policy makers and academics will need to be able to effectively evaluate and respond to future challenges. These major structural changes include:

1. Increasingly global production chains for goods and services, leading to changes

in the location of comparative advantages.

2. The development of new centres of knowledge and innovative activities.
3. Demographic changes including increases in the average life span.
4. Changes in stocks and flows of skilled workers.
5. Technological shifts driven by new technology or environmental requirements.

This section examines these five challenges and the types of indicators that will be required to track structural changes over time. We also briefly discuss three related scenarios on demand for innovation, supply of skilled human resources and environmental. The goal of these scenarios is to assess the relevance of existing indicators and to suggest new indicators where necessary.

a. Global production chains: The first structural change consists of major shifts in the location of comparative advantage for the production of both manufactured goods and services. While China accounts for a growing share of manufactures, India is developing strengths in services such as software development, clinical trials, and call centres. Over the short to medium term of up to 20 years, firms in developed countries are likely to respond to cost competition from India and China by increased delocalisation of production, including the production of high technology products, such as ICT or aerospace equipment. Such shifts in the location of production have been made possible by ICT, innovation in organizational forms and logistics and low transportation costs. Innovative firms rely on cross-national production networks and create value from the efficient use of global supply chains, thanks to globalization and the increasing modularisation of standard components. New types of indicators to inform policy options and private investment decisions are needed. Although MNEs are important actors in the innovation process, their role needs to be better understood. Statistics related to MNEs are usually limited to the national level and country to country comparisons, creating incomplete data and unclear profiles on their activities, including the location of their innovation investments around the world. Due to a lack of official statistics, little is known about the extent and real impact of delocalisation of production. Further work is required to identify employment effects, including types of employment affected (e.g. knowledge creation vs. application); occupations most

affected (e.g. different skill levels and fields of specialisation), and wage differentials for the same occupation between the source country and the off-shored location, plus rates of salary growth abroad. A crucial point about current changes in the location of comparative advantage is that it won't last. Sooner or later, increasing productivity and wealth in India, China and other developing countries will result in currency realignments that will reduce the disparities in wages and incomes that drive off-shoring strategies based on seeking lower wage costs in manufacturing and the provision of services. An often forgotten point is that the advantages of distant, low-cost production are slim. Even a 10% increase in shipping costs can reduce the cost advantage of producing some goods in China to zero. The rapid increase in the cost of petroleum products after 2006, if sustained, could lead to a shift in some manufacturing in China to locations closer to major markets.

- b. The changing environment for innovation strategies:*** Outsourcing and delocalisation of production are not new phenomena. However, data suggest that countries such as India and China are likely to increasingly compete not only on the basis of low wages, but also on their innovation capabilities, including in knowledge intensive sectors, such as software, capital goods and ICT manufacturing. American FDI or suppliers to American firms in these two countries also appear to be increasingly responsible for developing patentable innovations for their parent firm, suggesting that both China and India are capable of turning FDI into a mechanism for developing innovative capabilities. One consequence is that it could be increasingly difficult for high-wage countries to compete on the basis of "continual innovation". The development of innovative capabilities in China and India could drive firms to increasingly develop R&D centres in these two countries. First, firms can take advantage of local pools of inexpensive but highly skilled labour; second, they can seek specialised expertise that is not available in their home countries and third, they can establish R&D labs in foreign markets to adapt current products to local tastes or develop new products that meet local demand. The OECD estimate that about 20% of total jobs in the EU could be off-shored, including many of the 'knowledge jobs' of the future gives pause for thought. This is already occurring in some sectors, such as software development in India, and the establishment of research centres in China by telecommunication and biotechnology firms. To date, we lack reliable statistics on both the extent to which

innovation activities such as R&D are being globalised, and more importantly, the innovation capabilities of the research centres that have been established by multinational firms in developing countries. We do not know if these centres are performing leading-edge research or largely adapting products to local markets. Competitive advantages provided by innovation could decline as an increasing share of firms base their competitive strategies on innovation, driven both by an increasing awareness of innovation by firms based in developed countries and by an increase in the use of innovation by firms based in developing countries. Greater competition could reduce the ability of innovative activities to provide the excess rents that drive profits and investment. This could produce a paradox whereby policy efforts to encourage more creative innovation, as with the 3% R&D intensity goal for Europe, result in declines to the private returns from innovation. However, three factors could mitigate the reduction in profits from increasing competition over innovation. The first factor concerns the location and costs of innovation activities. With R&D becoming more of a commodity, it can be purchased from universities, start ups and spin-offs, or from cheaper R&D centres in developing countries.²⁹ The second factor is that firms can more aggressively manage intellectual property to profit from their investments in innovation, for example through patenting. The organisation of innovation itself is changing and these changes can improve the productivity of innovation. IT has driven down the costs of experimentation, and globalisation has reduced the cost of research collaboration and the cost of outsourcing. Firms have decreased the role of standalone central labs and increased their use of linkages such as networks, alliances and formal and informal relations. Such linkages could be producing basic structural changes that improve research productivity and allow innovation systems to adapt to new conditions, as well as reduce uncertainty, share costs and knowledge, and bring innovative products and services more quickly to the market. Indicators to track and understand these dynamics are important for policies that support this experimentation while retaining a competitive environment. The efficacy of these three counter strategies to improve the profitability of innovation depends on favourable technological opportunities, or the R&D and engineering costs of developing new innovations versus the expected earnings from these innovations. There are no reliable data for technological opportunity, but the opportunities are believed to be highest during the early years of a new technology,

lowest during its mid life, and to increase as the technology matures.

- c. ***Demographic change and demand:*** The third major structural change is a demographic increase in the average age in many developed countries. This change has two impacts on a KBE: first, on the market demand for innovative products, and second, on the supply of highly skilled individuals. Services is inversely proportional to age and positively correlated with income. Demographic change leading to large increase in the population share of older age cohorts could reduce aggregate domestic demand for innovative goods and services. Assuming that a sophisticated domestic market plays a role in national innovative capabilities, an aging population with low levels of interest in innovation could reduce the innovative capabilities of the home market. These factors could lead firms based in countries with aging populations to seek both markets and research facilities in more youthful countries. Another development that could be affected by changing demographics is user-centred innovation. The actual economic importance of user-centred demand in either lowering innovation costs for firms or influencing the direction of innovation is unknown, but insofar as user-centred innovation occurs through the internet, the low internet access rates among older age cohorts could be a concern. Conversely, the internet permits firms to get global feedback for their products and services. Because consumer demand can constitute an important incentive or constraint in shaping the innovative activity carried out by private firms, data on the value that innovation generates for customers is needed. Moreover, with a possible increase in user-centred innovation, the location where innovation takes place changes. This requires integrating customer requirements and ideas through organisational innovation (customer-related processes are integrated with sales, delivery, inventory management and so forth). Attention needs to be given to the role of suppliers, customers and interactions among them. This means developing indicators of innovation processes that look at those interactions by using new technologies.
- d. ***Scenario on innovation demand:*** In the KBE, productivity and economic growth are largely related to innovation. Not only does competition drives innovation, enabling firms to reduce production costs, but there are other more complex factors driving product innovation, including both technology push and market demand factors. Firms invest in product innovation based on current or expected demand for innovative goods and services. Without a current or potential market, innovation activity may be

compromised. The market can be other firms (business to business), individual consumers, governments, or export markets. Demand is one of the two main drivers of innovation (the other is the supply of technological opportunities). Consequently, several policy actions, apart from the creation of a single European market, can influence innovation. The innovation demand scenario identifies indicators that could be used to evaluate national differences in demand factors and find out how policy could influence demand in a way that would stimulate innovative activity.

- e. ***New technologies:*** Major technological shifts are difficult to predict. They could occur through the development of new generic technologies such as biotechnology or nanotechnology, in response to rapidly increasing demand for food, mineral, fibre, and energy resources, or from environmental imperatives to counteract unsustainable exploitation of the world's resources. Regardless of the cause, technological shifts can increase demand for investment in research and the skills to use new technology. For example, science and technology will need to move forward in several energy related fronts (mainly to counter climate change and growing demand for oil from countries such as China and India), which will require innovation in the resource sectors and in how energy is used across all sectors. Biotechnology is widely viewed as an emerging generic technology, although its economic impact is likely to be far less than that of ICT. Nevertheless, the application of biotechnology to agriculture and industry could have major economic effects, in addition to social and environmental benefits. Obtaining these benefits will require a long-term research strategy, which may increasingly take place in major developing countries, rather than in the original biotechnology leaders of the US and Europe. Shifts in technology can also result from changes in public support for research, such as the change occurring in the US through an increase in public support for life sciences, including biotechnology, and a decline in support for technology fields (engineering, physical sciences, maths and computer science). This shift in priorities is controversial, partly due to the long lag times before life sciences R&D results in commercial products.

The future growth of all types of economic activity will require materials and energy. Whereas developed countries are investing heavily in innovation, China has realised the importance of resources and is currently investing large amounts of money in the exploitation and purchase of natural resources worldwide. Growing resource scarcity

is likely to produce significant rents in the future for the owners of commodities.

14.4.3 Policies for a knowledge-based economy

For policy makers in industrialised economies, the development of a KBE is viewed as essential for economic growth in the face of increased competition from lower cost countries in both basic manufacturing and in higher skilled services and production. European countries not only face the challenge posed by competition from these emerging countries (e.g. China and India), but also continue to face pressure from countries such as the United States and Japan, two countries identified as the major competitors in European policy documents since 1995.

In addition to existing policies to promote ICT use, R&D, and education, *a broad range of policies are relevant to the goal of supporting a KBE*. These include policies to promote organizational and “presentational” innovation and “soft” parameters such as human creativity and human resource management. The goal is to develop policy based on concrete evidence. The challenges include a lack of empirical evidence for present developments in the KBE, as well as the need to address future trends and uncertainty. Good policy making must also incorporate political, economic, and cultural contexts. *A few challenges for policy development need to be taken into account.*

1. First, policy tends to focus on goals and outcomes – such as the 3% R&D intensity goal agreed in Lisbon and Barcelona - that are easy to measure because adequate data and indicators are readily available. This contrasts with a lack of data and indicators for other KBE goals. This disparity between data and indicator availability could distract the policy community from pursuing other important policies for encouraging growth in a KBE.
2. Second challenge for evidence-based policy is to measure the effect of government programmes on policy goals when large number of factors can influence outcomes. Identifying the effect of factors requires a variety of indicators, many of which may be unavailable, except as one-off indicators collected in a single survey at a single point in time. Such problems can occur for measuring a number of policies relevant to a KBE, such as promoting the use of patents and other IPR, public sector innovation or improved quality of human capital.

3. A third challenge is that policy formulation must address the way we want our economies and society to look in the future. Consequently, policy making requires indicators of relevance to medium- and long-term goals. A key limitation with any discussion of policy is the time-lag inherent in policy formulation and implementation and in the timeliness of data and indicators to measure policy outcomes.

In many cases, policy is learning from the past to plan for the future. In order to address the policy challenges of a KBE, we need to consider policy from two dimensions. First, what policies are currently in place, and are they capable of meeting current challenges? Second, can policies be designed with sufficient flexibility to adapt to possible future challenges?

14.5 SUMMARY

The design of successful policies to encourage a KBE requires data and indicators for new challenges, such as the impact of an ageing workforce, globalisation, rising imports and rising job insecurity. The rapid integration into the world trading system of China and India, with their huge pools of low-wage labour, and the recent enlargement of the European Union have fuelled fears of further job losses, as global competitive pressures increase. There are many possible responses to competition, including developing new products, product differentiation, branding, improved design, and efficiency gains from technological and organisational change. All of these methods entail some degree of innovation. The ability to innovate relies upon the health of the economic environment (availability of skilled labour, R&D funding, tools for commercialisation that is nurtured and facilitated by the policy environment, which in turn is informed and guided by indicators. Certain aspects of the KBE are already covered by a rich set of indicators from established surveys. These include indicators of business performance, R&D activities, and patents. These and other indicators are used to evaluate causal relationships between investment and economic performance and growth. Other aspects of indicator development for a KBE are in their infancy, such as composite indicators based on summarising several component indices. Composite indices can be used to generate a 'constellation' of events. A group of indicators can 'collectively' give early warning signals, while also reducing complex data sets in a way that can help users to better understand the relationships among the factors in the KBE. The KBE characteristics and drivers points to the need to revisit existing composite

indicators as well as the need to develop new composite indices. If we go back to the notion of a 'constellation' of indicators, we can consider the 'night sky' of a KBE. Some 'stars' (indicators) are constant in illuminating a picture, others flare up and gain more attention while yet others burn out and no longer play an important role. In the KBE, different segments of the economy grow or decline, different players gain or lose their importance, emerge or disappear. Ways of learning, producing and exchanging knowledge are different than in previous economies and continue to change. While the role of ICT in the KBE is undeniable, it is the reconfiguration of economic, social and political relationships that needs indicator development. The interviews with policy analysts show that indicators are often seen more as a bunch of dots that remain unconnected on a drawing board - or to continue with our previous analogy, the actual constellation patterns in the night sky are not yet visible. The challenges include understanding the process and interactions of the system of innovation, and developing indicators and measures that can connect the individual dots or stars.

14.6 SELFASSESSMENT QUESTIONS

1. Explain the steps in developing K-economy?

2. Discuss the various challenges faced by k-economy?

3. Explain the future challenges being faced by knowledge economy?

4. Discuss various policies to be followed for a successful knowledge economy?

14.7 SUGGESTED READINGS

- Mithani, D.M., Managerial Economics-Theory & Application, Himalaya Publishing House Pvt. Ltd., New Delhi.
- Gupta, G.S., Macro Economic- Theory & Application, Tata Mcgraw hill Publishing House, New Delhi.
- Vaish, M.C., Macro Economic theory, Vikas Publishing House Pvt. Ltd., New Delhi.
- Mishra, S.k., and Puri, V.K., Modern Macro Economic Theory, Himalayan Publishing House.

UNIT IV

LESSON 15

NATIONAL INCOME

STRUCTURE

- 15.1 INTRODUCTION
- 15.2 OBJECTIVE
- 15.3 DEFINITIONS
- 15.4 COMPONENTS OF NATIONAL INCOME
- 15.5 SIGNIFICANCE
- 15.6 SUMMARY
- 15.7 SELF ASSESSMENT QUESTIONS
- 15.8 SUGGESTED READINGS

15.1 INTRODUCTION

National income is an uncertain term which is used interchangeably with national dividend, national output and national expenditure. On this basis, national income has been defined in a number of ways. In common parlance, national income means the total value of goods and services produced annually in a country.

In other words, the total amount of income accruing to a country from economic activities in a year's time is known as national income. It includes payments made to all resources in the form of wages, interest, rent and profits.

15.2 OBJECTIVES

The objectives of this lesson are:

- To understand the concept of national income.
- To know about various components of national income.
- To discuss its importance.

15.3 DEFINITIONS

The definitions of national income can be grouped into two classes: One, the traditional definitions advanced by Marshall, Pigou and Fisher; and two, modern definitions.

The Marshallian Definition:

According to Marshall: “The labour and capital of a country acting on its natural resources produce annually a certain net aggregate of commodities, material and immaterial including services of all kinds. This is the true net annual income or revenue of the country or national dividend.” In this definition, the word ‘net’ refers to deductions from the gross national income in respect of depreciation and wearing out of machines. And to this, must be added income from abroad.

Limitations of this definition: Though the definition advanced by Marshall is simple and comprehensive, yet it suffers from a number of limitations. First, in the present world, so varied and numerous are the goods and services produced that it is very difficult to have a correct estimation of them. Consequently, the national income cannot be calculated correctly. Second, there always exists the fear of the mistake of double counting, and hence the national income cannot be correctly estimated. Double counting means that a particular commodity or service like raw material or labour, etc. might get included in the national income twice or more than twice.

For example, a peasant sells wheat worth Rs.2000 to a flour mill which sells wheat flour to the wholesaler and the wholesaler sells it to the retailer who, in turn, sells it to the customers. If each time, this wheat or its flour is taken into consideration, it will work out to Rs.8000, whereas, in reality, there is only an increase of Rs.2000 in the national income. Third, it is again not possible to have a correct estimation of national income because many of the commodities produced are not marketed and the producer either keeps the produce for self-consumption or exchanges it for other commodities. It generally happens in an agriculture- oriented country like India. Thus, the volume of national income is underestimated.

The Pigou Definition:

A.C. Pigou has in his definition of national income included that income which can be measured in terms of money. In the words of Pigou, “National income is that part of

objective income of the community, including of course income derived from abroad which can be measured in money.”

This definition is better than the Marshallian definition. It has proved to be more practical also. While calculating the national income now-a-days, estimates are prepared in accordance with the two criteria laid down in this definition.

First, avoiding double counting, the goods and services which can be measured in money are included in national income. Second, income received on account of investment in foreign countries is included in national income.

It's Defects:

The Pigouvian definition is precise, simple and practical but it is not free from criticism. First, in the light of the definition put forth by Pigou, we have to unnecessarily differentiate between commodities which can and which cannot be exchanged for money. But, in actuality, there is no difference in the fundamental forms of such commodities, no matter they can be exchanged for money. Second, according to this definition when only such commodities as can be exchanged for money are included in estimation of national income, the national income cannot be correctly measured.

According to Pigou, a woman's services as a nurse would be included in national income but excluded when she worked in the home to look after her children because she did not receive any salary for it. Similarly, Pigou is of the view that if a man marries his lady secretary, the national income diminishes as he has no longer to pay for her services. Thus, the Pigouvian definition gives rise to a number of paradoxes. Third, the Pigouvian definition is applicable only to the developed countries where goods and services are exchanged for money in the market.

According to this definition, in the backward and underdeveloped countries of the world, where a major portion of the produce is simply bartered, correct estimate of national income will not be possible, because it will always work out less than the real level of income. Thus the definition advanced by Pigou has a limited scope.

Fisher's Definition:

Fisher adopted 'consumption' as the criterion of national income whereas Marshall and Pigou regarded it to be production. According to Fisher, "The National dividend or

income consists solely of services as received by ultimate consumers, whether from their material or from the human environments. Thus, a piano, or an overcoat made for me this year is not a part of this year's income, but an addition to the capital. Only the services rendered to me during this year by these things are income." Fisher's definition is considered to be better than that of Marshall or Pigou, because Fisher's definition provides an adequate concept of economic welfare which is dependent on consumption and consumption represents our standard of living.

It's Defects:

But from the practical point of view, this definition is less useful, because there are certain difficulties in measuring the goods and services in terms of money. First, it is more difficult to estimate the money value of net consumption than that of net production.

In one country there are several individuals who consume a particular good and that too at different places and, therefore, it is very difficult to estimate their total consumption in terms of money. Second, certain consumption goods are durable and last for many years.

If we consider the example of piano or overcoat, as given by Fisher, only the services rendered for use during one year by them will be included in income. If an overcoat costs Rs. 100 and lasts for ten years, Fisher will take into account only Rs. 100 as national income during one year, whereas Marshall and Pigou will include Rs. 100 in the national income for the year, when it is made.

Besides, it cannot be said with certainty that the overcoat will last only for ten years. It may last longer or for a shorter period. Third, the durable goods generally keep changing hands leading to a change in their ownership and value too. It therefore, becomes difficult to measure in money the service-value of these goods from the point of view of consumption. For instance, the owner of a Maruti car sells it at a price higher than its real price and the purchaser after using it for a number of years further sells it at its actual price.

Now the question is as to which of its price, whether actual or black market one, should we take into account, and afterwards when it is transferred from one person to another, which of its value according to its average age should be included in national income?

But the definitions advanced by Marshall, Pigou and Fisher are not altogether flawless. However, the Marshallian and Pigovian definitions tell us of the reasons influencing economic welfare, whereas Fisher's definition helps us compare economic welfare in different years.

Modern Definitions:

From the modern point of view, Simon Kuznets has defined national income as "the net output of commodities and services flowing during the year from the country's productive system in the hands of the ultimate consumers."

On the other hand, in one of the reports of United Nations, national income has been defined on the basis of the systems of estimating national income, as net national product, as addition to the shares of different factors, and as net national expenditure in a country in a year's time. In practice, while estimating national income, any of these three definitions may be adopted, because the same national income would be derived, if different items were correctly included in the estimate.

15.4 CONCEPTS AND COMPONENTS OF NATIONAL INCOME

The total net value of all goods and services produced within a nation over a specified period of time, representing the sum of wages, profits, rents, interest, and pension payments to residents of the nation.

There are a number of concepts pertaining to national income and methods of measurement relating to them.

A. Gross Domestic Product (GDP):

GDP is the total value of goods and services produced within the country during a year. This is calculated at market prices and is known as GDP at market prices. **Dernberg** defines GDP at market price as "the market value of the output of final goods and services produced in the domestic territory of a country during an accounting year."

There are three different ways to measure GDP, these are:

Product Method, Income Method and Expenditure Method.

These three methods of calculating GDP yield the same result because National

Product = National Income = National Expenditure.

1. The Product Method:

In this method, the value of all goods and services produced in different industries during the year is added up. This is also known as the value added method to GDP or GDP at factor cost by industry of origin. The following items are included in India in this: agriculture and allied services; mining; manufacturing, construction, electricity, gas and water supply; transport, communication and trade; banking and insurance, real estates and ownership of dwellings and business services; and public administration and defense and other services (or government services). In other words, it is the sum of gross value added.

2. The Income Method:

The people of a country who produce GDP during a year receive incomes from their work. Thus GDP by income method is the sum of all factor incomes: Wages and Salaries (compensation of employees) + Rent + Interest + Profit.

3. Expenditure Method:

This method focuses on goods and services produced within the country during one year.

GDP by expenditure method includes:

- (1) Consumer expenditure on services and durable and non-durable goods (C),
- (2) Investment in fixed capital such as residential and non-residential building, machinery, and inventories (I),
- (3) Government expenditure on final goods and services (G),
- (4) Export of goods and services produced by the people of country (X),
- (5) Less imports (M). That part of consumption, investment and government expenditure which is spent on imports is subtracted from GDP. Similarly, any imported component, such as raw materials, which is used in the manufacture of export goods, is also excluded.

Thus GDP by expenditure method at market prices = $C + I + G + (X - M)$, where $(X - M)$ is net export which can be positive or negative.

B. GDP at Factor Cost

GDP at factor cost is the sum of net value added by all producers within the country. Since the net value added gets distributed as income to the owners of factors of production, GDP is the sum of domestic factor incomes and fixed capital consumption (or depreciation).

Thus $\text{GDP at Factor Cost} = \text{Net value added} + \text{Depreciation}$.

GDP at factor cost includes:

- (i) Compensation of employees i.e., wages, salaries, etc.
- (ii) Operating surplus which is the business profit of both incorporated and unincorporated firms. [Operating Surplus = Gross Value Added at Factor Cost—Compensation of Employees—Depreciation]
- (iii) Mixed Income of Self-employed.

Conceptually, GDP at factor cost and GDP at market price must be identical/This is because the factor cost (payments to factors) of producing goods must equal the final value of goods and services at market prices. However, the market value of goods and services is different from the earnings of the factors of production.

In GDP at market price are included indirect taxes and are excluded subsidies by the government. Therefore, in order to arrive at GDP at factor cost, indirect taxes are subtracted and subsidies are added to GDP at market price.

Thus, $\text{GDP at Factor Cost} = \text{GDP at Market Price} - \text{Indirect Taxes} + \text{Subsidies}$.

C. Net Domestic Product (NDP)

NDP is the value of net output of the economy during the year. Some of the country's capital equipment wears out or becomes obsolete each year during the production process. The value of this capital consumption is some percentage of gross investment which is deducted from GDP. Thus $\text{Net Domestic Product} = \text{GDP at Factor Cost} - \text{Depreciation}$.

D. Nominal and Real GDP

When GDP is measured on the basis of current price, it is called GDP at current prices or nominal GDP. On the other hand, when GDP is calculated on the basis of fixed prices in some year, it is called GDP at constant prices or real GDP.

Nominal GDP is the value of goods and services produced in a year and measured in terms of rupees (money) at current (market) prices. In comparing one year with another, we are faced with the problem that the rupee is not a stable measure of purchasing power. GDP may rise a great deal in a year, not because the economy has been growing rapidly but because of rise in prices (or inflation).

On the contrary, GDP may increase as a result of fall in prices in a year but actually it may be less as compared to the last year. In both 5 cases, GDP does not show the real state of the economy. To rectify the underestimation and overestimation of GDP, we need a measure that adjusts for rising and falling prices.

This can be done by measuring GDP at constant prices which is called real GDP. To find out the real GDP, a base year is chosen when the general price level is normal, i.e., it is neither too high nor too low. The prices are set to 100 (or 1) in the base year.

Now the general price level of the year for which real GDP is to be calculated is related to the base year on the basis of the following formula which is called the deflator index:

$$\text{Real GDP} = \frac{\text{GDP for the Current Year}}{\frac{\text{Base Year (=100)}}{\text{Current Year Index}}} \times$$

Suppose 1990-91 is the base year and GDP for 1999-2000 is Rs. 6, 00,000 crores and the price index for this year is 300.

Thus, Real GDP for 1999-2000 = Rs. 6, 00,000 x 100/300 = Rs. 2, 00,000 crores

E. GDP Deflator

GDP deflator is an index of price changes of goods and services included in GDP. It is a price index which is calculated by dividing the nominal GDP in a given year by the real GDP for the same year and multiplying it by 100. Thus,

$$GDP \text{ Deflator} = \frac{\text{Nominal (or Current Prices) } GDP}{\text{Real (or Constant Prices) } GDP} \times 100$$

$$\text{For example, GDP Deflator in 1997-98} = \frac{1426.7 \text{th. crores}}{1049.2 \text{th. crores at}} \times 100 = 135.9$$

It shows that at constant prices (1993-94), GDP in 1997-98 increased by 135.9% due to inflation (or rise in prices) from Rs. 1049.2 thousand crores in 1993-94 to Rs. 1426.7 thousand crores in 1997-98.

F. Gross National Product (GNP)

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

GNP includes four types of final goods and services:

- (1) Consumers' goods and services to satisfy the immediate wants of the people;
- (2) Gross private domestic investment in capital goods consisting of fixed capital formation, residential construction and inventories of finished and unfinished goods;
- (3) Goods and services produced by the government; and
- (4) Net exports of goods and services, i.e., the difference between value of exports and imports of goods and services, known as net income from abroad.

In this concept of GNP, there are certain factors that have to be taken into consideration: First, GNP is the measure of money, in which all kinds of goods and services produced in a country during one year are measured in terms of money at current prices and then added together.

But in this manner, due to an increase or decrease in the prices, the GNP shows a rise or decline, which may not be real. To guard against erring on this account, a particular year (say for instance 1990-91) when prices be normal, is taken as the base year and the GNP is adjusted in accordance with the index number for that year. This will be known as GNP at 1990-91 prices or at constant prices.

Second, in estimating GNP of the economy, the market price of only the final

products should be taken into account. Many of the products pass through a number of stages before they are ultimately purchased by consumers.

If those products were counted at every stage, they would be included many a time in the national product. Consequently, the GNP would increase too much. To avoid double counting, therefore, only the final products and not the intermediary goods should be taken into account.

Third, goods and services rendered free of charge are not included in the GNP, because it is not possible to have a correct estimate of their market price. For example, the bringing up of a child by the mother, imparting instructions to his son by a teacher, recitals to his friends by a musician, etc.

Fourth, the transactions which do not arise from the produce of current year or which do not contribute in any way to production are not included in the GNP. The sale and purchase of old goods, and of shares, bonds and assets of existing companies are not included in GNP because these do not make any addition to the national product, and the goods are simply transferred.

Fifth, the payments received under social security, e.g., unemployment insurance allowance, old age pension, and interest on public loans are also not included in GNP, because the recipients do not provide any service in lieu of them. But the depreciation of machines, plants and other capital goods is not deducted from GNP.

Sixth, the profits earned or losses incurred on account of changes in capital assets as a result of fluctuations in market prices are not included in the GNP if they are not responsible for current production or economic activity.

For example, if the price of a house or a piece of land increases due to inflation, the profit earned by selling it will not be a part of GNP. But if, during the current year, a portion of a house is constructed anew, the increase in the value of the house (after subtracting the cost of the newly constructed portion) will be included in the GNP. Similarly, variations in the value of assets, that can be ascertained beforehand and are insured against flood or fire, are not included in the GNP.

Last, the income earned through illegal activities is not included in the GNP. Although the goods sold in the black market are priced and fulfill the needs of the people, but as

they are not useful from the social point of view, the income received from their sale and purchase is always excluded from the GNP. There are two main reasons for this. One, it is not known whether these things were produced during the current year or the preceding years. Two, many of these goods are foreign made and smuggled and hence not included in the GNP.

Three Approaches to GNP

After having studied the fundamental constituents of GNP, it is essential to know how it is estimated. Three approaches are employed for this purpose. One, the income method to GNP; two, the expenditure method to GNP and three, the value added method to GNP. Since gross income equals gross expenditure, GNP estimated by all these methods would be the same with appropriate adjustments.

1. Income Method to GNP:

The income method to GNP consists of the remuneration paid in terms of money to the factors of production annually in a country.

Thus GNP is the sum total of the following items:

(i) Wages and salaries:

Under this head are included all forms of wages and salaries earned through productive activities by workers and entrepreneurs. It includes all sums received or deposited during a year by way of all types of contributions like overtime, commission, provident fund, insurance, etc.

(ii) Rents:

Total rent includes the rents of land, shop, house, factory, etc. and the estimated rents of all such assets as are used by the owners themselves.

(iii) Interest:

Under interest comes the income by way of interest received by the individual of a country from different sources. To this is added, the estimated interest on that private capital which is invested and not borrowed by the businessman in his personal business. But the interest received on governmental loans has to be excluded, because it is a mere

transfer of national income.

(iv) Dividends:

Dividends earned by the shareholders from companies are included in the GNP.

(v) Undistributed corporate profits:

Profits which are not distributed by companies and are retained by them are included in the GNP.

(vi) Mixed incomes:

These include profits of unincorporated business, self-employed persons and partnerships. They form part of GNP.

(vii) Direct taxes:

Taxes levied on individuals, corporations and other businesses are included in the GNP.

(viii) Indirect taxes:

The government levies a number of indirect taxes, like excise duties and sales tax.

These taxes are included in the price of commodities. But revenue from these goes to the government treasury and not to the factors of production. Therefore, the income due to such taxes is added to the GNP.

(ix) Depreciation:

Every corporation makes allowance for expenditure on wearing out and depreciation of machines, plants and other capital equipment. Since this sum also is not a part of the income received by the factors of production, it is, therefore, also included in the GNP.

(x) Net income earned from abroad:

This is the difference between the value of exports of goods and services and the value of imports of goods and services. If this difference is positive, it is added to the GNP and if it is negative, it is deducted from the GNP.

Thus GNP according to the Income Method = Wages and Salaries + Rents + Interest + Dividends + Undistributed Corporate Profits + Mixed Income + Direct Taxes + Indirect Taxes + Depreciation + Net Income from abroad.

2. Expenditure Method to GNP:

From the expenditure view point, GNP is the sum total of expenditure incurred on goods and services during one year in a country.

It includes the following items:

(i) Private consumption expenditure:

It includes all types of expenditure on personal consumption by the individuals of a country. It comprises expenses on durable goods like watch, bicycle, radio, etc., expenditure on single-used consumers' goods like milk, bread, ghee, clothes, etc., as also the expenditure incurred on services of all kinds like fees for school, doctor, lawyer and transport. All these are taken as final goods.

(ii) Gross domestic private investment:

Under this comes the expenditure incurred by private enterprise on new investment and on replacement of old capital. It includes expenditure on house construction, factory-buildings, and all types of machinery, plants and capital equipment.

In particular, the increase or decrease in inventory is added to or subtracted from it. The inventory includes produced but unsold manufactured and semi-manufactured goods during the year and the stocks of raw materials, which have to be accounted for in GNP. It does not take into account the financial exchange of shares and stocks because their sale and purchase is not real investment. But depreciation is added.

(iii) Net foreign investment:

It means the difference between exports and imports or export surplus. Every country exports to or imports from certain foreign countries. The imported goods are not produced within the country and hence cannot be included in national income, but the exported goods are manufactured within the country. Therefore, the difference of value between exports (X) and imports (M), whether positive or negative, is included in the

GNP.

(iv) Government expenditure on goods and services:

The expenditure incurred by the government on goods and services is a part of the GNP. Central, state or local governments spend a lot on their employees, police and army. To run the offices, the governments have also to spend on contingencies which include paper, pen, pencil and various types of stationery, cloth, furniture, cars, etc.

It also includes the expenditure on government enterprises. But expenditure on transfer payments is not added, because these payments are not made in exchange for goods and services produced during the current year.

Thus GNP according to the Expenditure Method = Private Consumption Expenditure (C) + Gross Domestic Private Investment (I) + Net Foreign Investment (X-M) + Government Expenditure on Goods and Services (G) = $C + I + (X - M) + G$.

As already pointed out above, GNP estimated by either the income or the expenditure method would work out to be the same, if all the items are correctly calculated.

3. Value Added Method to GNP

Another method of measuring GNP is by value added. In calculating GNP, the money value of final goods and services produced at current prices during a year is taken into account. This is one of the ways to avoid double counting. But it is difficult to distinguish properly between a final product and an intermediate product.

For instance, raw materials, semi-finished products, fuels and services, etc. are sold as inputs by one industry to the other. They may be final goods for one industry and intermediate for others. So, to avoid duplication, the value of intermediate products used in manufacturing final products must be subtracted from the value of total output of each industry in the economy.

Thus, the difference between the value of material outputs and inputs at each stage of production is called the value added. If all such differences are added up for all industries in the economy, we arrive at the GNP by value added. GNP by value added = Gross value added + net income from abroad. Its calculation is shown in Tables 1, 2 and 3.

Table 1 is constructed on the supposition that the entire economy for purposes of

total production consists of three sectors. They are agriculture, manufacturing, and others, consisting of the tertiary sector.

Out of the value of total output of each sector is deducted the value of its intermediate purchases (or primary inputs) to arrive at the value added for the entire economy. Thus the value of total output of the entire economy as per Table 1, is Rs. 155 crores and the value of its primary inputs comes to Rs. 80 crores. Thus the GDP by value added is Rs. 75 crores (Rs. 155 minus Rs. 80 crores).

TABLE 1 : GDP BY VALUE ADDED

(Rs. crores)

Industry	Total Output	Intermediate Purchases	Value Added
(1)	(2)	(3)	(4) = (2-3)
1. Agriculture	30	10	20
2. Manufacturing	70	45	25
3. Others	55	25	30
Total	155	80	75

The total value added equals the value of gross domestic product of the economy. Out of this value added, the major portion goes in the form wages and salaries, rent, interest and profits, a small portion goes to the government as indirect taxes and the remaining amount is meant for depreciation. This is shown in Table 3.

Thus we find that the total gross value added of an economy equals the value of its gross domestic product. If depreciation is deducted from the gross value added, we have net value added which comes to Rs. 67 crores (Rs. 75 minus Rs. 8 crores).

This is nothing but net domestic product at market prices. Again, if indirect taxes (Rs. 7 crores) are deducted from the net domestic product of Rs. 67 crores, we get Rs. 60 crores as the net value added at factor cost which is equivalent to net domestic product at factor cost. This is illustrated in Table 2.

TABLE 2
VALUE ADDED AT FACTOR COST
(Rs. Crores)

1. Market Value of output	155
2. Less: cost of intermediate Goods	80
3. Gross value added	75
4. Less: depreciation	8
5. Net value added or domestic product at market prices	67
6. Less: indirect taxes	7
7. Net value added at factor cost	60

Net value added at factor cost is equal to the net domestic product at factor cost, as given by the total of items 1 to 4 of Table 2 (Rs. 45+3+4+8 crores=Rs. 60 crores). By adding indirect taxes (Rs 7 crores) and depreciation (Rs 8 crores), we get gross value added or GDP which comes to Rs 75 crores.

If we add net income received from abroad to the gross value added, this gives - us, gross national income. Suppose net income from abroad is Rs. 5 crores. Then the gross national income is Rs. 80 crores (Rs. 75 crores + Rs. 5 crores) as shown in Table 3.

TABLE 3 : GROSS DOMESTIC PRODUCT
(Rs Crores)

1. Wages and salaries	45
2. Income from rent	3
3. Net interest	4
4. Profits of companies	8
Net Value Added or NDP	60
5. Indirect taxes	+ 7
6. Depreciation	+ 8
Gross Value Added or GDP	75
7. Net income from abroad	+ 5
Gross National Income	80

It's Importance:

The value added method for measuring national income is more realistic than the product and income methods because it avoids the problem of double counting by excluding

the value of intermediate products. Thus this method establishes the importance of intermediate products in the national economy. Second, by studying the national income accounts relating to value added, the contribution of each production sector to the value of the GNP can be found out.

For instance, it can tell us whether agriculture is contributing more or the share of manufacturing is falling, or of the tertiary sector is increasing in the current year as compared to some previous years. Third, this method is highly useful because “it provides a means of checking the GNP estimates obtained by summing the various types of commodity purchases.”

It's Difficulties:

However, difficulties arise in the calculation of value added in the case of certain public services like police, military, health, education, etc. which cannot be estimated accurately in money terms. Similarly, it is difficult to estimate the contribution made to value added by profits earned on irrigation and power projects.

G. GNP at Market Prices:

When we multiply the total output produced in one year by their market prices prevalent during that year in a country, we get the Gross National Product at market prices. Thus GNP at market prices means the gross value of final goods and services produced annually in a country plus net income from abroad. It includes the gross value of output of all items from (1) to (4) mentioned under GNP. $\text{GNP at Market Prices} = \text{GDP at Market Prices} + \text{Net Income from Abroad}$.

H. GNP at Factor Cost

GNP at factor cost is the sum of the money value of the income produced by and accruing to the various factors of production in one year in a country. It includes all items mentioned above under income method to GNP less indirect taxes.

GNP at market prices always includes indirect taxes levied by the government on goods which raise their prices. But GNP at factor cost is the income which the factors of production receive in return for their services alone. It is the cost of production.

Thus GNP at market prices is always higher than GNP at factor cost. Therefore,

in order to arrive at GNP at factor cost, we deduct indirect taxes from GNP at market prices. Again, it often happens that the cost of production of a commodity to the producer is higher than a price of a similar commodity in the market.

In order to protect such producers, the government helps them by granting monetary help in the form of a subsidy equal to the difference between the market price and the cost of production of the commodity. As a result, the price of the commodity to the producer is reduced and equals the market price of similar commodity.

For example if the market price of rice is Rs. 3 per kg but it costs the producers in certain areas Rs. 3.50. The government gives a subsidy of 50 paise per kg to them in order to meet their cost of production. Thus in order to arrive at GNP at factor cost, subsidies are added to GNP at market prices.

$$\text{GNP at Factor Cost} = \text{GNP at Market Prices} - \text{Indirect Taxes} + \text{Subsidies.}$$

I. Net National Product (NNP)

NNP includes the value of total output of consumption goods and investment goods. But the process of production uses up a certain amount of fixed capital. Some fixed equipment wears out, its other components are damaged or destroyed, and still others are rendered obsolete through technological changes.

All this process is termed depreciation or capital consumption allowance. In order to arrive at NNP, we deduct depreciation from GNP. The word 'net' refers to the exclusion of that part of total output which represents depreciation. So $\text{NNP} = \text{GNP} - \text{Depreciation}$.

J. NNP at Market Prices

Net National Product at market prices is the net value of final goods and services evaluated at market prices in the course of one year in a country. If we deduct depreciation from GNP at market prices, we get NNP at market prices. So $\text{NNP at Market Prices} = \text{GNP at Market Prices} - \text{Depreciation}$.

K. NNP at Factor Cost

Net National Product at factor cost is the net output evaluated at factor prices. It includes income earned by factors of production through participation in the production process such as wages and salaries, rents, profits, etc. It is also called National Income.

This measure differs from NNP at market prices in that indirect taxes are deducted and subsidies are added to NNP at market prices in order to arrive at NNP at factor cost. Thus

$$\begin{aligned}\text{NNP at Factor Cost} &= \text{NNP at Market Prices} - \text{Indirect taxes} + \text{Subsidies} \\ &= \text{GNP at Market Prices} - \text{Depreciation} - \text{Indirect taxes} + \text{Subsidies.} \\ &= \text{National Income.}\end{aligned}$$

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

L. Domestic Income

Income generated (or earned) by factors of production within the country from its own resources is called domestic income or domestic product.

Domestic income includes:

(i) Wages and salaries, (ii) rents, including imputed house rents, (iii) interest, (iv) dividends, (v) undistributed corporate profits, including surpluses of public undertakings, (vi) mixed incomes consisting of profits of unincorporated firms, self-employed persons, partnerships, etc., and (vii) direct taxes.

Since domestic income does not include income earned from abroad, it can also be shown as: Domestic Income = National Income - Net income earned from abroad. Thus the difference between domestic income and national income is the net income earned from abroad. If we add net income from abroad to domestic income, we get national income, i.e., National Income = Domestic Income + Net income earned from abroad.

But the net national income earned from abroad may be positive or negative. If exports exceed imports, net income earned from abroad is positive. In this case, national income is greater than domestic income. On the other hand, when imports exceed exports, net income earned from abroad is negative and domestic income is greater than national income.

M. Private Income

Private income is income obtained by private individuals from any source, productive or otherwise, and the retained income of corporations. It can be arrived at from NNP at Factor Cost by making certain additions and deductions.

The additions include transfer payments such as pensions, unemployment allowances, sickness and other social security benefits, gifts and remittances from abroad, windfall gains from lotteries or from horse racing, and interest on public debt. The deductions include income from government departments as well as surpluses from public undertakings, and employees' contribution to social security schemes like provident funds, life insurance, etc.

Thus Private Income = National Income (or NNP at Factor Cost) + Transfer Payments + Interest on Public Debt — Social Security — Profits and Surpluses of Public Undertakings.

N. Personal Income

Personal income is the total income received by the individuals of a country from all sources before payment of direct taxes in one year. Personal income is never equal to the national income, because the former includes the transfer payments whereas they are not included in national income.

Personal income is derived from national income by deducting undistributed corporate profits, profit taxes, and employees' contributions to social security schemes. These three components are excluded from national income because they do not reach individuals.

But business and government transfer payments, and transfer payments from abroad in the form of gifts and remittances, windfall gains, and interest on public debt which are a source of income for individuals are added to national income. Thus Personal Income = National Income – Undistributed Corporate Profits – Profit Taxes – Social Security Contribution + Transfer Payments + Interest on Public Debt.

Personal income differs from private income in that it is less than the latter because it excludes undistributed corporate profits.

Thus Personal Income = Private Income – Undistributed Corporate Profits – Profit Taxes.

O. Disposable Income

Disposable income or personal disposable income means the actual income which can be spent on consumption by individuals and families. The whole of the personal income cannot be spent on consumption, because it is the income that accrues before direct taxes have actually been paid. Therefore, in order to obtain disposable income, direct taxes are deducted from personal income. Thus $\text{Disposable Income} = \text{Personal Income} - \text{Direct Taxes}$.

But the whole of disposable income is not spent on consumption and a part of it is saved. Therefore, disposable income is divided into consumption expenditure and savings. Thus $\text{Disposable Income} = \text{Consumption Expenditure} + \text{Savings}$.

If disposable income is to be deduced from national income, we deduct indirect taxes plus subsidies, direct taxes on personal and on business, social security payments, undistributed corporate profits or business savings from it and add transfer payments and net income from abroad to it.

Thus $\text{Disposable Income} = \text{National Income} - \text{Business Savings} - \text{Indirect Taxes} + \text{Subsidies} - \text{Direct Taxes on Persons} - \text{Direct Taxes on Business} - \text{Social Security Payments} + \text{Transfer Payments} + \text{Net Income from abroad}$.

P. Real Income

Real income is national income expressed in terms of a general level of prices of a particular year taken as base. National income is the value of goods and services produced as expressed in terms of money at current prices. But it does not indicate the real state of the economy.

It is possible that the net national product of goods and services this year might have been less than that of the last year, but owing to an increase in prices, NNP might be higher this year. On the contrary, it is also possible that NNP might have increased but the price level might have fallen, as a result national income would appear to be less than that of the last year. In both the situations, the national income does not depict the real state of the country. To rectify such a mistake, the concept of real income has been evolved.

In order to find out the real income of a country, a particular year is taken as the base year when the general price level is neither too high nor too low and the price level for

that year is assumed to be 100. Now the general level of prices of the given year for which the national income (real) is to be determined is assessed in accordance with the prices of the base year. For this purpose the following formula is employed.

Real NNP = $\text{NNP for the Current Year} \times \text{Base Year Index} (=100) / \text{Current Year Index}$

Suppose 1990-91 is the base year and the national income for 1999-2000 is Rs. 20,000 crores and the index number for this year is 250. Hence, Real National Income for 1999-2000 will be = $20000 \times 100/250 = \text{Rs. } 8000 \text{ crores}$. This is also known as national income at constant prices.

Q. Per Capita Income

The average income of the people of a country in a particular year is called Per Capita Income for that year. This concept also refers to the measurement of income at current prices and at constant prices. For instance, in order to find out the per capita income for 2001, at current prices, the national income of a country is divided by the population of the country in that year.

$$\text{Per Capita Income for 2001} = \frac{\text{National income for 2001}}{\text{Population in 2001}}$$

Similarly, for the purpose of arriving at the Real Per Capita Income, this very formula is used.

$$\text{Real Per Capita Income for 2001} = \frac{\text{Real national income for 2001}}{\text{Population in 2001}}$$

This concept enables us to know the average income and the standard of living of the people. But it is not very reliable, because in every country due to unequal distribution of national income, a major portion of it goes to the richer sections of the society and thus income received by the common man is lower than the per capita income.

15.5 SIGNIFICANCE OF NATIONAL INCOME ANALYSIS

The national income data have the following importance:

- 1. For the Economy-** National income data are of great importance for the economy

of a country. These days the national income data are regarded as accounts of the economy, which are known as social accounts. These refer to net national income and net national expenditure, which ultimately equal each other. Social accounts tell us how the aggregates of a nation's income, output and product result from the income of different individuals, products of industries and transactions of international trade. Their main constituents are inter-related and each particular account can be used to verify the correctness of any other account.

2. National Policies- National income data form the basis of national policies such as employment policy, because these figures enable us to know the direction in which the industrial output, investment and savings, etc. change, and proper measures can be adopted to bring the economy to the right path.

3. Economic Planning- In the present age of planning, the national data are of great importance. For economic planning, it is essential that the data pertaining to a country's gross income, output, saving and consumption from different sources should be available. Without these, planning is not possible.

4. Economic Models- The economists propound short-run as well as long-run economic models or long-run investment models in which the national income data are very widely used.

5. Research- The national income data are also made use of by the research scholars of economics. They make use of the various data of the country's input, output, income, saving, consumption, investment, employment, etc., which are obtained from social accounts.

6. Per Capita Income- National income data are significant for a country's per capita income which reflects the economic welfare of the country. The higher the per capita income, the higher the economic welfare of the country.

7. Distribution of Income- National income statistics enable us to know about the distribution of income in the country. From the data pertaining to wages, rent, interest and profits, we learn of the disparities in the incomes of different sections of the society. Similarly, the regional distribution of income is revealed.

It is only on the basis of these that the government can adopt measures to remove

the inequalities in income distribution and to restore regional equilibrium. With a view to removing these personal and regional disequilibria, the decisions to levy more taxes and increase public expenditure also rest on national income statistics.

15.6 SUMMARY

National Income is the money value of all goods and services produced in a country during a year. Gross Domestic Product (GDP) and Gross National Income (GNI) are core statistics in National Accounts. They are both important economic indicators and useful for analysing the overall economic situation of an economy, with the former particularly useful for reflecting the level of production, and the latter for aggregate income of residents. Statistics on GDP are compiled as from the reference year of 1961 while those on GNI as from the reference year of 1993. GDP is a measure of the total value of production of all resident producing units of an economy in a specific period (typically a year or a quarter), before deducting the consumption of fixed capital. Per capita GDP of an economy is obtained by dividing the total GDP in a year by the population of that economy in the same year. National Income helps us to know the economic progress achieved and to make comparative study. Product method, Income method and Expenditure method are the three methods used for national income calculation. In India national income is calculated and published by the Central Statistical Organisation (CSO). Net National Product, Per Capita Income etc., are some of the important concepts related to National Income.

15.7 SELFASSESSMENT QUESTIONS

1. Explain the concept of national income?

2. Discuss various components of national income?

3. Discuss the importance of national income?

15.8 SUGGESTED READINGS

- Managerial economics, Dwivedi D.N., Vikas publishing house, New Delhi.
- Managerial Economics, Mehta, P.L., S. Chand, Delhi.
- Mithani, D.M., managerial economics-theory & application, Himalaya Publishing House Pvt. Ltd., New Delhi.
- Gupta, G.S., Macro Economic- theory and application, Tata McGraw Hill Publishing House, New Delhi.

Unit-IV

LESSON 16

MEASURING NATIONAL INCOME

STRUCTURE

16.1 INTRODUCTION

16.2 OBJECTIVES

16.3 MEASUREMENT OF NATIONAL INCOME

16.3.1 Value Added Method

16.3.2 Income Method

16.3.3 Final Expenditure Method

16.3.4 Product Method

16.4 PROBLEMS IN THE MEASUREMENT OF NATIONAL INCOME

16.4.1 Problems in Income method

16.4.2 Problems in Product method

16.4.3 Problems in Expenditure method

16.5 USES OF NATIONAL INCOME

16.6 LIMITATIONS OF NATIONAL INCOME

16.7 SUMMARY

16.8 SELF ASSESSMENT QUESTIONS

16.9 SUGGESTED READINGS

16.1 INTRODUCTION

For the purpose of measurement and analysis, national income can be viewed as an aggregate of various component flows. The most comprehensive measure of aggregate

income which is widely known is Gross National Product at market prices. Gross emphasises that no allowance for capital consumption has been made or that depreciation has yet to be deducted. Net indicates that provision for capital consumption has already been made or that depreciation has already been deducted. The term national denotes that the aggregate under consideration represents the total income which accrues to the normal residents of a country due to their participation in world production during the current year. It is also possible to measure the value of the total output or income originating within the specified geographical boundary of a country known as domestic territory. The resulting measure is called “domestic product”. The valuation of the national product at market prices indicates the total amount actually paid by the final buyers while the valuation of national product at factor cost is a measure of the total amount earned by the factors of production for their contribution to the final output.

$$\text{GNP at market price} = \text{GNP at factor cost} + \text{indirect taxes} - \text{Subsidies.}$$

$$\text{NNP at market price} = \text{NNP at factor cost} + \text{indirect taxes} - \text{Subsidies}$$

For some purposes we need to find the total income generated from production within the territorial boundaries of an economy irrespective of whether it belongs to the inhabitants of that nation or not. Such an income is known as Gross Domestic Product (GDP) and found as “

$$\text{GDP} = \text{GNP} - \text{Net Factor Income from Abroad}$$

$$\text{Net Factor Income from Abroad} = \text{Factor Income Received From Abroad} - \text{Factor Income Paid Abroad}$$

The NNP is an alternative and closely related measure of the national income. It differs from GNP in only one respect. GNP is the sum of final products. It includes consumption of goods, gross investment, government expenditures on goods and services, and net exports.

$$\text{GNP} = \text{NNP} + \text{Depreciation}$$

NNP includes net private investment while GNP includes gross private domestic investment. Personal income is calculated by subtracting from national income those types of incomes which are earned but not received and adding those types which are received but not currently earned.

Personal Income = NNP at Factor Cost “ Undistributed Profits “ Corporate Taxes
+ Transfer Payments

Disposable income is the total income that actually remains with individuals to dispose off as they wish. It differs from personal income by the amount of direct taxes paid by individuals.

Disposable Income = Personal Income “ Personal taxes

The concept of value added is a useful device to find out the exact amount that is added at each stage of production to the value of the final product. Value added can be defined as the difference between the value of output produced by that firm and the total expenditure incurred by it on the materials and intermediate products purchased from other business firms.

16.2 OBJECTIVES

After reading this Lesson, you will be able:

- To understand the concept of national income.
- To explain various methods used for the measurement of national income.
- To know the problems in the measurement of national income.

16.3 METHODS OF MEASURING NATIONAL INCOME

National income is the total money value of goods and services produced by a country in a particular period of time. The duration of this period is usually one year.

National income can be defined by taking three viewpoints, namely production viewpoint, income viewpoint, and expenditure viewpoint.

Based on these viewpoints, there are three different methods of estimating national income, which are shown in Figure-1:

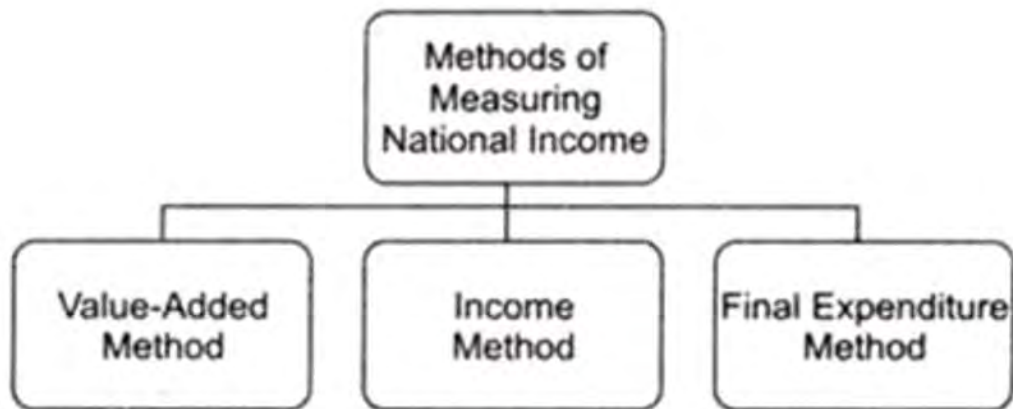


Figure-1: Different Methods of Measuring National Income

For calculating national income, an economy is looked upon from three different angles, which are as follows:

1. Production units in an economy are classified into primary, secondary, and tertiary sectors. On the basis of this classification, value-added method is used to measure national income.
2. Economy is also viewed as a combination of individuals and households owing different kinds of factors of production. On the basis of this combination, income method is used for estimating national income.
3. Economy is viewed as a collection of units used for consumption, saving, and investment. On the basis of this collection, final expenditure method is used for calculating national income.

Let us discuss the different methods of measuring national income (as shown in Figure-1).

16.3.1 Value-added Method:

Value added method, also called net output method, is used to measure the contribution of an economy's production units to the GDP_{mp}. In other words, value-added method measures value added by each industry in an economy. For calculating national income through value-added method, it is necessary to first calculate gross value added at market price (GV_{mp}), net value added at market price (NV_{mp}), and net value added at factor cost (NV_{fc}).

These can be calculated as follows:

(i) GVAmP:

Refers to the value of output at market prices minus intermediate consumption. The value of output can be calculated by multiplying quantity of output produced by a production unit during a given time period with price per unit. For instance, if output produced by a production unit in a year is 10000 units at price Rs. 10 per unit, then the total value of output would be 100000.

The value of output is also calculated as:

$$\text{Value of output} = \text{Total Sales} + \text{Closing Stock} - \text{Opening Stock}$$

Where

$$\text{Net change in stock} = \text{Closing Stock} - \text{Opening Stock}$$

Glossing stock includes the value of unsold output in the previous year and forms the opening stock of the current year. Thus, by deducting the opening stock from the closing stock, unsold output of the current year can be calculated.

On the other hand, intermediate consumption refers to the value of non-durable goods and services purchased by a production unit from another production unit in particular period of time. These goods and services used up or resold during that particular period of time.

So, GVAmP can be calculated using the following formula:

$$\text{GVAmP} = \text{Value of Output} - \text{Intermediate Consumption}$$

The word gross in GVAmP indicates the inclusion of depreciation.

(ii) NVAmP:

Excludes depreciation from GVAmP. In other words, NVAmP is GVAmP minus depreciation.

(iii) NVAfc:

Refers to another measure of value added.

It is calculated as:

$$\text{NVA}_{fc} = \text{NV}_{\text{Amp}} \text{ Indirect Taxes} + \text{Subsidies}$$

Or

$$\text{NVA}_{fc} = \text{GV}_{\text{Amp}} \text{ Depreciation Indirect Taxes} + \text{Subsidies}$$

Now, using the value-added method, we aim to calculate national income (NNP_{fc}).

The following are the steps to calculate national income using the value-added method:

1. Classifying the production units into primary, secondary, and tertiary sectors.
2. Estimating Net Value Added (NVA_{fc}) of each sector.
3. Taking the sum of NVA_{fc} of all the industrial sectors of the economy. This will give NDP_{fc}.

$$\Sigma \text{NVA}_{fc} = \text{NDP}_{fc}$$

4. Estimating NFIA and adding it to NDP_{fc}, which gives NNP_{fc} (national income).

$$\text{NDP}_{fc} + \text{NFIA} = \text{National Income (NNP}_{fc})$$

The following are the precautions that should be taken into consideration while calculating national income using the value-added method:

- i. Avoiding double counting of output as it leads to the overestimation of national income. For example, a farmer produces 5 kilograms of wheat worth Rs. 10000. He sells this wheat to a baker who uses it for making breads. The baker further sells these breads to a grocer for Rs. 20000. Finally, the grocer sells these breads to consumers for Rs. 25000.

Thus, the total output of the farmer, baker, and grocer would be Rs. 55000. However, this cannot be taken as the value of actual physical output. This is because it includes the value of wheat three times and value of bread two times. The double counting can be avoided by two measures. First is by taking the total value added instead of taking the total output.

In the above example, the value added by farmer is nil, by the baker is Rs. 10000,

and by the grocer is Rs. 15000. Thus, the sum total of value added is Rs. 25000. Second is by taking the value of final products only. Final products are those which are purchased for consumption and investment. In the above example, the final product is bread sold to the consumers for Rs. 25000. Thus, the final output is Rs. 25000.

ii. Including output produced by production units for self-consumption in total output. All the production should be included whether it is sold in the market or not. In addition, the value of free services provided by government and non-profit institutions should also be taken into account. Non-inclusion of these will lead to underestimation of national income.

iii. Avoiding the inclusion of sales of pre-owned goods. This is because these goods are already counted when sold for the first time. The output of only newly produced goods is included in total output. However, the value of services provided by agents in selling pre-owned goods is fresh output and should be included in the total output.

16.3.2 Income Method

Income method, also known as factor income method, is used to calculate all income accrued to the basic factors of production used in producing national product. Traditionally, there are four factors of production, namely land, labor, capital, and organization. Accordingly there are four factor payments, namely rent, compensation of employees, interest, and profit. There is another category of factor payment called mixed income.

These factor payments are explained as follows:

(a) Rent:

Refers to the amount payable in cash or in kind by a tenant to the landlord for using land. In national income accounting, the term rent is restricted to land and not to other goods, such as machinery.

In addition to rent, royalty is also included in national income which is defined as the amount payable to landlord for granting the leasing rights of assets that can be extracted from land, for example, coal and natural gas.

(b) Compensation of Employees:

Refer to the remuneration paid to employees in exchange of services rendered by

them for producing goods and services.

Compensation of employees is divided into two parts, which are as follows:

(i) Wages and salaries:

Include remuneration given in the form of cash to employees on a daily, weekly, or monthly basis. It includes allowances, such as conveyance allowance, bonuses, commissions, rent-free accommodation, loans on low interest rates, and medical and educational expenses.

(ii) Social security contribution:

Includes remuneration provided to employers in the form of social security schemes such as insurance, pensions, and provident fund.

(c) Interest:

Refers to the amount payable by the production unit for using the borrowed money. Generally, production units borrow for making investment and households borrow for meeting consumption expenditure.

In national income accounting, interest is restricted to the payment by production units. If production units use their own savings, then the interest is payable to them in the form of imputed interest.

(d) Profits:

Refers to the amount of money earned by the owner of a production unit for his/her entrepreneurial abilities. The profits are distributed by the production unit under three heads. First is by paying income tax, called corporate profit tax.

Second is by paying dividend to shareholder. Third is the retained earnings called undistributed profits. Thus, profit is the sum total of corporate profit tax, dividend, and retained earnings.

(e) Mixed Income:

Refers to earnings from farming enterprises, sole proprietorships, and other professions, such as medical and legal practices. In these professions, owners themselves

assume the role of an entrepreneur, financier, worker and landlords. Mixed income also takes into account the income of those individuals who earn from different sources, such as wages rents on own property, and interests on own money.

Therefore,

National Income Rent + Wages + Interest + Profit + Mixed Income

Now, let us discuss steps involved in estimating national income using the income method.

These steps are as follows:

1. Classifying the production units into primary, secondary, and tertiary sectors.
2. Estimating Net Value Added (NVA_{fc}) of each sector. The sum total of the factor payments equals NVA_{fc}.
3. Taking the sum of NVA_{fc} of all the industrial sectors of the economy. This will give NDP_{fc}.

$$\Sigma \text{NVA}_{fc} = \text{NDP}_{fc}$$

4. Estimating NFIA and adding it to NDP_{fc}, which gives NNP_{fc} (national income).

$$\text{NDP}_{fc} + \text{NFIA} = \text{National Income (NNP}_{fc})$$

The following are the precautions that should be taken into consideration while calculating national income using the income method:

- a. Including the imputed value of factor services rendered by the owners of production units themselves. For example, if production units use their own savings for production, then the interest is payable to them in the form of imputed interest. This imputed interest should be added in the calculation of national income.
- b. Avoiding the inclusion of transfer payments, such as gifts, donations and taxes.
- c. Excluding the gains that arise from the sales of pre-owned goods. These gains are called capital gains.
- d. Excluding the income arising from sale of financial assets, such as shares and

debentures. This is not related to the production of goods and services. However, national income includes the value of services rendered by the agents in selling these financial assets.

16.3.3 Final Expenditure Method:

Final expenditure method, also known as final product method, is used to measure final expenditures incurred by production units for producing final goods and services within an economic territory during a given time period.

These expenditures are incurred on consumption and investment. This method is the opposite of the value-added method. This is because value-added method estimates national income from the sales side, whereas the expenditure method calculates national income from the purchase side.

Final expenditure of an economy is divided into consumption expenditure and investment expenditure, which are explained as follows:

(a) Consumption Expenditure:

Includes the following:

(i) Private Final Consumption Expenditure (PFCE):

Includes expenditure incurred by households and expenditure incurred by private non-profit institutions serving households (PNPISH). Thus, PFCE is divided into two parts, namely Household's Final Consumption Expenditure (HFCE) and PNPISH Final Consumption Expenditure (PNPISH-FCE).

HFCE is defined as expenditures, both actual and imputed, incurred by a country's households on final goods and services for satisfying their wants. In addition to actual money expenditure, HFCE includes imputed value of goods and services received without incurring money expenditure, for example, self-consumed output and gifts received in kind.

Expenditure by non-residents of a country is not included in HFCE. However, the expenditure incurred by the national residents in foreign countries is included in HFCE. Thus, imports are the part of HFCE. In addition, HFCE excludes the receipts from the sale of pre-owned goods, wastes, and scraps.

HFCE can be calculated with the help of the following formula:

$$\text{HFCE} = \text{Money expenditure on consumption by residents} + \text{Imputed value of consumer goods and services received in kind by residents} - \text{Sale of pre-owned goods, wastes, and scraps}$$

On the other hand, PNPISH includes expenditure incurred by private charitable institutions, trade unions, and religious societies, which produce goods and services to be supplied to consumers either free or at token prices.

$$\text{PNPISH-FCE} = \text{Imputed value of goods and services produced Commodity and non-commodity sales}$$

Commodity sales imply the sale at a price that covers cost, while non-commodity sales imply the sale at a price that does not cover cost.

(ii) Government Final Consumption Expenditure (GFCE):

Includes expenditure that is incurred by government for providing free goods and services to citizens. GFCE is equal to value of output minus sales (GFCE = Value of Output – Sales).

The value of output is calculated as:

$$\text{Value of output generated by government} = \text{Compensation of government employees} + \text{purchases of commodities and services} + \text{consumption of fixed capital}$$

$$\text{Sales by government} = \text{Commodity Sales} + \text{Non- Commodity Sales}$$

(b) Investment Expenditure:

Involves expenditure incurred on capital formation. This expenditure is known as Gross Domestic Capital Formation (GDCF).

There are three components of GDCF, which are as follows:

(i) Acquisition of fixed capital assets:

Implies purchasing assets, such as building and machinery.

(ii) Change in stocks:

Involves making addition to the stock of raw materials, semi-finished goods, and

finished goods.

(iii) Net acquisition of valuables:

Involves acquisition of valuables minus disposal of valuables. These valuables include precious stones, metals, and jewellery.

GDCF becomes net when it is diminished by depreciation.

$\text{Net GDCF} = \text{GDCF} - \text{depreciation}$

GDCF is subdivided into Gross Domestic Fixed Capital Formation (GDFCF) and change in stocks.

Now, let us discuss steps involved in estimating national income using final expenditure method.

These steps are as follows:

1. Classifying the production units into primary, secondary, and tertiary sectors.
2. Estimating the final expenditures on goods and services by industrial sectors. These expenditures are PFCE, GFCE, and GDCF. The expenditure also includes net exports, which are equal to exports minus imports.

3. Taking the sum of the final expenditures which gives GDPmp.

$\text{GDPmp} = \text{PFCE} + \text{GFCE} + \text{GDCF} + \text{Net Exports}$

4. Estimating the consumption of fixed capital and net indirect taxes to calculate NDPfc.

$\text{NDPfc} = \text{GDPmp} - \text{Consumption of Fixed Capital} - \text{Net Indirect Taxes}$

5. Adding NFIA to get national income (NNPfc)

$\text{NDPfc} + \text{NFIA} = \text{NNPfc}$

The following are the precautions that should be taken into consideration while calculating national income using the final expenditure method:

- a. Excluding the intermediate expenditure as it is already a part of final expenditure

- b. Including the imputed expenditure incurred for producing goods for self-consumption
- c. Excluding the expenditure incurred on transfer payments
- d. Excluding expenditure incurred on financial assets, such as shares and debentures
- e. Excluding the expenditure incurred on pre-owned goods

Table-1 shows the summarize calculation of national income by three methods:

Table-1 : Calculation of National Income by Three Methods		
Value-added Method	Income Method	Final Ependiture Method
Sum Total of GVAmP by all industrial sectors. Les : consumption of fixed capital Less : net indirect taes	Sum Total of factor income paid out by industrial sectors = compensation of employees + rent + interest + profit = NDPfc	PFGE + GFCE + GDCF + Net exports Les : consumption of fixed capital Less : net indirect taes
Add : NFIA	Add : NFIA	Add : NFIA
= NNPfc	= NNPfc	= NNPfc
= National Income	= National Income	= National Income

Which method is to be used depends on the availability of data in a country and the purpose in hand.

16.3.4 Product Method

According to this method, the total value of final goods and services produced in a country during a year is calculated at market prices. To find out the GNP, the data of all productive activities, such as agricultural products, wood received from forests, minerals received from mines, commodities produced by industries, the contributions to production made by transport, communications, insurance companies, lawyers, doctors, teachers, etc. are collected and assessed at market prices. Only the final goods and services are included and the intermediary goods and services are left out.

16.4 DIFFICULTIES OR PROBLEMS IN MEASURING NATIONAL INCOME

There are many difficulties in measuring national income of a country accurately.

The difficulties involved in national income accounting are both conceptual and statistical in nature. The six major difficulties faced in the measurement of national income are 1. problems of definition i.e. What should we include in the National Income? Ideally we should include all goods and services produced in the course of the year, but there are some services which are not calculated in terms of money, e.g., services of housewives. (2) Lack of Adequate Data: The lack of adequate statistical data makes the task of estimation of national income more acute and difficult. (3) Non-availability of Reliable Information: The reason of illiteracy, most producers has no idea of the quantity and value of their output and do not follow the practice of keeping regular accounts. (4) Choice of Method: The selection of method while calculating National Income is also an important task. The wrong method leads to poor results. (5) Lack of Differentiation in Economic Functioning: In all the countries the occupational specialisation is still incomplete so that there is a lack of differentiation in economic functioning. An individual may receive income partly from farm ownership and partly from manual work in industry in the slack season. (6) Double Counting: Double counting is also an important problem while calculating national income. If the value of all goods and services totalled, the total will overtake the national output, because some goods are currently consumed being used in the making of others. The best way to avoid this error is to calculate only the value of those goods and services that enter into final consumption.

There are many more conceptual and statistical problems involved in measuring national income by the income method, product method, and expenditure method.

We discuss them separately in the light of the three methods:

16.4.1 Problems in Income Method

The following problems arise in the computation of National Income by income method:

1. Owner-occupied Houses:

A person who rents a house to another earns rental income, but if he occupies the house himself, will the services of the house-owner be included in national income. The services of the owner-occupied house are included in national income as if the owner sells to himself as a tenant its services.

For the purpose of national income accounts, the amount of imputed rent is estimated as the sum for which the owner-occupied house could have been rented. The imputed net rent is calculated as that portion of the amount that would have accrued to the house-owner after deducting all expenses.

2. Self-employed Persons:

Another problem arises with regard to the income of self-employed persons. In their case, it is very difficult to find out the different inputs provided by the owner himself. He might be contributing his capital, land, labour and his abilities in the business. But it is not possible to estimate the value of each factor input to production. So he gets a mixed income consisting of interest, rent, wage and profits for his factor services. This is included in national income.

3. Goods meant for Self-consumption:

In under-developed countries like India, farmers keep a large portion of food and other goods produced on the farm for self-consumption. The problem is whether that part of the produce which is not sold in the market can be included in national income or not. If the farmer were to sell his entire produce in the market, he will have to buy what he needs for self-consumption out of his money income. If, instead he keeps some produce for his self-consumption, it has money value which must be included in national income.

4. Wages and Salaries paid in Kind:

Another problem arises with regard to wages and salaries paid in kind to the employees in the form of free food, lodging, dress and other amenities. Payments in kind by employers are included in national income. This is because the employees would have received money income equal to the value of free food, lodging, etc. from the employer and spent the same in paying for food, lodging, etc.

16.4.2 Problems in Product Method

The following problems arise in the computation of national income by product method:

1. Services of Housewives:

The estimation of the unpaid services of the housewife in the national income

presents a serious difficulty. A housewife renders a number of useful services like preparation of meals, serving, tailoring, mending, washing, cleaning, bringing up children, etc.

She is not paid for them and her services are not including in national income. Such services performed by paid servants are included in national income. The national income is, therefore, underestimated by excluding the services of a housewife.

The reason for the exclusion of her services from national income is that the love and affection of a housewife in performing her domestic work cannot be measured in monetary terms. That is why when the owner of a firm marries his lady secretary, her services are not included in national income when she stops working as a secretary and becomes a housewife.

When a teacher teaches his own children, his work is also not included in national income. Similarly, there are a number of goods and services which are difficult to be assessed in money terms for the reason stated above, such as painting, singing, dancing, etc. as hobbies.

2. Intermediate and Final Goods:

The greatest difficulty in estimating national income by product method is the failure to distinguish properly between intermediate and final goods. There is always the possibility of including a good or service more than once, whereas only final goods are included in national income estimates. This leads to the problem of double counting which leads to the overestimation of national income.

3. Second-hand Goods and Assets:

Another problem arises with regard to the sale and purchase of second-hand goods and assets. We find that old scooters, cars, houses, machinery, etc. are transacted daily in the country. But they are not included in national income because they were counted in the national product in the year they were manufactured.

If they are included every time they are bought and sold, national income would increase many times. Similarly, the sale and purchase of old stocks, shares, and bonds of companies are not included in national income because they were included in national income when the companies were started for the first time. Now they are simply financial transactions and represent claims.

But the commission or fees charged by the brokers in the repurchase and resale of old shares, bonds, houses, cars or scooters, etc. are included in national income. For these are the payments they receive for their productive services during the year.

4. Illegal Activities:

Income earned through illegal activities like gambling, smuggling, illicit extraction of wine, etc. is not included in national income. Such activities have value and satisfy the wants of the people but they are not considered productive from the point of view of society. But in countries like Nepal and Monaco where gambling is legalised, it is included in national income. Similarly, horse-racing is a legal activity in England and is included in national income.

5. Consumers' Service:

There are a number of persons in society who render services to consumers but they do not produce anything tangible. They are the actors, dancers, doctors, singers, teachers, musicians, lawyers, barbers, etc. The problem arises about the inclusion of their services in national income since they do not produce tangible commodities. But as they satisfy human wants and receive payments for their services, their services are included as final goods in estimating national income.

6. Capital Gains:

The problem also arises with regard to capital gains. Capital gains arise when a capital asset such as a house, some other property, stocks or shares, etc. is sold at higher price than was paid for it at the time of purchase. Capital gains are excluded from national income because these do not arise from current economic activities. Similarly, capital losses are not taken into account while estimating national income.

7. Inventory Changes:

All inventory changes (or changes in stocks) whether positive or negative are included in national income. The procedure is to take changes in physical units of inventories for the year valued at average current prices paid for them.

The value of changes in inventories may be positive or negative which is added or subtracted from the current production of the firm. Remember, it is the change in inventories

and not total inventories for the year that are taken into account in national income estimates.

8. Depreciation:

Depreciation is deducted from GNP in order to arrive at NNP. Thus depreciation lowers the national income. But the problem is of estimating the current depreciated value of, say, a machine, whose expected life is supposed to be thirty years. Firms calculate the depreciation value on the original cost of machines for their expected life. This does not solve the problem because the prices of machines change almost every year.

9. Price Changes:

National income by product method is measured by the value of final goods and services at current market prices. But prices do not remain stable. They rise or fall. When the price level rises, the national income also rises, though the national production might have fallen.

On the contrary, with the fall in the price level, the national income also falls, though the national production might have increased. So price changes do not adequately measure national income. To solve this problem, economists calculate the real national income at a constant price level by the consumer price index.

16.4.3 Problems in Expenditure Method

The following problems arise in the calculation of national income by expenditure method:

(1) Government Services:

In calculating national income by expenditure method, the problem of estimating government services arises. Government provides a number of services, such as police and military services, administrative and legal services. Should expenditure on government services be included in national income?

If they are final goods, then only they would be included in national income. On the other hand, if they are used as intermediate goods, meant for further production, they would not be included in national income. There are many divergent views on this issue.

One view is that if police, military, legal and administrative services protect the

lives, property and liberty of the people, they are treated as final goods and hence form part of national income. If they help in the smooth functioning of the production process by maintaining peace and security, then they are like intermediate goods that do not enter into national income.

In reality, it is not possible to make a clear demarcation as to which service protects the people and which protects the productive process. Therefore, all such services are regarded as final goods and are included in national income.

(2) Transfer Payments:

There arises the problem of including transfer payments in national income. Government makes payments in the form of pensions, unemployment allowance, subsidies, interest on national debt, etc. These are government expenditures but they are not included in national income because they are paid without adding anything to the production process during the current year.

For instance, pensions and unemployment allowances are paid to individuals by the government without doing any productive work during the year. Subsidies tend to lower the market price of the commodities. Interest on national or public debt is also considered a transfer payment because it is paid by the government to individuals and firms on their past savings without any productive work.

(3) Durable-use Consumers' Goods:

Durable-use consumers' goods also pose a problem. Such durable-use consumers' goods as scooters, cars, fans, TVs, furniture's, etc. are bought in one year but they are used for a number of years. Should they be included under investment expenditure or consumption expenditure in national income estimates? The expenditure on them is regarded as final consumption expenditure because it is not possible to measure their used up value for the subsequent years.

But there is one exception. The expenditure on a new house is regarded as investment expenditure and not consumption expenditure. This is because the rental income or the imputed rent which the house-owner gets is for making investment on the new house. However, expenditure on a car by a household is consumption expenditure. But if he spends the amount for using it as a taxi, it is investment expenditure.

(4) Public Expenditure:

Government spends on police, military, administrative and legal services, parks, street lighting, irrigation, museums, education, public health, roads, canals, buildings, etc. The problem is to find out which expenditure is consumption expenditure and which investment expenditure is.

Expenses on education, museums, public health, police, parks, street lighting, civil and judicial administration are consumption expenditure. Expenses on roads, canals, buildings, etc. are investment expenditure. But expenses on defence equipment are treated as consumption expenditure because they are consumed during a war as they are destroyed or become obsolete. However, all such expenses including the salaries of armed personnel are included in national income.

16.5 USES OF NATIONAL INCOME DATA

Modern Governments take unusual pains in the collection of national income data for a number of reasons. Raising national income is the important goal of all economic activity. Economic welfare of a country depends upon what goods and services are made available for the consumption of its people.

The following are the main uses of national income statistics:

- (i) National income data are used to measure economic welfare of the community. Other things being equal, economic welfare is greater if national income is greater.
- (ii) National income figures give us an idea as to the standard of living of a community.
- (iii) The national income figures are further useful in helping us to assess the pace of economic development of a country. If they do not measure progress precisely, at least they will show us the trends.
- (iv) The study of national income statistics is also useful in diagnosing the economic ills of a country and suggesting remedies.
- (v) The national income data are used to assess the saving and investment potential of the community. The rate of saving and investment is ultimately dependent on the national income.

- (vi) We can make inter-temporal comparisons, i.e., comparisons between two periods of time in the country in order to form an idea of the economic conditions prevalent in the respective periods.
- (vii) We can also make inter-country comparisons by taking the national income data of two countries. This will help us to know where we stand among the world economies.
- (viii) National income data also enable us to assess inter-sectoral growth of an economy. This information is useful in planning development of the various sectors.
- (ix) The national income data also offer a reasonable basis for forecasting future economic events. This will enable a country to foresee the probable results of a particular economic policy.
- (x) Another use of the national income estimates is that they throw light on inter-class distribution of national income. One can judge the standard of welfare of the various sections of the community. All modern societies aim at reducing inequalities of incomes and this is not possible without the aid of national income data.
- (xi) Above all, the national income data are used for planned economic development of the country. In their absence all planning will be a leap in the dark.

In. Samuelson's words, "By means of statistics of national income, we can chart the movements of a country from depression to prosperity, its steady long-term rate of economic growth and development, and finally, its material standard of living in comparison with other nations."

16.6 Limitations of National Income Accounts

There is no doubt that the national income data are highly useful and even necessary for a modern society. But we should take care not to attach to them exaggerated importance. They cannot be taken as absolutely reliable nor can they be taken as an infallible guide to economic policy.

They suffer from certain limitations:

- (i) They are only rough approximations with all the care taken and the expense incurred in their preparation. We have, therefore, to be very careful in their use.

- (ii) The national income figures measure money incomes rather than real income. Any attempt at inflating or deflating money incomes in order to ascertain real income will create a host of other uncertainties.
- (iii) Inter-temporal comparisons, i.e., comparisons between two different periods in the country are not possible. This is due to the fact that a number of changes must have occurred in the meantime to render the comparison meaningless.
- (iv) Inter-country comparisons too are also not very fruitful. This is due to the fact that economic conditions of the two countries as well as the nature of goods and services that have entered into calculation may be widely different.
- (v) The national income estimates do not justify any forecasting owing to a large measure of approximation in their calculation. On their basis we cannot say that a certain policy will produce the desired results.

16.7 SUMMARY

The national income estimates serve a very useful purpose and improvement both in the data and in the techniques no doubt has added to their validity.

The three alternative methods used for measuring national income are as follows:

1. Value Added Method 2. Income Method 3. Expenditure Method.

Since factor incomes arise from the production of goods and services, and since incomes are spent on goods and services produced, three alternative methods of measuring national income are possible.

Value Added Method

This is also called output method or production method. In this method the value added by each enterprise in the production goods and services is measured. Value added by an enterprise is obtained by deducting expenditure incurred on intermediate goods such as raw materials, unfinished goods (purchased from other firms from the value of output produced by an enterprise.

Value of output produced by an enterprise is equal to physical output (Q) produced multiplied by the market price (P), that is, P.Q. From the value added by each enterprise we subtract consumption of fixed capital (i.e., depreciation) to obtain net value added at

market prices (NVA_{MP}).

However, for estimating national income (that is, Net National Product at factor cost (NNP_{FC})) we require to estimate net value added at factor cost (NVA_{FC}) by each enterprise in the economy. NVA_{FC} can be found out by deducting net indirect taxes (i. e. indirect taxes less subsidies provided by the Government).

Under this method, the economy is divided into different industrial sectors such as agriculture, fishing, mining, construction, manufacturing, trade and commerce, transport, communication and other services. Then, the net value added at factor cost (NVA_{FC}) by each productive enterprise as well as by each industry or sector is estimated.

It follows from above that in order to arrive at the net value added at factor cost by an enterprise we have to subtract the following from the value of output of an enterprise:

1. Intermediate consumption which is the value of goods such as raw materials, fuels purchased from other firms
2. Consumption of fixed capital (i.e., depreciation)
3. Net indirect taxes.

Summing up the net values added at factor cost (NVA_{FC}) by all productive enterprises of an industry or sector gives us the net value added at factor cost of each industry or sector. We then add up net values added at factor cost by all industries or sectors to get net domestic product at factor cost (NDP_{FC}). Lastly, to the net domestic product we add the net factor income from abroad to get net national product at factor cost (NNP_{FC}) which is also called national income. Thus,

$$NI \text{ or } NNP_{FC} = NDP_{FC} + \text{Net factor income from abroad}$$

This method of calculating national income can be used where there exists a census of production for the year. In many countries, the data of production of only important industries are known. Hence this method is employed along with other methods to arrive at the national income. The one great advantage of this method is that it reveals the relative importance of the different sectors of the economy by showing their respective contributions to the national income.

Income Method

This method approaches national income from distribution side. In other words, this method measures national income at the phase of distribution and appears as income paid and or received by individuals of the country. Thus, under this method, national income is obtained by summing up of the incomes of all individuals of a country. Individuals earn incomes by contributing their own services and the services of their property such as land and capital to the national production.

Therefore, national income is calculated by adding up the rent of land, wages and salaries of employees, interest on capital, profits of entrepreneurs (including undistributed corporate profits) and incomes of self-employed people. This method of estimating national income has the great advantage of indicating the distribution of national income among different income groups such as landlords, owners of capital, workers, entrepreneurs.

Expenditure method arrives at national income by adding up all expenditures made on goods and services during a year. Income can be spent either on consumer goods or capital goods. Again, expenditure can be made by private individuals and households or by government and business enterprises.

Further, people of foreign countries spend on the goods and services which a country exports to them. Similarly, people of a country spend on imports of goods and services from other countries. We add up the following types of expenditure by households, government and by productive enterprises to obtain national income.

1. Expenditure on consumer goods and services by individuals and households. This is called final private consumption expenditure, and is denoted by C.
2. Government's expenditure on goods and services to satisfy collective wants. This is called government's final consumption expenditure, and is denoted by G.
3. The expenditure by productive enterprises on capital goods and inventories or stocks. This is called gross domestic-capital formation, or gross domestic investment and is denoted by I or GDCF.

A greatest difficulty in the measurement of national income in the developing countries is general lack of adequate statistical data. Inadequacy, non-availability and unreliability of statistics is a great handicap in measuring national income in these countries.

Statistical information regarding agriculture and allied occupations, and household enterprises is not available. Even the statistical information regarding the enterprises in the organised sector is sketchy and unreliable. There is no accurate information available regarding consumption, investment expenditure and savings of either rural or urban population.

In under-developed countries like India, we face some special difficulties in estimating national income.

Some of these difficulties are:

- (i) The first difficulty arises because of the prevalence of non-monetized transactions in under-developed countries like India, so that a considerable part of output does not come into the market at all. Agriculture still being in the nature of subsistence farming in these countries, a major part of output is consumed at the farm itself. The national income statistician, therefore, has to face the problem of finding a suitable measure for this part of output.
- (ii) Because of illiteracy, most producers have no idea of the quantity and value of their output. They do not follow the practice of keeping regular accounts. This makes the task of getting reliable information from a large number of petty producers all the more difficult.
- (iii) Because of under-development, occupational specialization is still incomplete so that there is a lack of differentiation in economic functioning. An individual may receive income partly from farm ownership, partly from manual work in industry in the slack season, etc.
- (iv) There is a general lack of adequate statistical data and this makes the task of estimation all the more difficult.
- (v) It is not easy to calculate the value of inventories, i.e., raw materials, semi-finished and finished goods in the custody of the producers. Obviously, any miscalculation on this score will vitiate the estimates of the output of productive enterprises.
- (vi) The calculation of depreciation on capital consumption presents another formidable difficulty. There are no accepted standard rates of depreciation applicable to the

various categories of machines. Unless from the gross national income correct deductions are made for depreciation, the estimate of net national income is bound to go wrong.

- (vii) Then there is the difficulty of avoiding double counting. If the value of the output of sugar and sugarcane are counted separately, the value of the sugarcane utilized in the manufacture of sugar will have been counted twice. This must be avoided.
- (viii) The application of the expenditure method too is full of difficulties. It is difficult to estimate all personal as well as investment expenditure.

16.8 SELFASSESSMENT QUESTIONS

1. Explain the methods of measuring national income?

2. What are various difficulties faced while calculating national income?

3. Which method is used to find out the contribution of factors of production to national income? Explain.

16.9 SUGGESTED READINGS

- Managerial economics, Dwivedi D.N., Vikas Publishing House, New Delhi.

- *Managerial Economics, Mehta, P.L., S. Chand, Delhi.*
- Mithani, D.M., Managerial Economics-Theory and Application, Himalaya Publishing House Pvt. Ltd., New Delhi.
- Gupta, G.S., Macro Economic- Theory and Application, Tata McGraw Hill Publishing House, New Delhi.

SKILL DEVELOPMENT

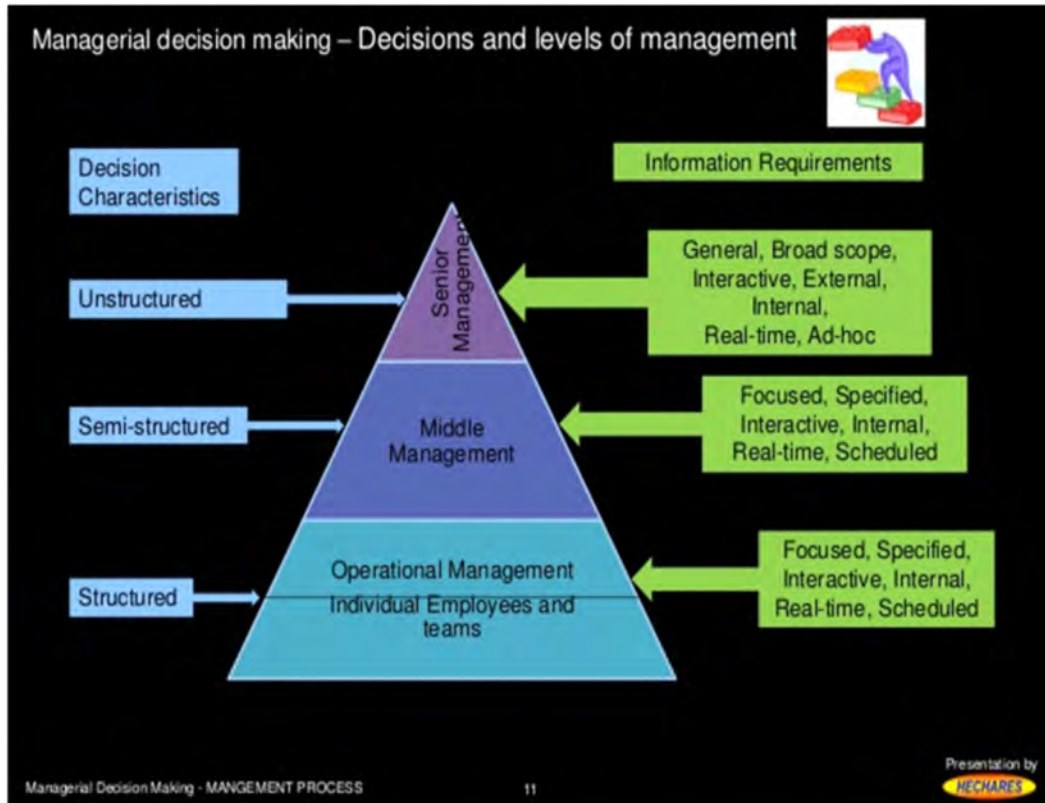
OBJECTIVE: To make students acquainted with the specimen for the classroom teaching pattern and internal assessment.

STRUCTURE:

- 5.1 Draw a chart for approaches to managerial decisions.
- 5.2 Chart out the factors influencing price policy.
- 5.3 Prepare a survey report on the demand forecasting of any product.
- 5.4 Discuss the process of business decision making with the help of case study.
- 5.5 Collect and present in tabular form the national income of five years.

5.1 DRAW A CHART FOR APPROACHES TO MANAGERIAL DECISIONS.

Solution: The below mention chart showing the decision making process in management:



TYPES OF DECISIONS	DECISION-MAKING TECHNIQUES	
	Traditional	Modern
Programmed: <ul style="list-style-type: none"> Routine, repetitive decisions Organization develops specific processes for handling them 	<ol style="list-style-type: none"> Habit Clerical routine: <ul style="list-style-type: none"> Standard operating procedures Organization structure: <ul style="list-style-type: none"> Common expectations A system of subgoals Well-defined information channels 	<ol style="list-style-type: none"> Operations Research: <ul style="list-style-type: none"> Mathematical analysis Models Computer simulation Electronic data processing
Nonprogrammed: <ul style="list-style-type: none"> One-shot, ill-structured novel, policy decisions Handled by general problem-solving processes 	<ol style="list-style-type: none"> Judgement, intuition and creativity Rules of thumb Selection and training of executives 	Heuristic problem-solving techniques applied to: <ol style="list-style-type: none"> training human decision makers constructing heuristic computer programs

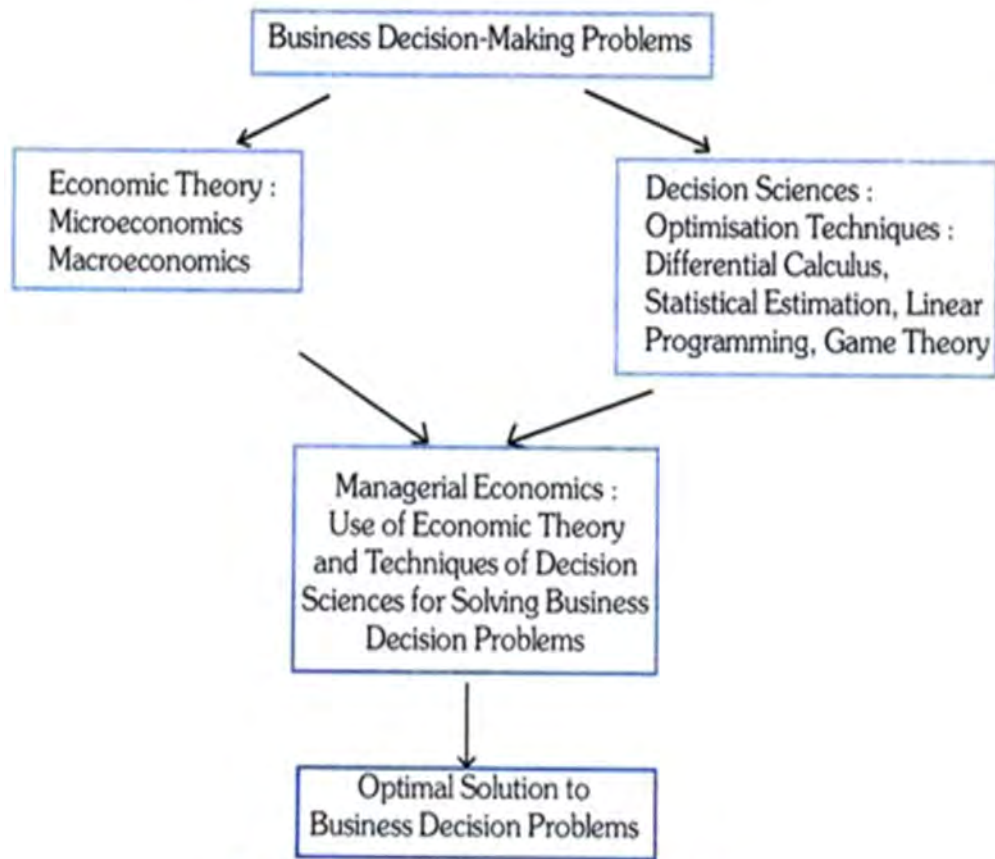


Fig. 1.1. *The Nature of Managerial Economics*

A SYSTEMATIC APPROACH TO DECISION MAKING :

- A logical and systematic decision-making process helps you address the critical element that results in a good decision. By taking an organized approach, you're less likely to miss important factors and you can build on the approach to make your decisions better and better.

There are six steps to making an effective decision :

- Create a constructive environment.
- Generate good alternatives.
- Explore these alternatives.
- Choose the best alternative.
- Check your decision.
- Communicate your decision and take action.

DEVELOPMENT APPROACH – INCREMENTAL MODEL

The incremental model is an intuitive approach to the waterfall model. Multiple development cycles take place here, making the life cycle a "multi-waterfall" cycle. Cycles are divided up into smaller, more easily managed iterations. Each iteration passes through the requirements, design, implementation and testing phases.

Advantages

- Generates working software quickly and early during the software life cycle.
- More flexible – less costly to change scope and requirements.
- Easier to test and debug during a smaller iteration.
- Easier to manage risk because risky pieces are identified and handled during its iteration.
- Each iteration is an easily managed milestone.

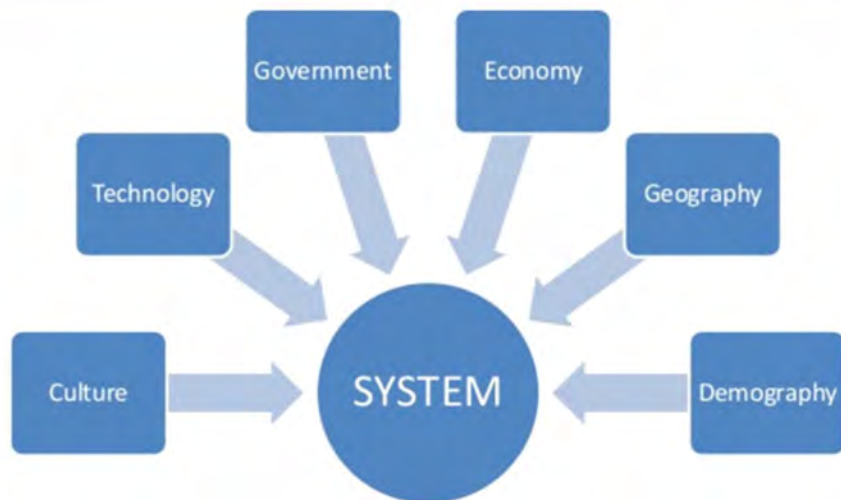
Disadvantages

- Each phase of an iteration is rigid and do not overlap each other.
- Problems may arise pertaining to system architecture because not all requirements are gathered up front for the entire software life cycle.

MANAGEMENT SCIENCE APPROACH

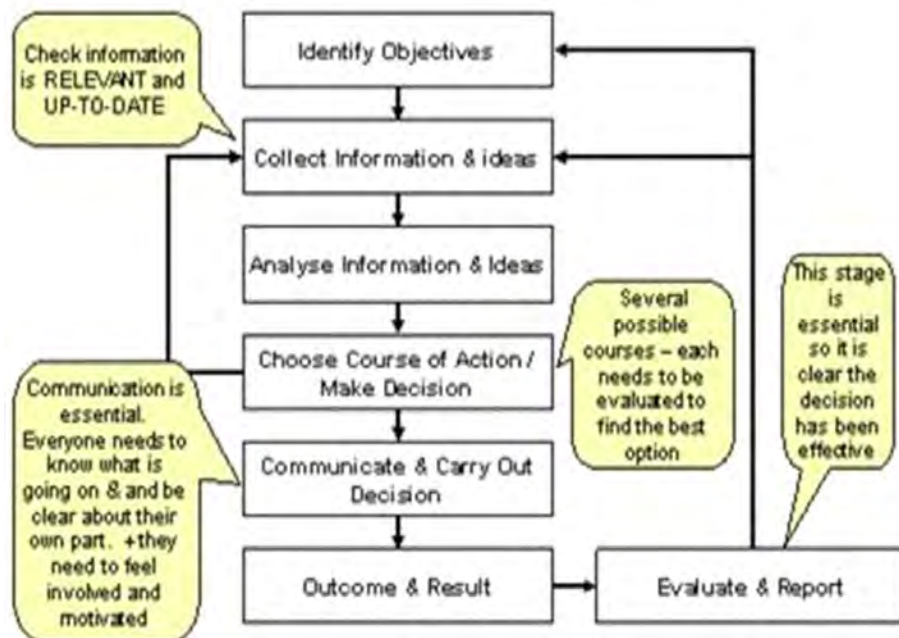
- Management science uses a scientific approach to solving management problems.
- It is used in a variety of organizations to solve many different types of problem.
- It encompasses a logical mathematical approach to problem solving.
- It is also referred to as :
 - Decision Modeling
 - Quantitative Analysis
 - Operations Research

Contingency Theory/Approach



Modern Management Theories

41



5.2 CHART OUT THE FACTORS INFLUENCING PRICE POLICY.

Solution: The factors influencing for a price decision can be divided into two groups:

(A) Internal Factors and (B) External Factors.



Factors Affecting Pricing Decisions

Fig. 14.1

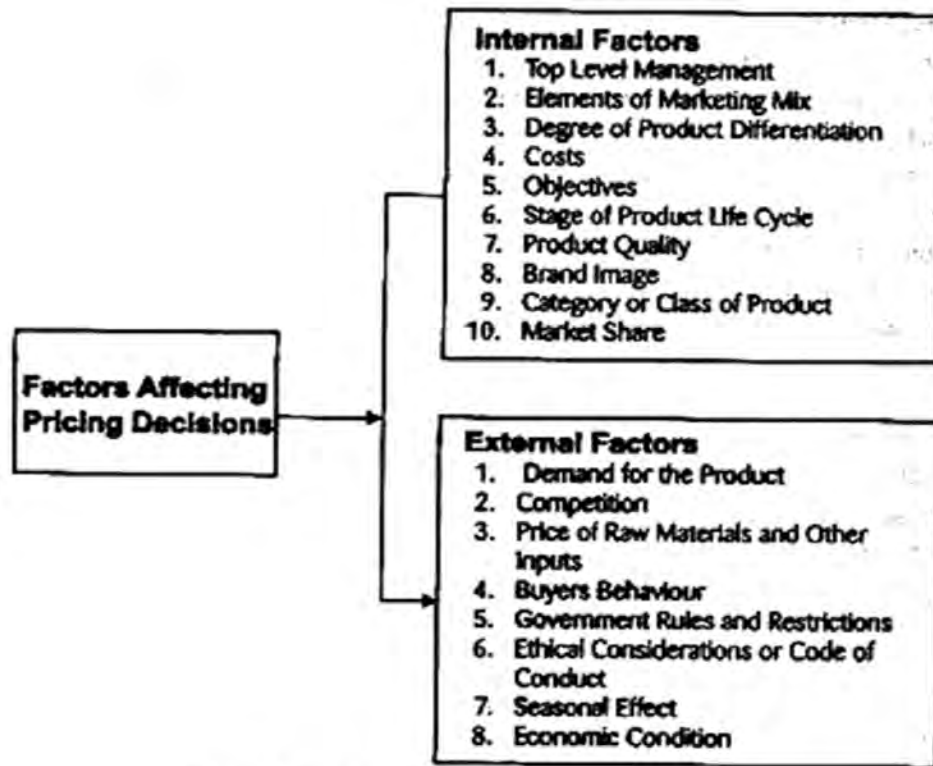


Figure 2: Factors affecting Pricing Decisions

(A) Internal Factors:

1. *Organisational Factors:*

Pricing decisions occur on two levels in the organisation. Over-all price strategy is dealt with by top executives. They determine the basic ranges that the product falls into in terms of market segments. The actual mechanics of pricing are dealt with at lower levels in the firm and focus on individual product strategies. Usually, some combination of production and marketing specialists are involved in choosing the price.

2. *Marketing Mix:*

Marketing experts view price as only one of the many important elements of the marketing mix. A shift in any one of the elements has an immediate effect on the other three- Production, Promotion and Distribution. In some industries, a firm may use price reduction as a marketing technique.

Other firms may raise prices as a deliberate strategy to build a high-prestige product line. In either case, the effort will not succeed unless the price change is combined with a total marketing strategy that supports it. A firm that raises its prices may add a more impressive looking package and may begin a new advertising campaign.

3. *Product Differentiation:*

The price of the product also depends upon the characteristics of the product. In order to attract the customers, different characteristics are added to the product, such as quality, size, colour, attractive package, alternative uses etc. Generally, customers pay more prices for the product which is of the new style, fashion, better package etc.

4. *Cost of the Product:*

Cost and price of a product are closely related. The most important factor is the cost of production. In deciding to market a product, a firm may try to decide what prices are realistic, considering current demand and competition in the market. The product ultimately goes to the public and their capacity to pay will fix the cost, otherwise product would be flapped in the market.

5. *Objectives of the Firm:*

A firm may have various objectives and pricing contributes its share in achieving such goals. Firms may pursue a variety of value-oriented objectives, such as maximizing sales revenue, maximizing market share, maximizing customer volume, minimizing customer volume, maintaining an image, maintaining stable price etc. Pricing policy should be established only after proper considerations of the objectives of the firm.

(B) External Factors:

1. *Demand:*

The market demand for a product or service obviously has a big impact on pricing. Since demand is affected by factors like, number and size of competitors, the prospective buyers, their capacity and willingness to pay, their preference etc. are taken into account while fixing the price.

A firm can determine the expected price in a few test-markets by trying different prices in different markets and comparing the results with a controlled market in which

price is not altered. If the demand of the product is inelastic, high prices may be fixed. On the other hand, if demand is elastic, the firm should not fix high prices, rather it should fix lower prices than that of the competitors.

2. *Competition:*

Competitive conditions affect the pricing decisions. Competition is a crucial factor in price determination. A firm can fix the price equal to or lower than that of the competitors, provided the quality of product, in no case, be lower than that of the competitors.

3. *Suppliers:*

Suppliers of raw materials and other goods can have a significant effect on the price of a product. If the price of cotton goes up, the increase is passed on by suppliers to manufacturers. Manufacturers, in turn, pass it on to consumers.

Sometimes, however, when a manufacturer appears to be making large profits on a particular product, suppliers will attempt to make profits by charging more for their supplies. In other words, the price of a finished product is intimately linked up with the price of the raw materials. Scarcity or abundance of the raw materials also determines pricing.

4. *Economic Conditions:*

The inflationary or deflationary tendency affects pricing. In recession period, the prices are reduced to a sizeable extent to maintain the level of turnover. On the other hand, the prices are increased in boom period to cover the increasing cost of production and distribution. To meet the changes in demand, price etc.

Several pricing decisions are available:

- (a) Prices can be boosted to protect profits against rising cost,
- (b) Price protection systems can be developed to link the price on delivery to current costs,
- (c) Emphasis can be shifted from sales volume to profit margin and cost reduction etc.

5. *Buyers:*

The various consumers and businesses that buy a company's products or services may have an influence in the pricing decision. Their nature and behaviour for the purchase of a particular product, brand or service etc. affect pricing when their number is large.

6. *Government:*

Price discretion is also affected by the price-control by the government through enactment of legislation, when it is thought proper to arrest the inflationary trend in prices of certain products. The prices cannot be fixed higher, as government keeps a close watch on pricing in the private sector. The marketers obviously can exercise substantial control over the internal factors, while they have little, if any, control over the external ones.

5.3 PREPARE A SURVEY REPORT ON THE DEMAND FORECASTING OF ANY PRODUCT.

Solution: Demand forecasting is the art and science of forecasting customer demand to drive holistic execution of such demand by corporate supply chain and business management. Demand forecasting involves techniques including both informal methods, such as educated guesses, and quantitative methods, such as the use of historical sales data and statistical techniques or current data from test markets. Demand forecasting may be used in production planning, inventory management, and at times in assessing future capacity requirements, or in making decisions on whether to enter a new market.

Demand forecasting is predicting future demand for the product. In other words, it refers to the prediction of probable demand for a product or a service on the basis of the past events and prevailing trends in the present.

Demand forecasting of Maggie noodles

Nestle is the market leader with 58.3% market share in the overall category and over 80% in the pure noodles category. Nestlé's

Maggi has been synonymous with noodles. But over the last couple of years it has been losing market share on a monthly basis to new entrants like ITC's Sunfeast Yippee, GlaxoSmithKline's (GSK) Horlicks Foodles, Hindustan Unilever's (HUL) Knorr Soupy noodles, Big Bazaar's Tasty Treat, Top Ramen and several other smaller players. Maggi's

share of the noodle market on a pan India basis has slipped from over 90% to around 85% in a matter of years.

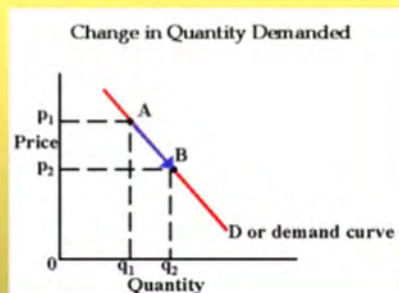
Its instant noodles market share has dropped off across all parts of India at the same time Maggi has been market leader in the noodle's segment in India and has recorded the highest sales in this market. It took several years and lots of money and resources for nestle to establish its noodles brand in India.

Law of Demand



❖ According to Alfred Marshall, the Law of Demand states that-

Other things being equal, the demand for a commodity varies inversely with its price.



Demand Forecasting



- ❑ A **Demand Forecast** is the prediction of what will happen to the company's existing product sales.
- ❑ Proactive process of determining *what* products are needed *where*, *when*, and in *what* quantities.
- ❑ Foundation of a company's entire logistics process.
- ❑ It is thus, the activity of estimating the quantity of a product or service that consumers will purchase.

Know your product

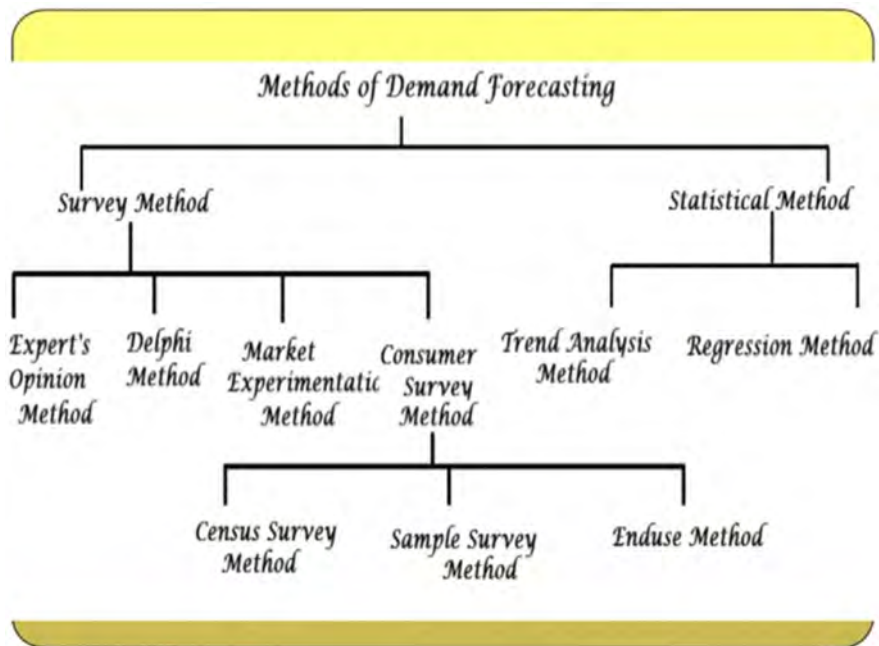
- Nestle is a Swiss Company founded in 1866 by Henri Nestle. It markets its product in 130 countries across the world. It was launched in the year 1983 in India
- It is the market leader in Instant Noodles and currently enjoys a market share of about 70%.
- Maggi Noodles in India was initially targeted at working women, but eventually repositioned itself to target kids.



Factors determining demand of Maggi

- ✓ Price
- ✓ Income
- ✓ Consumer's taste and preference
- ✓ Competition
- ✓ Price of Complementary goods
- ✓ Population and age group
- ✓ Advertisement
- ✓ Celebrations and occasions
- ✓ Brand Image





Advertisements

- ⊙ 'Fast to cook, good to eat'.
- ⊙ 'Mummy, bhook lagi hai...Bas do minute'.
- ⊙ 'Badi Gazab Ki Bhook Lagi, Maggi Chahiye Mujhe Abhi'.
- ⊙ 'Taste Bhi, Health Bhi Khushiyan bhi'.
- ⊙ 'Just add garam paani ... Carry on jaani'.
- ⊙ 'Me and meri Maggi story'.



Maggi's Demand Forecast



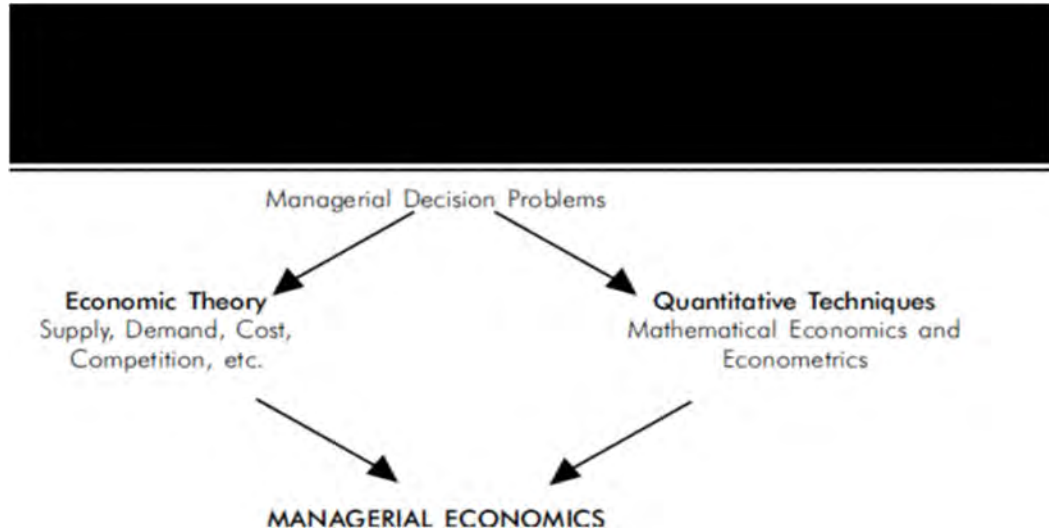
Advantages	Disadvantages
1) The data helps Maggi to reduce wastage and produce the flavors that are excessively demanded.	1) Maggi needs to have a lot of past data for accurate prediction of demand.
2) The data is reliable if collected properly.	2) If the determinants of demand are not stable, then there can be problems in forecasting.
3) The forecast helps Maggi to reduce	3) The data may be biased or

Conclusion

- ❖ Maggi has managed to remain unbeaten in the last 30 years because it has always catered to the taste buds of the people.
- ♦ The Law: Lower the price, higher the demand works in favor of Maggi completely.
- ❖ Maggi should always redress the consumer's complaints and demands regularly.
- ♦ As its rival Sunfeast Yippee has launched new 'Chinese Masala' noodles, Maggi is coming with great marketing strategies to maintain its position.



5.4 DISCUSS THE PROCESS OF BUSINESS DECISION MAKING WITH THE HELPOF CASE STUDY.



CASE PROBLEM: Decisions about whether, when and how to downsize (restructure). Company Southwest Airlines Southwest Airlines Co. (“Southwest”) is a major domestic airline that provides primarily short haul, high frequency, point to point, low fare service. Founded in 1971 and headquartered in the US, Southwest is a large low cost airline. Airlines rely on key inputs such as aircraft, fuel and labour in order to operate. Like any airline it is sensitive to jet fuel prices and other operating costs. FORTUNE has listed Southwest Airlines among America’s Top Ten most admired corporations and previously ranked Southwest Airlines in the top five of the “Best Companies to Work For” in America. Today Southwest operates over 500 Boeing 737 aircraft in 66 cities. Southwest has among the lowest cost structures in the domestic airline industry and consistently offers the lowest and simplest fares. Southwest also has one of the best overall Customer Service records. The company is committed to provide its employees with a stable work environment with equal opportunity for learning and personal growth; there are more than 35,000 employees throughout the Southwest system. The airline is unionized (heavily unionized when compared with other US airlines). In 1995, Southwest became one of the first airlines to have a web site. In 2006, 70 percent of flight bookings and 73 percent of revenue was generated from bookings on southwest.com.

The best way to become acquainted with Managerial Economics is to come face to face with real world decision problems. Many companies have applied established principles of Managerial Economics to improve their profitability. In the past decade, a number of known companies have experienced successful changes in the economics of their business by using economic tools and techniques. Some cases as discussed below.

CASE1: For P&G, the 1990s was a decade of “value-oriented” consumer. The company formulated policies in view of emergence of India as “value for money” product market. This means that consumers are willing to pay premium price only for quality goods. Customers are “becoming more price-sensitive and quality conscious...more focused on self satisfaction...”⁷ It can, therefore, be said that consumer preferences and tastes have come to play a vital role in the survival of companies.

CASE2: Leading multinational players like Samsung, LG, Sony and Panasonic cornered a large part of Indian consumer durables market in the late 1990s. This was possible because of global manufacturing facilities and investment in technologies. To maintain their market share, they resorted to product differentiation. These companies introduced technologically advanced models with specific product features and product styling.

CASE3: Apple, the company that began the PC revolution, had always managed to maintain its market share and profitability by differentiating its products from the IBM PC compatibles. However, the introduction of Microsoft’s Windows operating system gave the IBM and IBM compatible PCs the look feel, and ease of use of the Apple Macintosh. This change in the competitive environment forced Apple to lower its prices to levels much closer to IBM compatibles. The result has been an erosion of profit margins. For example, between 1991 and 1993, Apple’s net profit margins fell from 5 to 1 per cent.

CASE4: Reliance Industries has maintained top position in polymers by building a world-scale plant and upgrading technology. This has resulted in low operating costs due to economies of scale. Reliance Petroleum Ltd. registered a net profit of Rs. 726 crores on sales of Rs. 14,308 crores for the six months ended September 30, 2000. Of these, exports amounted to Rs 2,138 crores, which make RPL India’s largest manufacturer and exporter. The overall economies of scale are in favor of expansion. This expansion will further consolidate the position of RPL in the sector and help in warding off rivals

5.5 COLLECT AND PRESENT IN TABULAR FORM THE NATIONAL INCOME OF FIVE YEARS.

Solution:

Recent Trends in Indian Economy

India has undergone a paradigm shift owing to its competitive stand in the world. The Indian economy is on a robust growth trajectory and boasts of a stable annual growth rate, rising foreign exchange reserves and booming capital markets among others.

According to Ministry of Statistics and Programme Implementation (MOSPI), Indian economy is estimated to grow at 5 percent in 2012-13 as compared to the growth rate of 6.2 percent in 2011-12. These GDP figures are based at factor cost at constant (2004-05) prices for the year 2012-13. As per the given data Gross Domestic Product (GDP) at factor cost at constant (2004-05) prices in the year 2012-13 is likely to attain a level of US\$ 1013.63 billion, as against the GDP estimates for the year 2011-12 of US\$ 966.56 billion.

The sectors which registered growth rate of over 5 percent are construction, trade, hotels, transport and communication, financing, insurance, real estate and business services, and community, social and personal services. There may be slow growth in the sectors of agriculture, forestry and fishing (1.8 per cent), manufacturing (1.9 per cent) and electricity, gas & water supply (4.9 per cent). The growth in the mining and quarrying sector is estimated to be (0.4 per cent)

According to the Department of Agriculture and Cooperation (DAC), the agriculture, forestry and fishing sector is likely to show a growth of 1.8 per cent in its GDP during 2012-13, as against the previous year's growth rate of 3.6 per cent. Production of food grains is expected to decline by 2.8 per cent as compared to growth of 5.2 per cent in the previous agriculture year. The production of cotton and sugarcane is also expected to decline by 4.0 per cent and 6.5 per cent, respectively, in 2012-13. Among the horticultural crops, production of fruits and vegetables is expected to increase by 3.5 per cent during the year 2012-13 as against 5.1 percent in the previous year.

The manufacturing sector is likely to show a growth of 1.9 per cent in GDP during 2012-13. According to the latest estimates available on the Index of Industrial Production

(IIP), the index of manufacturing and electricity registered growth rates of 1.0 per cent and 4.4 per cent, respectively during April-November, 2012-13, as compared to the growth rates of 4.2 per cent and 9.5 per cent in these sectors during April-November, 2011-12. The mining sector is likely to show a growth of 0.4 per cent in 2012-13 as against negative growth of 0.6 per cent during 2011-12. The construction sector is likely to show a growth rate of 5.9 per cent during 2012-13 as against growth of 5.6 per cent in the previous year. The key indicators of construction sector, namely, cement production and steel consumption have registered growth rates of 6.1 per cent and 3.9 per cent, respectively during April-December, 2012-13.

The estimated growth in GDP for the trade, hotels, and transport and communication sectors during 2012-13 is placed at 5.2 per cent as against growth of 7.0 percent in the previous year. This is mainly on account of decline of 3.4 per cent and 4.8 per cent respectively in passengers and cargo handled in civil aviation and decline of 3.1 per cent in cargo handled at major sea ports during April-November, 2012-13. There has been an increase of 4.3 per cent in stock of telephone connections as on November 2012. The sales of commercial vehicles witnessed an increase of 0.74 per cent per cent in April-December 2012. The sector, financing, insurance, real estate and business services, is expected to show a growth rate of 8.6 per cent during 2012-13, on account of 11.1 per cent growth in aggregate deposits and 15.2 per cent growth in bank credit as on December 2012 (against the respective growth rates of 17.2 per cent and 16.0 per cent in the corresponding period of previous year). The growth rate of community, social and personal services during 2012-13 is estimated to be 6.8 per cent.

The net national income (NNI) at factor cost, also known as national income, at 2004-05 prices is likely to be US\$ 877.38 billion during 2012-13, as against the previous year's estimate of US\$ 842.42 billion. In terms of growth rates, the national income registered a growth rate of 4.2 per cent in 2012-13 as against the previous year's growth rate of 6.1 per cent.

The per capita income in real terms (at 2004-05 prices) during 2012-13 is likely to attain a level of US\$ 721.06 as compared to the estimate for the year 2011-12 of US\$ 700.851. The growth rate in per capita income is estimated at 2.9 per cent during 2012-13, as against the previous year's estimate of 4.7 per cent.

Growth in Gross Domestic Product

Percentage change for economic activities are depicted in table below:

S. No.	Industry	Percentage change over previous year			
		at constant (2004-05 prices)		at current prices	
		2011-12	2012-13	2011-12	2012-13
1	Agriculture, forestry & fishing	3.6	1.8	12.2	12.1
2	Mining & quarrying	-0.6	0.4	2.5	11.7
3	Manufacturing	2.7	1.9	11.2	7.7
4	Electricity, gas & water supply	6.5	4.9	10.5	18.3
5	Construction	5.6	5.9	15.1	13.9
6	Trade, hotels, transport & communication	7.0	5.2	18.5	12.8
7	Financing, insurance, real estate & business services	11.7	8.6	18.7	17.3
8	Community, social & personal services	6.0	6.8	14.9	16.0
Total GDP		6.2	5.0	15.0	13.3

Real GDP growth or Gross Domestic Product (GDP) growth of India at constant (2011-12) prices in the year 2015-16 is estimated at 7.56 percent as compared to the growth rate of 7.24 percent in 2014-15. Quarterly GDP growth rates are: Q1 (7.5%), Q2 (7.6%), Q3 (7.2%), Q4 (7.9%).

GVA growth rates of Agriculture & allied, Industry, and Services sector are 1.25%, 7.4%, and 8.92%, respectively. Manufacturing growth is at 9.3%. India has registered highest growth of 10.3% in 'Financial, real estate & professional services' sector and lowest 1.2% in 'Agriculture, forestry & fishing' sector.

At current prices, GDP growth rates for year 2015-16 is 8.71%. Growth for Q1, Q2, Q3 and Q4 are 8.8%, 6.4%, 9.1% and 10.4%, respectively.

At constant prices GVA (Gross Value Added), GNI (Gross National Income), NNI (Net National Income) growth of India is estimated at 7.2%, 7.5% and 7.6%, respectively. At current prices these figures are 7.0%, 8.7% and 8.7%.

Data from 1950-51 to 2011-12 is from 2004-05 series and 2011-12 to 2014-15 is from 2011-12 series.

According to IMF World Economic Outlook (April-2016), GDP growth rate of India in 2015 is 7.336% and India is 9th fastest growing nation of the world. In 2014, India was 14th fastest growing nation of the world with GDP growth rate of 7.244%. Average growth rate from 1980 to 2014 stands at 6.27%, reaching an all time high of 10.26% in 2010 and a record low of 1.06% in the 1991.

In previous methodology, Average growth rate from 1951 to 2014 stands at 4.96%, reaching an all time high of 10.16% in 1988-89 and a record low of -5.2% in the 1979-80. In 4 years, Growth was negative.

Year	2011-12 Series							
	Growth at 2011-12 prices				Growth at current prices			
	GDP	GVA	GNI	NNI	GDP	GVA	GNI	NNI
2012-13	5.6	5.4	5.3	4.7	13.9	13.6	13.6	13.3
2013-14	6.6	6.3	6.6	6.2	13.3	12.7	13.2	13.2
2014-15	7.2	7.1	7.3	7.2	10.8	10.5	10.8	10.8
2015-16	7.6	7.2	7.5	7.6	8.7	7.0	8.7	8.7

Title: Economics for Managerial Decisions

Course No. : BC-203

Title: Economics for Managerial Decisions

Duration of Examination : 3 hours

Total Marks : 100

Theory Examination : 80

Internal Assessment : 20

OBJECTIVE : This course aims to prepare the students to understand and analyse over a remarkable range of business issues and phenomena of decision making.

UNIT I : INTRODUCTION

Nature : importance, role of managerial economics, principles in managerial decision analysis, Managerial economics- A positive or normative science; Approaches to managerial decision making..

UNIT II : MARKET DEMAND ANALYSIS

Meaning, determinants of demand, factors influencing market demand, types of demand schedule, types of demand, effect of economic slowdown on market demand.

UNIT III : PRICING POLICY AND PROFIT POLICY

Introduction, objectives of price policy, factors determining price policy, methods of pricing, practical aspects of pricing decision; Profit policy- Reasons for controlling profits, problems in profit policy.

UNIT IV : KNOWLEDGE BASED ECONOMY

Meaning, features, frame work of knowledge economy, K- profit analysis, steps for developing K- economy and constraints to the growth of K- economy. Concepts, significance and components of national income, Methods of calculating national income, problems in measurements of national income.

SKILL DEVELOPMENT (SPECIMEN FOR CLASS ROOM TEACHING AND INTERNAL ASSESSMENT)

Draw a chart for approaches to managerial decisions.

Chart out the factors influencing price policy.

Prepare a survey report on the demand forecasting of any product.

Discuss the process of business decision making with the help of a case study.

Collect and present in tabular form the national income of last five years.

BOOKS RECOMMENDED

- | | | | |
|----|---------------------------------|---|---|
| 1. | MITHANI. D.M. | : | Managerial Economics- Theory
& Application, Himalaya
Publishing House PVT. Ltd..
New Delhi |
| 2. | Diwedi, D.N. | : | Managerial Economs, Vikas Publisdhishing
House Pvt. Ltd, New Delhi |
| 3. | Gupta, G.S. | : | Macro-Economic- Theory & Application, Tata
McGraw Hill Publishing house Pvt. Ltd., New
Delhi. |
| 4. | Vaish, M.C. | : | Macro-Economic Theory, Vikas Pubishing
House Pvt. Ltd., New Delhi. |
| 5. | Mishra, S.K. & Puri,
V.K. | : | Modern Macro Economic Theroy, Himalayan
Publishing House. |
| 6. | Edward Shapiro | : | Macro-Economic Analysis, Tata MGraw Hill,
New Delhi |
| 7. | Jhingam, M.L. &
Stephen, J.K | : | Managerial Economics, Vrinda Publiations Pvt.
Ltd., Delhi. |
| 8. | Dingra, I.C | : | Managerial Economics, Sultan Chand,
New Delhi. |

NOTE FOR PAPER SETTER

Equal weightage shall be given to all the units of the syllabus. The external paper shall be of the two sections viz, A & B

Section - A : This section will contain four short answer questions selecting one from each unit. Each question carries 5 marks. A candidate is required to attempt all the four questions. Total weightage to this section shall be 20 mark.

Section - B : This section will contain eight long answer question of 15 marks each. Two questions with internal choice will be set from each unit. A candidate has to attempt any four questions selecting one from each unit. Total weightage to this section shall be 60 marks.

MODEL QUESTION PAPER
ECONOMICS FOR MANAGERIAL DECISIONS

Section - A (20 Marks)

Attempt all the questions. Each question carries five marks.

1. State the role of managerial economics?
2. Briefly state the various types of demand?
3. What are the objectives of price policy?
4. State the framework of K-economy?

Section B

Attempt any four questions selecting one question from each unit. Each question carries 15 marks.

1. Discuss the principles of managerial decision analysis?

OR

State the relationship between micro economics, macro economics and managerial economics ?

2. Explain the effect of economic slowdown on market demand ?

OR

Explain the factor influencing market demand ?

3. Explain the methods of price determination ?

OR

Briefly state the criteria for acceptable rate of return on investment ?

4. Explain the steps in developing K-economy ?

OR

Outline the constraint in the growth & development of K-economy?

MANAGERIAL ECONOMICS

CONTENTS

LESSON NO.		PAGE NO.
<u>UNIT-I</u>		
1.	Managerial Economics	1-21
2.	Managerial Decision Analysis	22-36
3.	Managerial Economics-A Poitive or Normative Science	37-47
4.	Approaches to Managerial Decisions	48-60
<u>UNIT-II</u>		
5.	Demand Analysis	61-69
6.	Market Demad Analysis	70-79
7.	Market Demand Schedule	80-90
8.	Economic Slowdown	91-99
<u>UNIT-III</u>		
9.	Pricing Policy	100-112
10.	Pricing Methods	113-151
11.	Profit Policy	152-168
12.	Profit Planning and Control	169-186
<u>UNIT-IV</u>		
13.	Knowledge Based Economy	187-200
14.	Growth of Knowledge Economy	201-226
15.	National Income	227-251
16.	Measuring National Income	252-278
17-20	Skill Development	279-298

MANAGERIAL ECONOMICS

Course Contributors

- **Ms. Ritika Samyal**

© Directorate of Distance Education, University of Jammu, Jammu, 2017

- All rights reserved. No part of this work may be reproduced in any form, by mimeograph or any other means, without permission in writing from the DDE, University of Jammu.
- The script writer shall be responsible for the lesson / script submitted to the DDE and any plagiarism shall be his / her entire responsibility.

Directorate of Distance Education

**UNIVERSITY OF JAMMU
JAMMU**



SELF LEARNING MATERIAL

B. COM. SEMESTER - II

Course No. : BC-203

Unit : I-IV

Subject : Economics For Managerial Decisions

Lesson No. 1-12

COURSE CO-ORDINATOR

Rohini Gupta Suri

9419186716

<http://www.distanceeducationju.in>

*Printed and Published on behalf of the Directorate of Distance Education,
University of Jammu, Jammu by the Director, DDE, University of Jammu,
JAMMU-180 006*