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INTRODUCTION

Managerial Economics is the study of economic theories, concepts and tools for economic analysis which are used in the process of decision making of a business manager. Indeed it is an integration of economic theory and business practices.

Block I: Fundamental Concepts deals with an introduction of managerial economics which describes meaning, nature, characteristics, scope and relationship with other branches of knowledge of managerial economics. It describes the conceptual framework of demand analysis, elasticity of demand and demand forecasting. It includes determinants, types and methods of forecasting of demand.

Block II: Production and Cost Analysis describes the production function, its objectives and assumptions along with returns to scale and economies of scale. The unit on Cost Concepts and Analysis describes cost function and implications in short-run and long-run.

Block III: Pricing Policies pertains to market structure, pricing under different market conditions, price discrimination and pricing strategies. It aims to understand different types of market structures such as perfect competition, monopoly and inperfect competition. It also describes the pricing under different market conditions. Price discrimination and pricing strategies in different situations also highlight the implications of pricing decisions.

Block IV: Firm in Theory and Practice describes economic theory, behavioural theory, managerial theory and profit theory of a firm. It clarifies the concept of profit maximization, value maximization and revenue maximization, theories of profit and profit policy of a firm.

Block V: Macro Economics highlights the concepts of macro economics and its relevance for decision unaking in a firm. Major units in this block are related to circular flow of economic activities, national income, economic growth and development and balance of payments.



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Unit - 1 Managerial Economics: An Introduction

Unit structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Meaning and Definition of Managerial Economics
- 1.3 Characteristics of Managerial Economics
- 1.4 Nature of Managerial Economics
- 1.5 Scope of Managerial Economics
- 1.6 Relationship of Managerial Economics with other Disciplines
- 1.7 Summary
- 1.8 Key Words
- 1.9 SelfAssessment Test
- 1.10 Suggested Books / References

1.0 Objectives

After studying this unit, you should be able to understand:

- The Meaning of Managerial Economics.
- The Nature and Characteristics of Managerial Economics.
- The **Scope** of Managerial Economics.
- The Relationship of Managerial Economics with other branches of knowledge.

1.1 Introduction

Managerial Economics is indeed an off-shoot of the Second World War. Before the outbreak of this war, the study of economics was purely an academic exercise, while business was a pure practice based on common practical sense of human mind. The Second World War created a tremendous pressure on scarce economic resources of the world. Thus, the need for optimum utilization of resources intensified further, which ultimately gave birth to a new discipline popularly known as Managerial Economics.

The present business world has become very dynamic, complex, uncertain and risky. Therefore taking appropriate, correct and timely decision has become a challenging and tedious task. The existence/ survival and growth of business basically depends on such decisions. Undoubtedly, Managerial Economics is a friend. philosopher and guide to the business leaders and managers. Further, the growing complexity of decision-making process, the increasing use of economic logic, concepts, theories and tools of economic analysis in the process of decision-making and rapid increase in the demand for professionally trained managerial man power increased the importance of the study of managerial economics as a separate discipline of managerial curriculum. In this unit, we would be studying the meaning, nature and scope of Managerial Economics and its relationship with other branches of knowledge.

1.2 Meaning and Definition of Managerial Economics

The terms 'Managerial Economics' and 'Business Economics' are often synonyms and used interchangeably in managerial studies. It is also known as 'Economics for Managers'. Basically, Managerial Economics is an Applied Economics in the sphere of business management. It is an application of economic theory and methodology to decision-making problems faced by the business firms. Thus, it is the economics of business or managerial decisions or it is the process of application of principles, concepts and techniques

and tools of economics to solve the managerial problems of business organizations. Some important **definitions of Managerial Economics** are given below :

"Managerial Economics is economics applied in decision-making. It is a special branch of economics bridging the gap between the economic theory and managerial practice. Its stress is on the use of the tools of economic analysis in clarifying problems in organizing and evaluating information and in comparing alternative courses of action." -W. W. Haynes

"Managerial Economics is the integration of economic theory with business practice for the purpose of facilitating decision-making and forward planning by management."

- Spencer & Siegelman

"The purpose of Managerial Economics is to show how economic analysis can be used in formulating business policies." -Joel Dean

By analyzing the various definitions of managerial economics given above, we come to the conclusion that managerial economics is the study of economic theories, logic, concepts and tools of economic analysis that are used in the process of business decision-making by the business managers in taking rational, correct and timely decisions. Managerial Economics is that part of economic theory which, in general, is concerned with business activities and in particular, concerned with providing solutions to problems arising in decision-making of business organizations. Indeed, it is **an integration of economic theory and business practices**. Therefore, Managerial economics lies on the borderline of Economics and Business Management act as complementarity and bridge between Economics and Management. From this point of view, managerial economics is that branch of knowledge in which the concepts, methods and tools of economic analysis are used for analyzing and solving the practical managerial problems with the purpose of formulating rational and appropriate business policies. **Basically managerial economics concentrates on decision process, decision models and decision variables**. This can be explained by the following **schematic chart**:



1.3 Characteristics of Managerial Economics

Prof. D.M.Mithani has mentioned the following broad salient features of Managerial Economics as a specialized discipline:

- It involves an application of Economic theory especially, micro economic analysis to practical problem solving in real business life. It is essentially applied micro economics.
- It is a science as well as art facilitating better managerial discipline. It explores and enhances economic mindfulness and awareness of business problems and managerial decisions.
- It is concerned with firm's behaviour in optimum allocation of resources. It provides tools to help in identifying the best course among the alternatives and competing activities in any productive sector whether private or public.

For the sake of clear understanding of the nature and subject matter of managerial economics, the point-wise analysis of **main characteristics** of managerial economics is given below:

- Micro economic analysis: The main part of the study of managerial economics is the behaviour of business firm/s, which is micro economic unit. Therefore, managerial economics is essentially a micro economic analysis. Under the study of managerial economics, the problems of firm are analyzed and solved through the application of economic methods and tools. It does not study the whole economy.
- Economics of the firm: According to Norman F. Dufty, Managerial Economics includes, that portion of "Economics known as the theory of firm, a body of the theory which can be of considerable assistance to the businessman in his decision-making". For instance, the study of managerial economics includes the study of the cost and revenue analysis, price and output determination, profit planning, demand analysis and demand forecasting of a firm. As already stated earlier, the another name of managerial economics is 'Economics of the Firm.'
- Acceptance of use & utility of macro economic variables: In understanding the overall economic environment of an economy and its influence on a particular firm, the study and knowledge of macro economic variables or macro economics is a must. For example, the study of Monetary, Fiscal, Industrial, Labor and Employment and EXIM policy, National Income, Inflation etc. is done in managerial economics as to know the influences of these on the business of a firm. The study of macro economic variables helps in understanding the influence of exogenous factors on business activities of a firm. Without the study of important macro economic variables, proper environmental scanning is not possible.
- Normative approach: Managerial Economics is basically concerned with value judgment, which focusses on 'what ought to be'. It is determinative rather than descriptive in its approach as it examines any decision of a firm from the point of view of its good and bad impact on it. It means that a firm takes only those decisions which are favourable to it and avoids those which are unfavourable to it. The emphasis is on 'Prescriptive' models rather than on 'Descriptive' models.
- Emphasis on case study: In place of purely theoretical and academic exercise, managerial economics lays more emphasis on case study method. Hence, it is a practical and useful discipline for a business firm. It diagnises and solves the business problems. Therefore, it serves as lamp post of knowledge and guidance to business professionals / organizations in arriving at optimum solutions.
- Sophisticated and developing discipline: Managerial Economics is more refined and sophisticated discipline as compared to Economics because it uses modern scientific methods of statistics and mathematics. Not only this, the methods of Operational Research and Computers are also used in it for building scientific and practical models for analyzing and solving the real business problems under uncertain and risky environment.

- Applied/Business Economics: Managerial Economics is an application of economics into business practices and decision-making process; therefore, it is an applied economics/business economics. The concepts of economic theory that are widely used in managerial economics are the following:
 - Demand and Elasticity of demand
 - Demand forecasting
 - Production Theory
 - Cost Analysis
 - Revenue Analysis
 - Price determination under different market conditions/structures
 - Pricing methods in actual practice
 - Break-even analysis
 - Linear Programing
 - Game Theory
 - Product and Project Planning
 - Capital Budgeting and Management
 - Criteria for public investment decisions

Basic concepts of Managerial Economics/Economic concepts applied to business analysis

- Marginalism / Marginal Principle
- Incrementalism / Incremental Principle
- Equi-Marginalism/Equi-Marginal Principle
- Discounting Principle
- Opportunity Cost principle
- Risk and uncertainty
- Profits
- Firm, Industry and Market
- Economic and Econometric Models
- **Study of business environment:** Business environment in present world has not only become more complex, but also more dynamic. In a very complex and rapidly changing environment, making correct and timely decisions is a tedious task. Managerial Economics helps in understanding the business environment of firm/s.

1.4 Nature of Managerial Economics

Generally, it is believed that Managerial Economics is a blend of science and art because on one hand, it is a systematic study of economic concepts, principles, methods & tools, which are used in business decision-making process and on the other hand, it is the study of how these are used and applied in best possible manner in analyzing and solving business problems. In fact, science is a knowledge acquiring discipline, whereas arts is a knowledge applying discipline.

The following basic questions arise about the nature of Managerial Economics:

- 1. Whether managerial economics is a science or an art or both; and
- 2. If it is a science- then it is a positive science or a normative science or both

We would examine these issues systematically one by one in the coming paragraphs.

Managerial Economics is **both knowledge acquiring and knowledge applying** discipline. Thus, it can be concluded that managerial economics is **science and arts both**.

The best method of doing a work is an art and managerial economics is also an art as it helps us in choosing the best alternative from among the many available alternatives. Not only this, it also implement best alternative with best possible method.

After knowing the answer of first question, we would examine whether the managerial economics is a positive science or a normative science or a blend of both. Before knowing the answer of this question, we should understand the meaning of positive and normative science.

Positive Science is a systematic knowledge of a particular subject wherein we study the **cause and effect** of an event. In other words, it explains the phenomenon as: **What is, what was and what will be**. Under the study of positive science, principles are formulated and they are tested on the yardstick of truth. Forecasts are made on the basis of them. From this point of view, **managerial economics is also a positive science as it has its own principles/theories/laws by which cause and effect analysis** of business events/activities is done, forecasts are made and their validities are also examined. For instance, on the basis of various methods of forecasting, demand forecasts of a product is made in managerial economics and the element of truth in forecast is also examined/tested.

Normative Science studies things as they ought to be. Ethics, for example, is a normative science. The focus of study is **'What should be'**. In other words, it involves value judgment or good and bad aspects of an event. Therefore, normative science is **perspective** rather than **descriptive**. It cannot not be neutral between ends.

Managerial economics is also a **normative science** as it suggests the best course of an action after comparing pros and cons of various alternatives available to a firm. It also helps in formulating business policies after considering all positives and negatives, all good and bad and all favours and a disfavours. Besides conceptual/theoretical study of business problems, practical useful solutions are also found. For instance, if a firm wants to raise 10% price of its product, it will examine the consequences of it before raising its price. The hike in price will be made only after ascertaining that 10% rise in price will not have any adverse impact on the sale of the firm.

On the basis of the above arguments and facts, it can be said that managerial economics is a **blending of positive science with normative science**. It is positive when it is confined to statements about causes and effects and to functional relationships of economic variables. It is normative when it involves norms and standards, mixing them with cause and effect analysis. Managerial economics is **not only a tool making, but also a tool using science**. It not only studies facts of an economic problem, but also suggests its optimum solution.

Business ethics forms the core of managerial economics as cultural values, social customs and religious sentiments of the people coin the normative aspect of business activities. These things matter in designing production pattern and planning of the business in a country/area. For instance, a modern multi-national corporation has to consider the socio-cultural and religious moods / sentiments of the people before launching its product. The main purpose is not to hurt the sentiments of the people but to promote the well-being of the people along with business. Thus, we can **conclude** by saying:

- Managerial economics is a science as well as an art.
- Managerial economics a positive and normative science both.
- Being of the determinative/perspective nature, the focus is on what should be or business decisions are based an value judgment considering the beneficial and harmful aspects of such decisions.

1.5 Scope of Manegerial Economics

Economics has two major branches namely Microeconomics and Macroeconomics and both are applied to business analysis and decision-making directly or indirectly. Managerial economics comprises all those economic concepts, theories, and tools of analysis which can be used to analyze the business environment and to find solutions to practical business problems. In other words, managerial economics is **applied economics**

The areas of business issues to which economic theories can be applied may be broadly divided into the following two categories:

- •Operational or Internal issues; and
- Environmental or External issues

Micro Economics Applied to Operational Issues

Operational problems are of **internal nature**. They arise within the business organization and fall within the perview and control of the management. Some of the important ones are:

- Choice of business and nature of product, i.e., what to produce;
- Choice of the size of the firm, i.e., how much to produce;
- Choice of technology, i.e., choosing the factor combination;
- Choice of price, i.e. ,how to price the commodity;
- How to promote sales, i.e., sales promotion measures;
- How to face price competition;
- How to decide on new investment;
- How to manage profit and capital;
- How to manage inventory, i.e., stock of both finished goods and raw material

The above mentioned issues fall within the ambit of micro economics, therefore, the following constitute the scope of managerial economics:

Theory of demand

- Consumer behaviour- maximization of satisfaction
- Utility analysis
- Indifference curve analysis
- Demand analysis and elasticity of demand
- Demand forecasting and its techniques/methods

Theory of production and production decisions

- Production function [Inputs and output relationship] in short-run and long-run
- Cost and output relationship in short-run and long-run
- Economies and diseconomies of scale

- Optimum size of firm and determining the size of firm.
- Deployment of resources [labor and capital] for having optimum combination of factors of production.

Analysis of market structure and pricing theory

- Determination of price under different market conditions
- Price discrimination
- Multiple pricing policy
- Advertising in competitive markets
- Different pricing policies and practices

Profit analysis and profit management

- Nature and types of profit
- Profit planning and policies
- Different theories of profit

Theory of capital and investment decisions

- Cost of capital and return on capital-choice of investment projects
- Assessing the efficiency of capital
- Most efficient allocation of capital
- Capital budgeting

Macro Economics Applied to Business Environment

Environmental issues relate to general environment in which business operates. They are related to overall economic, social and political environment of the country. The following are the **main ingredients** of economic environment of a country :

- The type of economic system- capitalist, socialist or mixed economic system.
- General trends in production, employment, income, prices, saving and investment.
- Volume, composition and direction of foreign trade.
- Structure of and trends in the working of financial institutions- Banks, NBFCs, insurance companies an other financial institutions.
- Trends in labour and capital market.
- Economic policies of the government- Fiscal policy, Monetary policy, EXIM- policy, Industrial policy, Price policy etc.
- Social factors- value system, property rights, customs and habits.
- Social organizations- Trade unions, consumer unions and consumer co-operatives and producers unions.
- Political environment is constituted of the following factors:
- Political system-democratic, socialist, communist, authoritarian or any other type.
- State's attitude towards private sector
- Policy, role and working of public sector
- Political stability.
- The degree of openness of the economy and the influence of MNCs on domestic markets- Integrations of nation's economy with rest of the world (Policy of globalization)

The environmental factors have a far reaching influence on the functioning and performance of firm/s. Therefore, business managers have to consider the changing economic, social and political environment before taking any decision. Managerial economics is however, **concerned with only the economic environment and in particular with those which form the business climate.** The study of social and political factors falls out of the perview of managerial economics. It should, however, be borne in mind that economic, social and political factors are inter-dependent and interactive.

The environmental issues mentioned above fall within fourwalls of macro economics, therefore the following constitute the scope of managerial economics:

Issues related to Macro Variables

- General trends in economic activities of the country
- Investment climate
- Trends in output
- Trends in price level (state of inflation)
- Consumption level and its pattern
- Profitability in business expansion

Issues related to Foreign Trade

- Trade relation with other countries
- Sector and firms dealing in exports and imports
- Exchange rate fluctuations
- Inflow and outflow of capital
- Trends in international trade- volume, composition, and direction
- Trends in international prices of various goods and services
- International monetary mechanism
- Rules, regulations and policies of WTO

Issues related to Government Policies

- Regulation and control of economic activities of private sector business enterprises
- Enforcing the government rules and regulations for imposing of social responsibility
- Striking balance between firm's objective of profit maximization and society's interest
- Policy and regulatory measure for reducing social costs in terms of environmental pollution, congestion and slums in cities, basic amenities of life such as means of transportation and communication, water, electricity supply etc.

1.6 Relationship of Managerial Economics with Other Disciplines

By its nature, managerial economics borrows heavily from several other disciplines. The nature and scope of managerial economics can also be understood well by studying its relationship with other disciplines. Managerial economics draws heavily from the following disciplines:

Economics and Econometrics – As stated earlier that managerial economics is an application of economic theory into business practices / management. Managerial economics **uses both micro and macro economics**-their concepts, theories, tools and techniques. In managerial economics, we also use various types of models such **as schematic models** (diagrams) **analog models** (flow charts) and **mathematical models and stochastic models**. The roots of most of these models lie in economic logic. Economics also tells us the art of constructing models. **Empirically estimated functions**, which are being used in managerial economics are basically econometric estimates.

Mathematics and Statistics – Mathematical tools are widely used in model building for exploring the relationship between related economic variables. Most of the decision models are constructed in terms of mathematical symbols. Geometry, trignometry and algebra are different branches of mathematics and they provide various tools & concepts such as logarithms, exponentials, vectors, determinants, matrix algebra, and calculus, differentials and integral.

Similarly, statistical tools are a great aid in business decision-making. Statistical tools such as theory of probability, forecasting techniques, index numbers and regression analysis are used in predicting the future course of economic events and probable outcome of business decisions. Statistical techniques are used in collecting, processing & analyzing business data, and in testing the validity of economic laws.

Operational Research (**OR**) – OR is used for solving the problems of allocation, transportation, inventory building, waiting line etc.. **Linear programming** and **goal programming models** are very useful for managerial decisions. These are widely used OR techniques. In fact, OR is an **inter-disciplinary solution finding technique**. It combines economics, mathematics and statistics to build models for solving specific problems and to find a quantitative solution there by.

Accountancy – It provides business data support for decision-making. The data on costs, revenues, inventories, receivables and profits is provided by the accountancy. Cost accounting, ratio analysis, break-even analysis are the subject matters of accountancy and they are of great help to managers in decision-making.

Psychology and Organisation Behaviour (OB)–In fact, managerial economics analyses the individual behaviour of a buyer and seller [microeconomic units]. Psychology is helpful in understanding the behavioural aspects like attitude and motivation of individual decision making unit. Psychological Economics-a new discipline of recent origin analyses the buyer's behaviour useful for marketing management. **Behavioural models** of firms have also been developed based on organization psychology and micro economics to explain the economic behaviour of a firm.

Management Theory – Management theories bring out the behaviour of the firm in its efforts to achieve some predetermined objectives. With change in environment and circumstances, both the objectives of firm and managerial behaviour change. Therefore sufficient knowledge of management theory is essential to the decision-makers. The basic knowledge of the **principles of personnel, marketing, financial** and **production management** is required for accomplishing the task.

1.7 Summary

It is now universally accepted that the Managerial Economics has emerged as a separate branch of knowledge in management studies. Managerial Economics is the study of economic theory, logic and tools of economic analysis that are used in the process of business decision making. Economic theories and techniques of economic analysis are applied to analyze business problems, evaluate business options and opportunities with a view to arriving at an appropriate business decision. Infact, it is an applied economics. The important features of Managerial Economics are: Micro economic nature, economics of the firm, use of macro economic variables, normative nature, focus on case study method, applied use of economics and more refined and developing discipline.

The scope of managerial economics spreads both to micro and macro economics. The theory of demand, theory of production, analysis of market structure and pricing theory, profit analysis and management, theory of capital and investment decisions are the subject matter of micro economics.

Macro economic issues pertain to macro economic variables, foreign trade and various policies of the government. Operational issues are internal and they are part of micro economics, while environmental issues are exogeneous and they are part of macro economics. Both these together constitute the subject matter and scope of managerial economics.

Managerial economics is a science as well an art. It is basically a normative science involving value judgment. It is a tool making as well as tool using discipline. The most important disciplines on which managerial economics draws heavily are Economics and Econometrics, Mathematics and Statistics, Operational Research, Accountancy, Psychology & Organizational Behaviour and Management.

1.8 Key Words

- **Managerial Economics :** is an applied Economics in the field of business management. It is an application of economic theory and methodology in the business decision-making process. It is an integration of economic theory with business practices.
- **Micro Economics:** It is that branch of Economics in which the study of an individual economic unit is done. For instance, the study of a firm is a subject matter of micro economics. It is also known as the method of slicing.
- Macro Economic: It is that branch of Economics in which the economy as a whole is studied. It is also known as the economics of lumping / aggregation.
- Macro Economic Variables : These are the variables which relate to the entire economy of a nation/globe such as National Income, Inflation, Recession and they constitute the part of overall economic environment.
- **Positive Science:** It pertains to the cause and effect relationship of an event. It is a factual analysis, therefore, it studies 'What is''.
- Normative Science: A science which studies "What ought to be". In other words, it involves value judgement, hence it is perspective in nature.

1.9 Self Assessment Test

- 1. What does economic theory contribute to Managerial Economics?
- 2. What is the contribution of psychology and organization behavior to Managerial Economics?
- 3. How is mathematics & statistics and operational research useful to Managerial Economics?
- 4. List the important characteristics of Managerial Economics.
- 5. Summarize the scope of Managerial Economics as a learner.
- 6. Why should you study the Managerial Economics?

1.10 Suggested Books / References

- 1. Mithani D.M.: Managerial Economics, Himalaya Publishing House, Mumbai
- 2. Dwivedi, D.N.: Managerial Economics, Vikas Publishing House Pvt. Ltd, New Delhi
- 3. Misra & Puri : Economics for Managers, Himalaya Publishing House, Mumbai
- 4. Adhikary M.: Managerial Economics, Khosla Educational Publishers, Delhi
- 5. Mathur N.D., : Managerial Economics, Shivam Book House Private Limited, Jaipur

Unit - 2 Theory of Demand

Unit Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Concepts of Demand
- 2.3 The Law of demand
- 2.4 Demand Schedule and Demand Curve
- 2.5 Determinants of Demand/Demand Function
- 2.6 Types of Demand
- 2.7 Changes in Quantity Demanded Versus Changes in Demand
- 2.8 Summary
- 2.9 Key Words
- 2.10 SelfAssessment Test
- 2.11 Suggested Books / References

2.0 Objectives

After studying this unit, you should be able to:

- Appreciate the significance of demand analysis
- Understand the concepts of demand and types of demand
- Know the factors influencing the demand for a product
- Distinguish between the changes in quantity demanded and changes in demand
- Understand the demand schedule, demand curve and the law of demand.

2.1 Introduction

Without understanding the concept of demand and supply, economic analysis is incomplete and meaningless. Demand is one of the most important economic decision variables. The analysis of demand for a firm's product plays a crucial role in business decision-making. Demand determines the size and pattern of market. All business activities are mostly demand driven. For instance, the inducement to investment and production is limited by the size of the market of products. The profit of a firm is influenced and determined by the demand and supply conditions of its output and inputs. Even if a firm pursues other objectives than the profit maximization, demand concepts are still relevant. For instance, the objective of firm is 'customer service' or discharging 'social responsibility'. Without analyzing the needs of customers and evaluating social preferences, these objectives cannot be achieved. All these variables are an integral part of the concept of demand. Thus, the **demand is the mother of all economic activities**. The firm's production planning, sales and profit targeting, revenue maximization, pricing policies, inventory management, advertisement and marketing strategy all are dependent on the demand of its product. Not only this, the survival and growth of a firm also depends on the demand for its product. In this unit, we shall be examining various concepts of demand and the law of demand.

2.2 Concepts of Demand

Demand is a technical economic concept. It is a different and broader concept than the 'desire' and "want". The following **five elements are inclusive** in it:

- 1. Desire to acquire a product-willingness to have it,
- 2. Ability to pay for it-purchasing power to buy it,
- 3. Willingness to spend on it,
- 4. Given/particular price, and
- 5. Given/particular time period.

The presence of **first three elements constitute the 'want'**. Thus, it is evident that **without reference to specific price and time period, demand has no meaning**. For instance, Ram is desirous of buying a car, but he does not have sufficient money to buy it, it can't be termed demand as he does not have sufficient purchasing power to buy a car. Suppose, Ram is has sufficient money to buy a car, but he does not want to spend on it-even in such a situation, the desire of Ram for a car will remain a desire. What is required for being a demand is sufficient purchasing power and willingness to spend on that product for which he has desire to acquire. Not only this, the demand for a product must be expressed in reference to certain given price and time period, otherwise it won't be a demand. Thus, the **concept of demand has following characteristics**:

- 1. It is effective desire / want,
- 2. It is related with certain price, and
- 3. It is related with specific time period.

According to **Benham**, "The demand for any thing at a given price is that amount of it, which will be bought at a time at that price." The complete definition of demand has been given by **Prof. Meyers** According to him, "The demand for a good is a schedule of the amount that buyers would be willing to purchase at all possible prices at any one instant of time."

Distinct concepts of demand

- 1. Direct and derived demand: Direct demand refers to the demand for goods meant for final consumption. It is the demand for consumer goods such as sugar, milk, tea, food items etc. On the contrary to it, derived demand refers to the demand for those goods which are needed for further production of a particular good. For instance, the demand for cotton for producing cotton textiles is a case of derived demand. Indeed, derived demand is the demand for producer's goods; i.e., the demand for raw materials, intermediate goods and machine tools and equipment. The another example of derived demand is the demand for factors of production. The derived demand for inputs also depends upon the degree of substitutability/complementarities between inputs used in production process. For example, the degree of substitutability between gas and coal for fertilizer production.
- 2. Domestic and industrial demand: The distinction between domestic and industrial demand is very important from the pricing and distribution point of view of a product. For instance, the price of water, electricity, coal etc. is deliberately kept low for domestic use as compared to their price for industrial use.
- 3. Perishable and durable goods demand: Perishable goods are also known as non-durable / single use goods, while durable goods are also known as non- perishable/ repeated use goods. Bread, butter, ice-cream etc are the fine example of perishable goods, while mobiles and bikes are the good examples of durable goods. Both 'consumers' and 'producers' goods may be of perishable and non-perishable nature. Perishable goods are used for meeting immediate demand, while durable goods are meant for current as well as future demand. Durable goods demand is

influenced by the replacement of old products and expansion of stock. Such demand fluctuates with business conditions, speculation and price expectations. **Real wealth effect** has strong influence on demand for consumers durables.

- 4. New and replacement demand: New demand is meant for an addition to stock, while replacement demand is meant for maintaining the old stock of capital/asset intact. The demand for spare parts of a machine is a good example of replacement demand, but the demand for new models of a particular item [say computer or machine] is a fine example of new demand. Generally, new demand is of an autonomous type, while the replacement demand is induced one-induced by the quantity and quality of existing stock. However, such distinction is more of a degree than of kind.
- **5. Final and intermediate demand:** The demand for semi-finished goods and raw materials is derived and induced demand as it is dependent on the demand for final goods. The demand for final goods is a direct demand. This type of distinction is based on types of goods- final or intermediate and is often employed in the context of **input-output models**.
- 6. Short run and long run demand: The distinction between these two types of demand is made with specific reference to time element. Short- run demand is immediate demand based on available taste and technology, products improvement and promotional measures and such other factors. Price-income fluctuations are more relevant in case of short- run demand, while changes in consumption pattern, urbanization and work culture etc. do have significant influence on long –run demand. Generally, long-run demand is for future consumption.
- 7. Autonomous and induced demand: The demand for complementary goods such as bread and butter, pen and ink, tea, sugar milk illustrate the case of induced demand. In case of induced demand, the demand for a product is dependent on the demand/purchase of some main product. For instance, the demand for sugar is induced by the demand for tea. Autonomous demand for a product is totally independent of the use of other product, which is rarely found in the present world of dependence. These days we all consume bundles of commodities. Even then, all direct demands may be loosely called autonomous. The following equation illustrates the determinants of demand.

$$D_x = \acute{a} + \hat{a} P_x$$

Here \dot{a} is a symbol of autonomous part - which captures the influence of all non-price factors on demand, whereas $\hat{a}P_x$ symbolizes the induced part- D_x is induced by P_x , given the size of β .

8. Individual and Market Demand: The demand of an individual for a product over a period of time is called as an individual demand, whereas the sum total of demand for a product by all individuals in a market is known as market/collective demand. This can be illustrated with the help of the following table:

Price of Commodity	Units of X	Commodity	Purchased by	Market (Total)
(Rs.)	А	В	С	
6	5	10	12	27
7	4	8	9	21
8	3	5	7	15

Individual and Market Demand Schedule

The distinction between individual and market demand is very useful for personalized service/target group planning as a part of sales strategy formulation.

- **9. Total market and segmented market demand:** A market for a product may have **different segments based on location, age, sex, income, nationality etc**. The demand for a product in a **particular market segment** is called as segmented market demand. Total market demand is a **sum total of demand in all segments of a market** of that particular product. Segmented market demand takes care of different patterns of buying behaviour and consumer preferences in different segments of the market. Each market segment may differ with respect to delivery prices, net profit margins, element of competition, seasonal pattern and cyclical sensitivity. When these differences are glaring, demand analysis is done segment-wise, and accordingly, different marketing strategies are followed for different segments. For instance, airlines charge different fares from different passengers based on their class-economy class and executive/business class.
- 10. Company and industry demand: A company is a single firm engaged in the production of a particular product, while an industry is the aggregate / group of firms engaged in the production of the same product. Thus, the company's demand is similar to an individual demand, whereas the industry's demand is similar to the total demand. For instance, the demand for iron and steel produced by Bokaro plant is an example of company's demand, but the demand for iron and steel produced by all iron and steel companies including the Bokaro plant is the example of industry demand. The determinants of a company's demand may be different from industry's demand. There may be the inter-company differences with regard to technology, product quality, financial position, market share & leadership and competitiveness. The understanding and knowledge of the relation between company and industry demand is of great significance in understanding the different market structures/forms based on nature and degree of competition. For example, under perfect competition, a firm's demand curve is parallel to ox-axis, while under monopoly and monopolistic competition, it is downward sloping to the right.

2.3 The Law of Demand

The law of demand states **an inverse relationship between the price of a commodity and its quantity demanded**, if other things remaining constant (Ceteris Paribus), i.e., at higher price, less quantity is demanded and at lower price, larger quantity is demanded.

Prof. Paul Samuelson has lucidly defined the law of demand. According to him, "if a greater quantity of a good is thrown on the market then - other things being equal- it can be sold only at a lower price."

Assumptions of the law of demand: The law of demand is based on the following important ceteris paribus assumptions:

- The money income of consumer should remain the same.
- There should be no change in the scale of preference (taste, habit & fashion) of the consumer.
- There should be no change in the price of substitute goods.
- There should be no expectation of price changes of the commodity in near future.
- The commodity under question should not be prestigious or of snob appeal.

Reasons behind downward sloping demand curves

As we know that most of the demand curves slope downward to the right because of an inverse relationship between the price of a commodity and its quantity demanded. But the question is why inverse relationship exists between the price and quantity demanded. Economists have mentioned the following reasons of this relationship:

- 1. Application of the law of diminishing marginal utility: The marginal utility curve slopes downward, hence the demand curve also slopes downward to the right.
- 2. Substitution effect: The commodity under question becomes cheaper with fall in its price in comparison to its substitutes, therefore demand increases.
- **3. Income effect:** With fall in price of the commodity, demand increases due to increase in **real income** as a result of **positive income effect**.
- 4. Falling prices attract new consumers as the commodity now becomes affordable to them.
- 5. With fall in price of the commodity consumers start using it in less important uses, therefore demand increases. Generally, commodities have different / varied uses.

Exception to the law of demand or upward sloping Demand curve

Sometimes, the law of demand may not hold true, although rarely. In such a situation, a consumer may purchase **more at higher price and less at lower price**. In this unusual condition, demand curve will be upward sloping from left to the right as shown below:



few real exceptions to the law or Demanu

- 1. Giffen goods: In case of such goods, the income effect is negative and it is stronger than positive substitution effect. Examples of such goods are coarse grain like jowar, bajra and coarse cloth.
- 2. Articles of Distinction/Snob appeal: They satisfy aristocratic desire to preserve exclusiveness for unique goods- such goods are purchased only by few highly rich people for snob appeal. For instance, very costly diamonds, rare paintings, Rolls-Royce- cars and antique items. These goods are called "veblen goods" after the name of an American economist.
- **3.** Consumers psychological bias or illusion about the quality of commodity with price change. They feel that high priced goods are better quality goods and low price goods are inferior goods.

Prof. Benham has given an example of a **book of photographs** during the first world war. The sale of second edition of the book increased tremendously inspite of rise in its price, though the book contained the same photographs without any change.

4. The law of demand does not apply in case of life saving essential goods and also in times of extraordinary circumstances like inflation, deflation, war and other natural calamities. The law also does not hold true in case of speculative demand. Stock markets are the fine examples of speculative demand

2.4 Demand Schedule and Demand Curve

Demand schedule is a **statistical/tabular statement** showing the different quantities of a commodity which will be bought at its different prices during a specified time period. It is a table which represents functional relationship between price of a commodity and its quantity demanded. Demand schedule can be **for an individual** –known as **Individual Demand Schedule (IDS)** and it can be for the **whole market**-known **as Market Demand Schedule(MDS)**.MDS can be obtained by aggregating the IDS as illustrated earlier in this unit under the heading of individual and market demand.

Demand Curve: By plotting the demand schedule on graph, we can obtain the demand curve. According to **Prof. Samuelson**, "Picturization of demand schedule is called the demand curve". Accordingly, there can be two types of demand curve- **Individual Demand Curve based on IDS** and **Market Demand Curve based on MDS**.

Demand curve may be linear as well as non-linear depending upon the nature of demand function.



2.5 Determinants of Demand / Demand Function

The demand for a particular commodity is influenced by so many factors- they together are known as determinants of demand in technical jargon, it is stated as demand function. A demand function in mathematical terms expresses the **functional relationship between the demand for a product and its various determining factors.** For instance,

$$D_x = f(Px, Ps, Pc, Yd, T, A, W, C, E, P, G, U)$$

Here:

Dx = Demand for x commodity (say, tea)

=	Price of x commodity (of tea)
=	Price of substitute of x commodity (coffee)
=	Price of complementary goods of x commodity (sugar, milk)
=	Disposable income of the consumer
=	Taste and Preference of the consumer
=	Advertisement of x commodity
=	Wealth of purchaser
=	Climate
=	Price expectation of the consumer
=	Population
=	Govt. policies pertaining to taxes and subsidies
=	Other factors (unspecified/unidentified)

Under normal circumstances, the impact of these determinants can be explained as under:

1. Demand for x is inversely related to its own price. As price increases, the demand tends to fall and vice-versa

$$\frac{\delta Dx}{\delta Px} < O$$
This is price- demand relation,
depicting the **price- effect** on demand

Disposable income (budget) of the consumer is one of the important variables to influence the demand. With increase in income, people buy more of superior/normal goods and less of inferior / Giffen goods. The income effect on demand may be positive as well as negative.

 $\frac{\delta Dx}{\delta Yd} > 0 \qquad \mbox{This is an income} - \mbox{demand relation,} \\ \delta Yd < \qquad \mbox{depicting income effect.}$

The **Bandwagon** effect or **Demonstration effect** may influence the demand and it is a result of **relative income.**

3. The demand for x is also influenced by the prices of its related goods (substitutes or complements as the case may be). Substitution effect is always positive and complementarity effect is negative as stated earlier

$$\frac{\delta Dx}{\delta Ps} > O, \qquad \frac{\delta Dx}{\delta Pc} < O \qquad \text{This is cross-demand relation showing the substitution and complementary effect}$$

4. The demand for x may be sensitive to price expectation of the consumer (depends on psychology of the consumer)

 $\frac{\delta Dx}{\delta E} \stackrel{> O}{<} \qquad \qquad \mbox{Price expectation effect on demand is} \\ \mbox{not certain. For instance, Speculative demand.}$

5. Accumulated savings and expected future income, its discounted value along with present income – permanent and transitory - all together constitute the nominal wealth of a person. We may also

add to his current assets and other forms of physical capital adjusted to price level – This is **real** wealth and it has influence on the demand. For example, a person has a two wheeler, now may demand a four wheeler and it can be stated as

$$\frac{\mathrm{Dx}}{\mathbf{\delta}\mathrm{w}} > \mathrm{O}$$

- 6. Taste, preference and habits of consumers may also have decisive influence an the pattern of demand. Social customs, traditions and conventions are **Socio – psychological** determinants of demand – these are **non-economic and non-market factors**.
- 7. Advertisement has great influence on demand. It is in observed fact that sales turnover of firms increases up to a point due to advertisement this is **promotional effect** on demand and can be stated as

$$\frac{\delta Dx}{\delta A} > O$$

- 8. Climate also influences the demand for different goods. For instance, the demand for coolers and A.C. increases in summers, while their demand declines in winters.
- 9. The number and composition (age, sex etc.) of population also influence the demand for goods.
- 10. Government policy on taxes and subsidies also influences the demand of different goods differently. For instance, increase in tax rates / imposition of new taxes reduce the demand, while increase in subsidies increase the demand.

2.6 Types of Demand

Prof. Baber has mentioned the following three types of demand based on three important factors [price of commodity, income of the consumer and prices of related goods] influencing the demand:

1. **Price demand:** This type of demand indicates the '**price effect**', which explains the impact of changes in price of a particular product on its quantity demanded, if other factors influencing the demand remaining constant. The functional relationship between price of a product and its quantity demanded can be put in the following equation form and be illustrated with price demand schedule:

$$D_x = f[P_x]$$

Here: D_x =Demand for x commodity, f= functional relation, and Px = Price of x commodity

Price of X	Demand for X Commodity (Dx)	Particulars
Commodity (Px)	(units)	
(Rs.)		
2	100	Inverse relationship between
3	80	Px and Dx showing negative
4	40	price effect.

Price Demand Schedule



2. Income demand: This type of demand shows the 'income effect', which explains the impact of changes in the income of the consumer on the demand for a particular product, other things remaining constant. The functional relationship between the income of the consumer and the demand for a product can be put as under:

$$D_x = f[y]$$

Here: Dx = Demand for x commodity,

f = Functional relation, and

Y = Income of the consumer.

From income demand point of view, goods can be classified into two categories as explained under:

a) **Superior goods:** In case of such goods **income effect is positive** as demand for them increases with increase in income of the consumer and vice-versa. This is illustrated in the following table:

Income of the consumer(Y)	Demand for x commodity (Dx)	Particulars
(Rs.)	(units)	
1000	10	Positive relationship
2000	20	between Y & Dx showing
3000	30	positive income effect

b) Inferior goods: The demand for such goods declines with increase in the income of the consumer and vice-versa. The income effect is negative in case of such goods. Since this was observed, for the first time, by Robert Giffen, hence to give him honour, inferior goods are termed as Giffen goods. But there is difference between inferior goods and Giffen goods. Only those inferior goods are termed as Giffen goods, on which a consumer spends comparatively a large part of his income. Thus, all Giffen goods are inferior goods, but all inferior goods are not Giffen goods. The example of Giffen goods is coarse grain and coarse cloth and this is illustrated in the following table:

Income of the consumer(Y)	Demand for x Commodity (Dx)	Particulars
(Rs.)	(units)	
1000	10	Inverse relationship
2000	05	between Y & Dx
3000	02	depicting negative income effect



3. Cross demand: The demand for a c^{Dx} dity is also influenced by the changes in price of its related goods (substitutes or complementary goods as the case may be). This is technically termed as 'cross effect' and can be put in the following equation:

 $\mathbf{D}_{\mathbf{x}} = \mathbf{f}(\mathbf{pr})$ or $\mathbf{D}_{\mathbf{x}} = \mathbf{f}(\mathbf{py})$

Here: $D_x = Demand$ for x commodity, f = function, and Pr = Price of related goods, Py = Price of Y commodity- related to x either as substitute or complementary good.

The cross demand of a commodity **depends on the nature of its related goods** – from this point of view, it can be of the following **two types**:

(a) Cross demand for substitutes: Substitute goods / competing goods can easily be used in place of each other for satisfying a particular want. For example, tea and coffee or pepsi and coca-cola or wheat and rice etc. The impact of changes in price of Y commodity (Py) on the demand for X commodity (D_x) is called 'Substitution effect', which is always positive as illustrated in the following table:

Price of coffee (Py)	Demand for tea (Dx)	Particulars
(Rs.)	(cups)	
8	1000	Direct relationship between
9	1200	Py & D _X showing positive
10	1800	Substitution effect
		1

(b) Cross demand for complementary goods: Those goods which are used together for satisfying a particular want are known as complementary goods. For instance, tea, sugar and milk or pen and ink etc. The complementary effect is negative as the price of one good increases, the demand for other good decreases and vice-versa. This is illustrated in the table given below:



- 3. Other types of demand:
- (i) **Derived demand:** As stated earlier, when a commodity is demanded for the production of some other commodity instead of its own direct use, its demand is said to be an indirect demand. For instance, the demand for producer's goods and inputs is a derived demand.
- (ii) Joint demand: Many times, we use two or more goods together for satisfying a particular want, the demand for such goods is called as joint demand. The demand for complementary goods is a fine example.
- (iii)Collective/Composite demand: When a commodity is put to several uses, its total demand in all uses is termed as composite demand. Electricity and water bills are good examples of such a demand.

2.7 Changes in Quantity Demanded Versus Changes in Demand

In economic analysis, 'changes in quantity demanded' and 'changes in demand' **altogether have different meanings**. The changes in quantity demanded relates to the **law of demand** and it has reference to '**extension ' or 'contraction'** of demand, but the changes in demand is related to '**increase' or** '**decrease'** in demand.

Changes in quantity demanded take place only in response to **the own price** of the commodity, while changes in demand take place due to **changes in non-price factors** such as income, taste & preference, price of related goods etc. **'price demand' is an example of changes in quantity demanded and income demand and cross demand represent the case of changes in demand**. **Price is the driving force** in bringing changes in amount demanded, while **non-price factors** are responsible for the changes in demand.

In graphical depiction, changes in quantity demanded are **shown by the movement along the same demand curve**. A downward movement from one point to another on the same demand curve implies extension of demand, i.e., more quantity is demanded at lower price. Contrary to it, upward movement from one point to another on the same demand curve implies contraction of demand, i.e., less quantity is demanded at higher price.

Changes in demand (increase or decrease), is graphically **depicted by shifting of the demand curve**. In case of an increase in demand, the **demand curve is shifted to the right** and in case of decrease in demand, **the demand curve is shifted to the left**.

Increase in demand: Technically, it may be in the following two forms:

- Higher quantity at the same price,
- Same quantity at higher price

Similarly, **decrease in demand** may also be in following two forms:

- Lesser quantity at the same price.
- Same quantity at lower price.

Changes in quantity demanded (extension and contraction of demand)





Changes in Demand

2.8 Summary

Demand is one of the most important economic decision variables. Demand analysis is very crucial for managerial decisions related to market strategy, pricing, advertising, production planning, inventory management, financial evaluation and investment decisions. Demand is effective want related to given price and given time period. The determinants of the demand include both price and non-price factors and

they are responsible for bringing changes in quantity demanded and changes in demand. Changes in demand take place only in response to the price of the commodity under consideration in the form of contraction and extension of demand, but the changes in demand is a result of changes in non-price factors which influence the demand for a product. These changes are either as increase in demand or decrease in demand. Price demand, income demand, cross demand, derived demand are some of the important types of demand which are crucial for understanding the law of demand and elasticity of demand. The law of demand states, if other things are equal, there is an inverse relationship between the price of a commodity and its quantity demanded, i.e., higher the price, lower the demand and vice versa. There are only few real exceptiona to the law of demand such as Giffen goods, Veblen goods and articles of bare necessity. In this unit, we are also exposed to various distinct concepts of demand such as new and replacement demand, short-run and long-run demand, perishable and durable goods demand, individual and market demand, domestic and industrial demand etc..

2.9 Key Words

- **Demand:** It is that quantity of a commodity which will be purchased at a given price and at a given time.
- **Price demand:** It expresses those quantities of a commodity, if other things remaining the same, which will be bought by a consumer at its different prices during a specified period of time.
- **Income demand:** It denotes those quantities of a commodity, if other things remaining the same, which will be purchased by a consumer at different levels of his income during a period of time.
- **Cross demand:** It signifies those quantities of a commodity(X), if other things are equal, which will be bought by a consumer at different prices of its related goods(Y).
- **Derived demand:** It is an indirect demand of a commodity which is demanded for producing some other commodity.
- Joint demand: It is the demand of those goods which are needed together for satisfying a particular want. For instance, demand for complementary goods.
- **Composite demand:** The total demand of a commodity in its several uses is known as mixed demand. For instance the total demand of electricity for a household.
- **Demand schedule:** It is a statistical/functional relationship of the price of a commodity and its quantity demanded, if other things are equal.
- **Demand function:** It expresses functional relationship between the demand for a commodity and factors influencing the demand. They are also known as demand determinants.
- Law of demand: It states an inverse relationship between the price of a commodity and its quantity demanded, if other things are equal, i.e., higher the price, lower the demand and vice-versa.
- **Changes in quantity demanded:** When the quantity purchased of a commodity changes only due to change in its own price, known as changes in quantity demanded. It is either in the form of extension or contraction of demand. Price demand is a good example.

- **Changes in demand:** When quantity bought changes due to changes in other determinants of demand except the price of the commodity under consideration, it is termed as changes in demand. It can be either increase or decrease in demand. Income demand and cross demand are good examples.
- **Price effect:** It is the influence of changes in price of a commodity on its quantity demanded. It is generally negative.
- **Income effect:** It signifies the impact of changes in income of the consumer on the demand for a commodity. It can be positive or negative.
- **Cross effect:** It expresses the impact of changes in price of related goods (Py) on the demand of the parent product.(Dx) It can also be positive or negative.
- **Substitute goods:** Those goods which can easily be used in place of each other for satisfying a particular want. For instance, tea and coffee.
- **Complementary goods:** Those goods which are required together for satisfying a particular want. For instance, tea, sugar& milk or cricket bat and ball.
- **Superior/normal goods:** These are the goods the demand for which increases with increase in income of the consumer and vice-versa.
- **Giffen/inferior goods:** Those goods whose demand declines with increase in income of the consumers. For instance, Coarse grain and clothes.
- Veblen Effect : It refers to the desire of a person (usually very rich) to own exclusive or unique product called veblen good / snob good. It serves as prestige symbol.
- **Bandwagon Effect :** It is also known as demonstration effect : The demand for a product seems to be determined basically not by the utility of it, but mostly on account of consumption of trend setters such as cricket/film stars, models, neighbours etc.
- Ceteris Paribus : It means other things being equal. It is a French word

2.10 Self Assessment Test

- 1. Make a list of factors which may determine the demand for
 - (a) a consumer durable item like car / washing machine
 - (b) an intermediate good like cables
 - (c) a producer good like machinery / equipment

Analyse the common factors.

- 2. Draw the following :
 - (a) Exceptional Demand Curve
 - (b) Income Demand Curve for Superior goods
 - (c) Income Demand Curve for Giffin goods

- (d) Cross demand curve for Substitute goods
- (e) Cross demand curve for complementary goods
- 3. Distinguish between the following :
 - (a) Extension of demand and increase in demand
 - (b) Contraction of demand and decrease in demand
 - (c) Want and demand
 - (d) Substitution effect and income effect
 - (e) Inferior goods and Giffen goods
 - (f) Direct and derived demand
- 4. Construct a typical individual and market demand schedule and draw the demand curve based on them

2.11 Suggested Books / References

- 1. Mithani D.M.: Managerial Economics, Himalaya Publishing House, Mumbai
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- 3. Misra & Puri : Economics for Managers, Himalaya Publishing House, Mumbai
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Unit - 3 Elasticity of Demand and Demand Estimates

Unit-structure

- 3.0 Objectives
- 3.1 Introduction
- 3.2 Concept of Demand
- 3.3 Concept of Elasticity of Demand
- 3.4 Types of Elasticity of Demand
- 3.5 Degree of Price Elasticity of Demand
- 3.6 Income Elasticity of Demand
- 3.7 Cross Elasticity of Demand
- 3.8 Measuring the Price Elasticity of Demand
- 3.9 Factors Influencing Elasticity of Demand
- 3.10 Importance of Elasticity of Demand
- 3.11 Summary
- 3.12 SelfAssessment Test
- 3.13 Suggested Books/References

3.0 Objectives

After studying this unit you should be able to understand:

- The concept of elasticity of Demand
- Types and degree of elasticity and price elasticity of Demand
- Methods of measuring the elasticity of Demand Flux's percentage method, Total outlay method, ARC method and point elasticity of demand method.

3.1 Introduction

Demand and supply play an important role in economics as well as in an economy. Therefore this one is a famous saying that if a parrot is taught demand & supply, demand & supply in the answers of the questions it may prove to be a good economist. This proves that demand & supply play a prominent role in the entire economics. With this background, before we discuss the elasticity of demand, it is better that we should know a brief concept of demand. Law of demand only describes direction of change in demand but elasticity of demand describes degree of change in demand.

3.2 Concept of Demand

Generally demand is that commodity which is demanded by the consumer at a certain price and at a time. In a practical life a person uses so many words instead of demand for example- desire, effective desire, wants, needs etc. but in a practical market, the concept is different. We can explain with the help of following chart-



It is clear from the above discussion that demand is an effective desire at a certain price and at a certain time by consumers in a market.

3.3 Concept of Elasticity of Demand

Background- Law of demand describes the qualitative aspect regarding the inverse relationship between price and demand and elasticity of demand describes the quantitative aspects regarding the inverse relationship between price & demand. We can explain qualitative and quantitative aspects of price & demand with the help of the following chart

Law of Demand	<u>CHART</u> Ela	sticity of Demand
Qualitative aspect	Qu	antitative aspect
means we talk about	me	ans we talk about
Only inverse relationship	hov	w much percentage
between price and demand	cha	inge in price and
	hov cha	w much percentage inge in demand.

Concept of Elasticity of Demand

Other things remaining the same, due to certain percentage change in a price of the commodity if certain percentage changes in demand of that commodity it is known as elasticity of demand. The concept of elasticity of demand is generally associated with the name of Alfred Marshal Though this idea was evolved much earlier by economists like Courrat and Duel different economists have defined the elasticity of demand. Some of the definitions are given below:-

Prof. Alfred Marshal, "The elasticity (or Responsiveness) of demand in a market is large or small according to the amount demanded increases much or little for a given rise in price."

Prof. K.E. Boulding, "The elasticity of demand may be defined as the percentage change in the quantity demand which would result in one percent change in price." Boulding gives the following formula to calculate the elasticity of demand-

Flasticity of Demand	Percentage change in demand
Elasticity of Demand	Percentage change in a price of the commodity

Mrs. John Robinson, "The elasticity of demand at any price or at any output is equal to the proportional change of amount demanded in response to a small change in price divided by the proportional change in price."

Robinson also gives the following formula for calculation of the elasticity of demand.

Elasticity of Demand	Percentage change in demand
	Percentage change in a price of the commodity

3.4 Types of Elasticity of Demand

Before we discuss the types and degree of elasticity of demand it is better if we can express entire structure of types & degree of elasticity of demand with the help of the following chart-



Price Elasticity of Demand (EP)- Other things remaining the same due to certain percentage change in price if certain percentage change in demand of commodity is there, it is known as price elasticity of demand. It is measured as percentage change in quantity demanded divided by the percentage change in price.

$$ED = \frac{Percentage change in Quantity demanded}{Percentage change in price}$$
or
$$\frac{\frac{\% \Delta \Delta}{\% \Delta \Delta}}{\frac{\% Q}{\% \bigtriangleup P}}$$

Or

Where Ep = Price Elasticity P = Price

Q = Quantity

= Change ٨

Degree of Price Elasticity of Demand 3.5

I Perfectly Elastic Demand (Ep=á):

When minor, nothing or as good as zero percentage change in price results in tremendous percentage change in demand, it is known as perfectly elastic demand. We can say in other words that it is a situation in which demand of a commodity continuously changes without any change in price. It can be explained with the help of following example and diagram.

Y

Example:-

0.25 or 0.10 % Change D $e=\alpha$ In price Price р 10 % or 15 % Change in demand 0 - X Demand II Highly Elastic Demand (e>1):

When less percentage change in price of commodity and if as compared to that more percentage

change in demand is there, it is known as highly elastic demand. We can say in other words that it refers to a situation in which percentage change in demand of commodity is higher than percentage change in price of that commodity. We can explain this with the help of the following example and diagram-

Example:-D 5% Change In price **P1** Price p e > 120% Change in demand D 0 X Q1 Q2

III Unitary Elastic Demand (e=1)

When equal percentage or a proportionate change in price of commodity and demand of commodity is there, it is known as unitary elastic demand. It means that percentage change in demand of a commodity is equal to percentage change in price. We can explain this with the help of following example and diagram-

Demand



IV Highly Inelastic Demand (e<1)

When as compared to price less percentage change in demand of that particular commodity is there it is known as highly inelastic demand. It means when percentage change in demand of a commodity is less than percentage change in demand in price. We can explain with the help of following example and diagram-

Example:-

20 % Change In price

5 % Change in demand



V Perfectly Inelastic Demand (e=0)

When extreme percentage change in price of the commodity and if minor, nothing or as good on zero percentage in demand is known as perfectly inelastic demand. We can explain with the help of the following example and diagram-



3.6 Income Elasticity of Demand

Other things remaining the same due to certain percentage change in consumer's income if there is certain percentage change in demand it is known as income elasticity of demand. It means the ratio of percentage change in quantity demanded due to percentage change in income of consumers.

 $EY = rac{Percentage \ change \ in \ Quantity \ demanded}{Percentage \ change \ in \ income}$

$$EY = \frac{\frac{\% \Delta Q}{\% \Delta Y}}{\frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q}}$$

Types/ Degree of Income Elasticity

I Positive Income Elasticity -

Increase in normal/luxury goods, there will be positive relation between income and demand because as income increases demand increase and vice versa. Positive income elasticity may be of three types-EY=1, Ey>1, Ey<1

II Negative Income Elasticity (EY<0)-

Incase of inferior goods, the income elasticity of demand is negative because there will be an inverse relation between income and demand for inferior goods. As income increases demand for inferior goods decreases and vice versa.

III Zero Income Elasticity (EY=0)

In case of necessary goods wehther income increases or decreases the quantity demanded remains the same. So Zero income is found here.

3.7 Cross Elasticity of Demand

Other things remaining the same due to certain percentage change in price of one commodity certain percentage change in demand of another commodity is known as cross elasticity of demand.

 $EC = \frac{Percentage change in Quantity demanded x com mod ity}{Percentage change in price x com mod ity}$

OR

$$\frac{\% \Delta QX}{\% \Delta PY}$$

$$EC = \frac{\Delta QX}{\Delta PY} \times \frac{PY}{QX}$$

Types/ Degree of Cross Elasticity

I Positive Cross Elasticity- In case of substitute goods for example – tea and coffee, there is positive relation so Positive Lie between to "

II Negative Cross Elasticity - Incase of complementary goods like car and petrol, there is inverse relation. So negative cross elasticity is found here Negative lie between -0 to - "

3.8 Measuring the Price Elasticity of Demand

[A] Flux's Percentage Method:- Prof. Flux tries to measure the price elasticity of demand with the help of percentage. According to him e=" and e=0 does not exist in practical life and says that e>1, e=1 & e<1 have a practical approach.

According to Prof. Flux "due to certain percentage change in price of commodity if certain percentage change in demand of that particular commodity is there, it is known as price elasticity of demand." Prof. Flux gives the following formula for the calculation of the price elasticity of demand:-
$$EP = \frac{\% \text{ change in Quantity demanded}}{\% \text{ change in price}}$$

Example

I if
$$\frac{20\% \text{ change in Quantity demand}}{10\% \text{ change in price}}$$
$$= \frac{20}{10} = \frac{2}{1}$$
$$= e > 1 \text{ elasticity of demand}$$
II if
$$\frac{10\% \text{ change in Quantity demand}}{10\% \text{ change in price}}$$
$$= \frac{10}{10} = \frac{1}{1}$$
$$= e = 1 \text{ elasticity of demand}$$
III if
$$\frac{10\% \text{ change in Quantity demand}}{20\% \text{ change in price}}$$
$$= \frac{10}{20} = \frac{1}{1}$$
$$= e < 1 \text{ elasticity of demand}$$

[B] Total Outlay/Total Expenditure Method

Prof. Alfred Marshal tries to measure the price elasticity of demand with the help of total expenditure method and he also says that e= and e=0 does not exist in practical life and e>1, e=1 & e<1 have practical approach. Under this method elasticity will be of three types:-

I E>1 elasticity of demand:- When there is inverse relation between price and total expenditure it means that when price increases total expenditure increases and vice versa, it is known as e>1 elasticity of demand.

II E=1 elasticity of demand:- Even if price increases or decreases but total expenditure is constant, then it is known as e=1 or a unit elasticity of demand.

III E<1 elasticity of demand:- When there is positive or direct relationship between price total expenditure it means as the price increase total expenditure increase & vice versa is known as E<1 elasticity of demand.

We can explain total expenditure method with the help of the following chart and diagram.

Types	Price Change	Total	Relation
	(p)	Expenditure(TE)	
(a) $E = 1$	↑ OR ↓	No Change	No Relation
(b) E < 1	▲	▲	Positive Relation
Inelastic Demand			Between P and
	↓ ↓	↓ ↓	ТЕ
(c) $E > 1$	↑	↑	Negative
Elastic Demand			Relation Between
	↓ ↓	↓ ↓	P and TE

<u>CHART</u> Price change and its effect on Total expenditure



When we measure any two particular points of the demand curve, it is known as ARC elasticity of demand. When there is a major percentage change in price or in a demand then ARC elasticity of demand method is appropriate for the economist.

In reality we may come across demand schedules which have gaps in prices as well as in quantities. ARC signifies a segment or portion of a curve between two points. The formula for measuring the ARC elasticity is :-

 Original quantity- New quantity

 Original quantity+New quantity

 Ec=
 Original price – New Price

 Original Price+ New Price

$$= \frac{Q}{Q+Q_1} \div \frac{P}{P+P_1}$$
$$= \frac{Q}{Q+Q_1} \times \frac{P+P_1}{P}$$
$$= \frac{Q}{Q+Q_1} \times \frac{P+P_1}{P}$$
$$= \frac{Q}{P+P_1} \div \frac{P+P_1}{Q}$$

In Which - Q = Original quantity demanded

- $Q_1 =$ New quantity demanded
- P = Original Price
- $P_1 = New Price$

Let us take a concrete example to explain the arc method. The demand when the price was 3000 units per week and the price was Rs. 2/- per unit. The demand contracted to 2700 units when price was raised to Rs. 2.10 per unit. Calculate elasticity of demand by ARC method. The formula is:-

$$Ec = \frac{Q Q_1}{Q + Q_1} \div \frac{P P_1}{P + P_1}$$
$$= \frac{Q Q_1}{Q + Q_1} \times \frac{P + P_1}{P P_1}$$

Now substituting with the figures given in the question we have

$$Ec = \frac{3000 \ 2700}{3000 + 2700} \times \frac{200 + 210}{200 \ 210}$$
$$= \frac{300}{5700} \times \frac{410}{10}$$
$$= \frac{41}{19} = 2.16 \text{ (MinusS ymbol May be Omitted)}$$

Elasticity of demand is 2.16



[D] Point Elasticity of Demand:-

When there is minor percentage change in price & demand then point elasticity of demand method is useful for the economist. Price elasticity of demand can also be measured with the help of what is known as the "Point Method." According to this method , elasticity of demand on each point of a demand curve shall be different, and can be measured with the help of the following formula:-

Point elasticity of demand = $\frac{\text{Lower Sagment of the demand curve}}{\text{Upper segment of demand curve}}$

Elasticity at different point of a straight line demand curve by different points use the above formula. We can calculate the elasticity of demand and at any point on a straight line demand curve—



It shall be Zero at the point where the demand curve Touches horizontal axis; and it shall be infinity where it Touched vertical axis. It shall be equal to unity at the central Point of the demand curve. It shall be less than unity in the lower segment and more than unity in the upper segment of the curve. It is equal to unity at the middle point of the curve AB less than unity in the lower segment and more than unity in the upper segment.

It is clear from the above diagram that AB is the straight line demand curve. Let us take price P as the middle point of the demand curve AB.

Now, E at point

$$P = \frac{PB}{PA} = 1$$
 To illustrate the same point

(For
$$PB = PA$$
)

Let us assume AB to represent 6 cm. then the middle point of AB, PB will be equal to 3 cm and PA will be equal to 3 cm.

E at point P =
$$\frac{PB}{PA} = \frac{3 \text{ cm}}{3 \text{ cm}} = 1$$

Let us take a price p1 at the point higher than the middle point of the demand curve AB.

E at point
$$P_1 = \frac{P_1B}{P_1A}$$
 More than 1 (P1B>P1A)

Using the numerical example of AB being equal to 6cm; then

E at point
$$P_1 = \frac{P_1B}{P_1A} = \frac{4 \text{ cm}}{2 \text{ cm}} = 2 \text{ more than } 1$$

At a price lower than the middle point of the demand curve (P2) elasticity will be less unity as far instance.

E at point P₂ =
$$\frac{P_2B}{P_1B}$$
 = Less than 1 (P2B

If P2 B is 2 c, and P2A is 4cm; than

E at point P₂ =
$$\frac{P_2B}{P_2A} = \frac{2 \text{ cm}}{4 \text{ cm}}$$
 0.5 Less than 1.

3.9 Factors Influencing Elasticity of Demand

Demand is a function of price, income, taste, hobby, nature of consumer population, govt. policy etc. Elasticity of demand tends to be different for different types of goods it will differ from market to market with this background we can explain the factors influencing elasticity of demand.

1. Nature of commodity - These who have no substitute goods will have an inelasticity of demand. The consumers will buy almost a fixed demand whether the price is higher or lower. Demand for luxuries, on the other hand, is elastic in nature.

- 2. Different uses of the commodity- A commodity that has several kinds of uses is apt to be elastic in demand. For each single use demand may be inelastic so that when price of the commodity goes down only a little more is purchased for every use.
- **3.** Availability of substitute goods- When there exists a class substitute in the relevant price range, its demand will tend to be elastic. But in respect of commodities having no substitutes, their demand will be the same inelastic.
- **4. Consumer's income -** Generally larger the income, the overall demand for commodities tends to be relatively inelastic. The redistribution of income in favour of low income people may tend to make demand for some goods relatively inelastic.
- **5. Proportion of expenditure-** Items that constitute a smaller amount of expenditure in a consumer's family budget tend to have a relatively inelastic demand, e.g., a cinegoer who sees a film every fort night is not likely to give it up when the ticket rates are raised. But one who sees a film every alternate day perhaps may cut down his number of films. So is the case with matches, sugar etc.
- 6. Durability of the commodity- In the case of durable goods, the demand generally tends to be inelastic in the short run, e.g., furniture. bicycle radio, etc. In the perishable commodities, on the other hand, demand is relatively elastic, e.g., milk, vegetables, etc.
- 7. Influence of habit and customs- There are certain articles which have a demand on account of conventions, customs or habit and in these cases, elasticity is less, e.g., Mangal Sutra to a Hindu bride or cigarettes to a smoker have inelasticity of demand.
- 8. Complementary goods- Goods which are jointly demanded have less elasticity, e.g., ink, petrol have inelastic demand for this reason.
- **9. Recurrence of demand-** If the demand for a commodity is of a recurring nature, its price elasticity is higher than that of a commodity which is purchased only once. For instance, bicycle, tape recorders, radios, etc. are purchased only once, hence their price elasticity will be less. But the demand for cassettes or tape spools would be more price elastic.
- **10. Possibility of postponement-** When the demand for a product is postponable, it will tend to be price elastic. In the case of consumption goods which are urgently and immediately required, their demand will be inelastic.

3.10 Importance of Elasticity of Demand

The concept of elasticity of demand is of considerable significance in various situations, which we shall briefly summaries below:

- 1. Helpful to a monopolist in fixing price- The individual producer under imperfect competition has to consider the demand for his product when he fixes its price. He has to take into account the response of his customers in formulating his price policy. Like wise the monopolist has to study the elasticity of demand of his product before he fixes its price.
- 2. Helpful to the Government in formulating Taxation Policies- The concept of elasticity of demand also proves helpful to the Government in the formulation of its economic and taxation policies, The finance minister has to consider the nature of the elasticity of demand for a commodity before levying an excise tax on it.
- **3.** Helpful in Determination of rewards for factors of Production- The concept of elasticity of demand also influences the determination of the rewards for factors of production in a private enterprise economy. If the demand for labour on a particular industry is relatively inelastic, it will be easier for the trade union to get their wages raised. The same remarks apply to other factors of production whose demands are relatively inelastic.

- **4. Helpful in determination of terms of trade-** It is possible to calculate the terms of trade between two countries only by taking into account the mutual elasticities of demand for each others products. The term "Terms of Trade" implies the rate at which one unit of a domestic commodity will exchange for units of commodity of a foreign country.
- 5. Helpful in determining the Rate of Exchange- The concept of elasticity of demand also helps the government in fixing an appropriate foreign rate of exchange for its domestic currency in relation to the currencies of other countries. Before deciding to devalue or revalue domestic currency in relation to foreign currencies the government has to study carefully the elasticites of demand for its imports and exports.
- 6. Helpful in declaring certain industries as 'Public Utilities'- The concept of elasticity of demand also enables the government to decide as to what particular industries should be declared as public utilities and being consequently owned and operated by state.

3.11 Summary

Demand & law of demand is related with the Qualitative aspect regarding the inverse relationship between price & demand and elasticity of demand is related with the Quantitative aspect regarding the inverse relationship between price and demand. Elasticity of demand means due to certain percentage change in price if certain percentages change in Quantity demand by consumers.

Price elasticity of demand is a measure of the extent to which quantity demanded of a good responds to a change in its price. When the numerical measure is less then one, we say that the demand is inelastic. When it is e>1, we say demand is elastic and when it is e=1 we say demand is unitary Two special cases are when elasticity equals zero (e=0) or infinity (e="). When elasticity is (e=0), the quantity demanded does not change at all as price changes, and when elasticity e=", a very small reduction in price increases the quantity demanded from zero to an infinity large number.

Price elasticity can be measured at a point or between two points Here we use the concepts of point elasticity and ARC elasticity respectively. The main determinants of elasticity are the availability of substitutes for the commodity, numbers of uses of the commodity, nature of commodity etc.

3.12 Self Assessment Test

- 1. What do you mean by elasticity of demand? Explain various types of demand elasticity with illustrations.
- 2. What are the various factors affecting price elasticity of demand?
- 3. Discuss the various methods of measuring the elasticity of demand.
- 4. Write a short note on the following points :-A. Total Expenditure MethodB. ARC elasticity of demand Method.
- 5. Discuss the degree of price elasticity of demand with the help of example and diagram.

3.13 Suggested Books/References

- 1. Dwivedi, D.N.: Managerial Economics, Himalaya Publishing House, Mumbai.
- 2. Mate, Paul & Gupta : Managerial Economics-concept & cases tala Mc Grow Hill publication company limited, Mumbai

Unit - 4 Demand Forecasting

Unit Structure

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Concept of Demand Forecasting
- 4.3 Features of Demand Forecasting
- 4.4 Importance of Demand Forecasting
- 4.5 Scope of Demand Forecasting
- 4.6 Methods of Demand Forecasting
- 4.7 Demand Forecasting Process
- 4.8 Summary
- 4.9 Self Assessment Test
- 4.10 Suggested Books/References

4.0 Objectives

Under dynamic business conditions demand forecasting is very difficult. It is also difficult in case of new products about which no information is available about consumer's preferences. In this chapter, we shall discuss the purpose of demand forecasting, scope, steps and methods of demand forecasting.

4.1 Introduction

Generally, there is uncertainity in over every decision-making process. The producer of some goods or any other decision-making authority or the government must keep in view the existing level of demand for the product in question and estimate the prevalent gap between demand and supply. The decision maker, whether a firm or a state planning agency, must not only estimate the present level of demand but also forecast the demand for a future date.

Degree of risk depends upon the nature of business. All the risks can not be completely eradicated but by proper planning these risks can be minimized. Demand forecasting is also one of the techniques to minimize the risk and uncertainity.

4.2 Concept of Demand Forecasting

Forecasting of demand is the art of predicting demand for a product or a service at some future date on the basis of certain present and past behaviour patterns of some related events. Please remember that forecasting is no simple guessing but it refers to estimating scientifically and objectively on the basis of certain facts and events relevant to the art of forecasting.

Cundif and Still:- "According to Cundif and Still sales forecasting is an estimate of sales during a specified future period on which estimates is tied to a proposed marketing plan which assumes a particular set of uncontrollable and competitive forces."

According to Philip Kotler:- "The Company sales forecast is the expected level of company sales based on a chosen marketing plan and assumed marketing environment."

4.3 Features of Demand Forecasting

From the above discussions the following features of demand forecasting emerge:

- 1. Demand forecasting is based on past data and present positions.
- 2. Demand forecasting may be monetary or physical.
- 3. Demand forecasting gives basis to future planning.
- 4. Demand forecasting is made for a certain period.
- 5. Future sales and profit estimate can be made by demand forecasting.

4.4 Importance of Demand Forecasting

Demand forecasting is important for every producer. He has to know the present level of demand as also the increase that is expected to take place in the demand for his product over time. Demand forecasts are generally useful for the following categories of decision makers:-

- 1. Importance for the producers.
- 2. Importance for policy makers and planners.
- 3. Importance for estimating financial requirements.
- 4. Utility for determination of sales target & incentive.
- 5. Importance for regular supply of labour and raw material is made possible by demand forecasting.
- 6. Production planning is possible with the help of demand forecasting.
- 7. Use for other groups of the society researchers, social workers and other who have a futuristic approach.

4.5 Scope of Demand Forecasting

Demand forecasting can be at the international level depending upon the area of operation of given economic institution. It can also be confined to a given product or service supplied by a small firmin local area. The scope of work will depend upon the area of operation in the present and proposed in future much would depend upon the cost and time involved in relation to the benefit of the information acquired through the study of demand. The factors determining the scope of demand forecasting are as follows:-

- 1. Period conversed under demand forecasting.
- 2. Levels of demand forecasting.
- 3. Purpose of demand forecasting.
- 4. Nature of product.
- 5. Miscellaneous factors- socio-psychological factors, degree of competition impact of risk and uncertainity.

4.6 Methods of Demand Forecasting

Demand forecasting is a very absorbing and difficult exercise. Consumer's behaviour is the most unpredictable thing in the world because it is motivated and influenced by multiplicity. Moreover; economist and statisticians over the years have developed several methods of demand forecasting. Each of these methods has its relative merits and demerits. Selection of the right method is essential to make demand forecasting accurate and credible. The methods of demand forecasting can be summarized in the form of a chart as follows:-



[A] Qualitative Method:-

Expert Opinion Method:- Under this method the researcher identifies the experts on the commodity whose demand forecast is being attempted and probes with them on the likely demand for the product in the forecast period. The word 'Expert' is a high powered term but it should be taken to stand for those who possess the requisite expertise on the subject.

A specialised form of panel opinion is the Delphi method, Instead of going in for direct identification. This method seeks the opinion of a group of experts through mail about the expected level of demand. The responses so received are analysed by an independent body. The method thus takes care of the disadvantage of panel consensus where some powerful individual could have influenced the consensus.

Survey Method:- According to this method a few consumers are selected and their views on the probable demand are collected. The sample is considered to be a true representation of the entire population. The demand of the sample so ascertained is then magnified to generate the total demand of all the consumers for that commodity in the forecast period. The selection of an opinion sample size is crucial to this method, while a small sample would be easily managed and less costly.

Enumeration Survy Method:- Under this technique either consumers are divided in several groups on the basis of income, caste, sex, education or any other variable or they may be divided according to geographical regions. Through appropriately selected sample design, sample units are selected and data are collected either through direct interview or by mailing questionnaires or filling up schedules. The results of sample survey may be reliable provided the sample is representative of the population.

Sample Survey Method:- Under this method only a few consumers are selected and their views on the probable demand are collected. The sample is considered to by a true representation of the entire population. The demand of the sample so ascertained is then magnified to generate the total demand of all consumers for that commodity in the forecast period.

End Use Survey Method:- Under this method commodity that is used for the production of some other finally consumable goods is also known as an intermediary good. While the demand for goods used for final consumption can be forecasted using any other method the end use method focuses on forecasting the demand for intermediary goods. Such goods can also be exported or imported besides being used for domestic production of other goods. For example milk is a commodity which can be used as an intermediary good for the production of ICE Cream, paneer and other dairy products. We can analyze end use method with the help of following formula:-

Dm=Dmc+Dme-Im+X1 .OI+ XP. OP+- - - + XN+ON

where -

Dme=Export Demand for Milk

Im = Import of Milk

XI = Per Unit Milk Requirement- of the ICE- Cream Industry

OI = Output of ICE Cream Industry

Xp and Op Notations are similar to XI and OI for paneer

The equation above can be generalized to calculate the projected demand for any commodity.

[B] <u>Quantitative Methods:-</u>

These method is based on historical Quantitative data. A statistical concept is applied to this existing data about the demand for a commodity over the past year in order to generate the predicted demand in the forecast period. Due to this reason these Quantitative methods are also known as statistical methods. Following are the Quantitative methods:-

Trend Projection Method: A firm which has been in existence for some time will have accumulated considerable data on sales pertaining to different time periods. Such data when arranged chronologically yield time series. Time series relating to sales represent the past pattern of effective demand for a particular product.

Such data can be used to project the trend of the time series. This can be done either through graph or through least square method. Following equation is used under Trend Projection Method:-

I Y = a + bx

II Y = Na+B "X

III "XY = a" X+b "X2

We can explain with the help of following example-

Years	Sales (In Rs. Lacs)
2004	120
2005	140
2006	150
2007	140
2008	170

Q. Findout the estimated sales for neat five year i.e. 2009 to 2013.

Solution

Years	Sales	Deviation	x2	ХҮ
(N)	(Y)	(X)		
2004	120	-2	4	-240
2005	140	-1	1	-140
2006	150	0	0	0
2007	140	+1	1	140
2008	170	+2	4	340
				I
N=5	? Y =720	? X=0	? x2= 10	? $XY = 100$

Calculation of a ,we have equation (II)

 \Box Y=NA+b"X

720= 5a+0

... a = 720/5 = 144For finding b, we use equation =(III) "XY=a"X+b"X2 100= 0+ B10 100/0=b ... b=10 By keeping the value of a & b in equation (I) Y = a+bx (a=144, b=10) Y= 144+10X (IV)

On the basis of this equation (IV) we can find trend for next five years as follows:-

Years	Deviation	Sales	Y=144+10X
	(X)	(In Rs. Lacs)	
2004	-2	-	
2005	-1	-	
2006	0	-	
2007	+1	-	
2008	+2	-(Already Given)	
2009	+3	Y(144+10(3)=174	
2010	+4	184	
2011	+5	194	
2012	+6	204	
2013	+7	214	

Regression Method:- Under this method relationship is established between Quantity demanded and one or more independent variables such as income, price of the related goods, price of the commodity under consideration, advertisement cost etc. In regression a Quantitative relationship is established between demand which is a dependent variable and the independent variable i.e., determinants of demand.

Let us suppose that we have two variables Y and X where Y is dependent on X. it can be expressed in the form of an equation as follows:-

Y=a+bx

We can explain the regression method with the help of following example-

Year	2005	2006	2007	2008	2009
I Income Index	100	110	140	150	200
II Sales of TV (000)	110	130	150	160	180

We are required to estimate sales of T.V. if the Index of income rises to 240. The regression equations will be calculated as follows:

Year	Income Index(X)	Sales of TY(Y	X 1	Y 1	X 12	X 1 Y 1
2005	100	110	10	11	100	110
2006	110	130	11	13	121	143
2007	140	150	14	15	196	210
2008	150	160	15	16	225	240
2009	200	180	20	18	400	360
		? X	$X_{1} = ? Y_{1}$? X	K12 ?	X 1 Y 1=
		70	73	104	12 1	063

In order to estimate the regression line we should first find the values of the constants a and b

$$b = \frac{n\Sigma X_{1} Y_{1}}{n\Sigma X_{1}^{2} (\Sigma X_{1}\Sigma Y_{1})}$$
$$= \frac{5x1063 (70x73)}{5x1042 (70)^{2}} = 0.66$$
$$a = \frac{\Sigma Y_{1} b \Sigma X_{1}}{n}$$
$$\frac{73 70(.66)}{5} = 5.36$$

Hence the regression equation is

 $\begin{array}{l} Y=a+bx\\ Or\\ Y=5.36+0.66\ x\\ \mbox{If the Index of Income rises to 240 sales of TV will be estimated as follows:-}\\ Y=53.6+0.66x240\\ =53.6+158.4 \end{array}$

= 212 Thousand.

Simultaneous Equations Method- This method, also called the complete system approach to forecasting, is the most sophisticated econometric method of forecasting. Since it involves complicated mathematical and statistical tools, its detail discussion is beyond the scope of this text. Thus the simultaneous equations method overcomes the major problem of the regression method, viz., forecasts for the independent variable.

Graphical Method- Under this method trend is estimated with the help of a graph. Time & Quantity demanded are taken on both the axis and demand forecasting is made for future. This method is completely subjective, as in this method graph is drawn and on the basis of this graph demand forecasting is made Expansion of this graph is completely imaginary & subjective so it can be different for different persons.

According to graphical method, the past data will be plotted on a graph and the indentified trend/ behaviour will be extended further in the same pattern to ascertain the demand in the forecast period. The following diagram shows the past data in bold lines and the forecasted data in dotted lines.



4.7 Demand Forecasting Process

Process for demand forecasting depends on the scope of demand forecasting. We may follow the following sequence in projecting the demand for a product:

- **1. Specifying the objectives-** The person or agency assigned the task of forecasting the demand must specify the purpose for which demand forecasts are being made.
- **2. Selection of Appropriate Method**-Once the purpose of demand forecasting has been specified, we must select the methods which will be used for the purpose.
- **3.** Collection of Appropriate Data-The quality and adequacy of data will determine the quality of our results and their reliability. As far as possible, data must be collected by experienced persons.
- **4. Estimation and Interpretation of results-** Having collected the relevant data we have to compile them and obtain results manually or with the help of computers. These results must be interpreted and their correspondence with the objective examined.
- **5. Evaluation of the Forecasts** If the method or model used in demand forecasting has objectivity; we may expect to receive good results. Yet the result so obtained must be verified by persons having professional acumen and expertise.

4.8 Summary

Demand forecasting is the art of predicting demand for a product or service at some future date on the basis of certain present and past behavior pattern of some related events. The scope of demand forecasting is determined by nature of the product, time period covered and levels of forecasting

The various methods of demand forecasting are opinion survey, trend analysis, regression analysis etc. The choice depends upon number of factors like nature of the product, cost and time requirements nature of the study etc.

4.9 Self Assessment Test

- 1. What is demand forecasting? Explain its scope and importance.
- 2. What are the various methods of demand forecasting?
- 3. Why is forecasting important to business decisions? Discuss the Qualitative and Quantitative methods of demand forecasting.
- 4. Explain the various types of methods of demand forecasting.
- 5. Write short notes on: (A) Trend Method

(B) Regression Method

(C) Graphic Method

4.10 Suggested Books /References

- 1. Mathur N.D., Managerial Economics, Shivam book House (P.) Limited, Jaipur
- 2. Mithani, D.M. : Managerial Economics, Himalaya Publishing House, Mumbai

Unit - 5 Production Function

Unit Structure

- 5.0 Objectives
- 5.1 Introduction
- 5.2 Objective of Production Function
- 5.3 The Production Function
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- 5.5 Short Run Production Function
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5.0 Objectives

After studying this unit, you should be able to understand:

- The concept of production function
- The objective, assumption and nature of production function
- Short run production function
- Long run production Function
- The law of variable proportions
- Returns to scale

5.1 Introduction

Production in economic terms is generally understood as the transformation of inputs into outputs. The inputs are what the firm buys, namely productive resources, and outputs are what it sells. Production is not the creation of matter but it is the creation of value. Production is also defined as producing goods which satisfy some human want. Production is a sequence of technical processes requiring either directly or indirectly the mental and physical skill of craftsman and consists of changing requiring either directly or indirectly the mental and physical skill of craftsman and consists of changing the shape, size and properties of materials and ultimately converting them into more useful articles. Means of production refer to the concept which combines the means of labor and the subject of labor. Means of labor simply means all the things which require labor to transform it. Subject of labor means the material to work on. Production, therefore, is the combined resources and equipment needed to come up with goods or services.

Fixed and variable input: An input is the production of goods and services that does not change in the short run. A fixed input should be compared with a variable input, an input that changes in the short run. Fixed and variable inputs are most important for the analysis of short-run production by a firm. The best example of a fixed input is the factory, building, equipment, or other capital used in production. The comparable example of a variable input would then be the labor or workers who work in the factory or

operate the equipment. In the short run (such as a day or so) a firm can vary the quantity of labor, but the quantity of capital is fixed.

Short run: A production period of time in which at all inputs in the production process are fixed, meaning the quantity of output itself is fixed. Also termed market period, the short run exists if the period is so short that no additional production is possible. In other words, the good have been produced all that remains is to sell them.

Long run: A production time period in which all inputs are variable, including those under control of the firm and those beyond the control of the firm. During the very long run, not only are the labor, capital, land, and entrepreneurship inputs variable, but so too are key production inputs such as government rules, technology, and social customs.

In other words we can say that production in economics is all those activities that have to do with the creation of commodities, by imparting to raw materials utility, added value, or the ability to satisfy human wants.

5.2 Objective of Production Function

The objective of production function is as under:-

- The primary purpose of the production function is to address allocative efficiency in the use of factor inputs in production and the resulting distribution of income to those factors.
- Production function is a function that specifies the output of a firm for all combinations of inputs.
- The relationship of output to inputs is non-monetary; that is, a production function relates physical inputs to physical outputs, and prices and costs are reflected in the function.
- Influences economic decision-making.

5.3 The Production Function

The production function expresses a functional relationship between quantities of inputs and outputs. It shows how and to what extent output changes with variations in inputs during a specified period of time. In the words of Stigler, "The production function is the name given to the relationship between rates of input of productive services and the rate of output of product. It is the economist's summary oftechnical knowledge." Basically, the production function is a technological or engineering concept which can be expressed in the form of a table, graph and equation showing the amount of output obtained from various combinations of inputs used in production, given the state of technology. Algebraically, it may be expressed in the form of an equation as

$$Q = f(L, M, N, K, T)$$

Where Q stands for the output of a good per unit of time, L for labour, M for management (or organization), N for land (or natural resources), K for capital and T for given technology, and f refers to the functional relationship.

The production function with many inputs cannot be depicted on a diagram. Moreover, given the specific values of the various inputs, it becomes difficult to solve such a production function mathematically. Economists, therefore, use a two input production function. If we take two inputs, labour and capital, the production function assumes the form

Q = f(L, K)

The production function as determined by technical conditions of production is of two types: it may be rigid or flexible. The former relates to the short run and the latter to the long run.

The Nature of Production Function

The production function depends upon the following factors:

- a) The quantities of inputs to be used.
- b) The state of technical knowledge.
- c) The possible processes of production.
- d) The size of the firm.
- e) The prices of inputs.

Now if these factors change the production function automatically changes.

Attributes of Production Function

The following are the important attributes of production function:

- i. The production function is a flow concept.
- ii. A production function is a technical relationship between inputs and outputs expressed in physical terms.
- iii. The production function of a firm depends on the state of technology and inputs.
- iv. From the economic point of view, a rational firm is interested not in all the numerous possible levels of output but only in that combination which yields maximum outputs.
- v. The short run production function pertains to the given scale of production. The long run production function pertains to the changing scale of production.

5.4 Production Function as Graph

Any of these equations can be plotted on a graph. A typical (quadratic) production function is shown in the following diagram under the assumption of a single variable input (or fixed ratios of inputs so the can be treated as a single variable). All points above the production function are unobtainable with current technology, all points below are technically feasible, and all points on the function show the maximum quantity of output obtainable at the specified level of usage of the input. From the origin, through points A, B, and C, the production function is rising, indicating that as additional units of inputs are used, the quantity of outputs also increases. Beyond point C, the employment of additional units of inputs produces no additional outputs (in fact, total output starts to decline); the variable input is being used too intensively. With too much variable input use relative to the available fixed inputs, the company is experiencing negative returns to variable inputs, and diminishing total returns. In the diagram this is illustrated by the negative marginal physical product curve (MPP) beyond point Z, and the declining production function beyond point C.



From the origin to point A, the firm is experiencing increasing returns to variable inputs. As additional inputs are employed, output increases at an increasing rate. Both marginal physical product (MPP, the derivative of the production function) and average physical product (APP, the ratio of output to the variable input) are rising. The inflection point A defines the point beyond which there are diminishing marginal returns, as can be seen from the declining MPP curve beyond point X. From point A to point C, the firm is experiencing positive but decreasing marginal returns to the variable input. As additional units of the input are employed, output increases but at a decreasing rate. Point B is the point beyond which there are diminishing average returns, as shown by the declining slope of the average physical product curve (APP) beyond point Y. Point B is just tangent to the steepest ray from the origin hence the average physical product is at a maximum. Beyond point B, mathematical necessity requires that the marginal curve must be below the average curve

5.5 Short Run Production Function

In the short run, the technical conditions of production are rigid so that the various inputs used to produce a given outputs are in fixed proportions. However, in the short run, it is possible to increase the quantities of one input while keeping the quantities of other inputs constant in order to have more output. This aspect of the production function is known as the Law of Variable Proportions. The short run production function in the case of two inputs, labour and capital with capital as fixed and labour as the variable input can be expressed as

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

Where K refers to the fixed input.



This production function is depicted in Figure 1 where the slope of the curve shows the marginal production of labor. A movements along the production function shows the increase in outputs as labour increases, given the amount of capital employed \tilde{K}_1 , If the amount of capital increases to \tilde{K}_2 , at a point of time, the production function $Q = f(L, \tilde{K}_1)$ shifts upwards to $Q = f(L, \tilde{K}_2)$, as shown in the figure.

On the other hand, if labour is taken as a fixed input and capital as the variable input, the production function takes the form

Q = f(KL)

This production function is depicted in Figure 2 where the slope of the curve represents the marginal product of capital.



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A movement along the production function shows the increase in output as capital increases, given the quantity of labour employed, L_1 . If the quantity of labour increases to L_2 , at a point of time, the production function $Q = f(K, \tilde{L}_1)$ shifts upwards to $Q = f(K, \tilde{L}_2)$

5.6 Long Run Production Function

In the long run all inputs are variable. Production can be increased by changing one or more of the inputs. The firm can changes its plants or scale of production. Equations (1) and (2) represent the long-run production function. Given the level of technology, a combination of the quantities of labour and capital produces a specified level of output. The long run production function is depicted in Figure 3 where the combination of OK of capital and OL of labour produced 100Q. With the increase in inputs of capital and labour to and , the output increases to 200Q. The long run production function is shown in terms of an isoquant such as 100 Q.



In the long run, it is possible for a firm to change all to change all inputs up or down in accordance with its scale. This is known as returns to scale. The returns to scale are constant when output increases in the same proportion as the increase in the quantities of inputs. The returns to scale are increasing when the increased in output is more than proportional to the increase in inputs. They are decreasing if the increase in output is less than proportional to the increase in inputs.

Let us illustrate the case of constant returns to scale with the help of our production function.

$$Q = (L, M, N, KT_{2})$$

Given , if the quantities of all inputs L,M,N,K are increased n-fold the output Q also increases n-fold. Then the production function becomes

$$nQ = f(nL, nM, nN, nK)$$

This is known as linear an homogeneous production function, or a homogeneous function of the first degree. If the homogeneous function is of the kth degree, the production function is

$$n^k Q = f(nL, nM, nN, nK)$$

If k is equal to 1, it is a case of constant returns to scale; if it is greater than 1, it is a case of increasing returns of scale; and if it is less than 1, it is a case of decreasing returns to scale.

Thus a production function is of two types: (i) Liear homogeneous of the first degree in which the output would change in exactly the same proportion as the change in inputs. Doubling the inputs would exactly double the output, and vice versa. Such a production function expresses constant returns to scale. (ii) Non homogeneous production functions of a degree greater or less than one. The former relates to increasing returns to scale and the latter to decreasing returns to scale.

5.7 The Law of Variable Proportions

I If one input is variable and all other inputs are fixed the firm's production function exhibits the law of variable proportions. If the number of units of a variable factor is increased, keeping other factors constant, how output changes is the concern of this law. Suppose land, plant and equipment are the fixed factors, and labour the variable factor. When the number of laborers in increase successively to have larger output, the proportion between fixed and variable factors is altered and the law of variable proportions sets in. The law states that as the quantity of a variable input is increased by equal doses keeping the quantities of other inputs constant, total product will increase, but after a point at a diminishing rate. This principle can also be defined thus: When more and more units of the variable factor are used, holding the quantities of fixed factors constant, a point is reached beyond which the marginal product, then the average and finally the total product will diminish. The law of variable proportions (or the law of non proportional returns) is also known as the law of diminishing returns. But as we shall see below, the law of diminishing returns is only one phase of the more comprehensive law of variable proportions.

Its Assumptions

The law of diminishing returns is based on the following assumptions:

- 1) Only one factor is variable while others are held constant.
- 2) All units of the variable factor are homogeneous.
- 3) There is no change in technology.
- 4) It is possible to vary the proportions in which different inputs are combined.
- 5) It assumes a short run situation, for in the long run all factors are variable.

The product is measured in physical units, i.e. in quintals, tones etc. The use of money in measuring the product may show increasing rather than decreasing returns if the prices of the product rise, even though the output might have declined

Its Explanation

Given these assumptions, let us illustrate the law with the help of Table 1, where on the fixed input land of 5 acres, units of the variable input labour are employed and the resultant output is obtained. The production function is revealed in the first two columns. The average product and marginal product columns are derived from the total product column. The average product per worker is obtained by dividing column (2) by a corresponding unit in column (1). The marginal product is the addition to total product by employing an extra worker. 3 workers produce 36 units and 4 produce 48 units. Thus the marginal product is 12 i.e. (48-36) units.

(1)	(2)	(3)	(4)
No. of	Total	Average	Marginal
Workers	Product	Product	Product
1	8	8	8 ~
2	20	10	12
Stage I			ſ
3	36	12	16
4	48	12	12
5	55	11	7 >
Stage II			
6	60	10	5
7	60	8.6	0
Stage III			
8	56	7	-4

Table. : Output of Wheat in Physical Units (Quintals)

Products increase at first, reach a maximum and then start declining. The total product reaches its maximum when 7 units of labour are used and then it declines. The average product continues to rise till the 4 the unit while the marginal product reaches its maximum at the 3rd unit of labour, then they also fall. It should be noted that the point of falling output is not the same for total, average and marginal product. The marginal product starts declining first, the average product following it and the total product is the last to fall. This observation points out that the tendency to diminishing returns is ultimately found in the three productivity concepts.



The law of variable proportions is presented diagrammatically in Figure 4. The TP curve first rises at an increasing rate up to point A where its slope is the highest. From point A upwards, the total product increases at a diminishing rate till it reaches its highest point C and then it starts falling. Point A where the tangent touches the TP curve is called is called the inflection point up to which the total product increases at an increasing rate and from where it starts increasing at a diminishing rate. The marginal product curve

(MP) and the average product curve (AP) also rise with TP. the MP curve reaches its maximum point D when the slope of the TP curve is the maximum at point A. The maximum point on the AP curves is E where it coincides with the MP curve. This point also coincides with point B on TP curve from where the total product starts a gradual rise. When the TP curve reaches its maximum point C the MP curve becomes zero at point F. When TP starts declining, The MP curve becomes negative. It is only when the total product is zero that the average product also becomes zero. The rising, the falling and the negative phases of the total, marginal and average products are in fact the different stages of the law of variable proportions which are discussed below.

Three Stages of Production

Stage - I : Increasing Returns: In stage I the average product reaches the maximum and equals the marginal product when 4 workers are employed, as shown in the table 1. This stage is portrayed in the figure from the origin to point E where the MP curve reaches its maximum and the AP curve is still rising. In this stage, the TP curve also increases rapidly. Thus this stage relates to increasing returns. Here land is too much in relation to the workers employed. It is, therefore, profitable for a producer to increase workers to produce more and more output. It becomes cheaper to produce the additional output. Consequently, it would be foolish to stop producing more in this stage. Thus the producer will always expand through this stage I.

Causes of Increasing Returns

- 1. The main reason for increasing returns in the first stage is that in the beginning the fixed factors are larger in quantity than the variable factor. When more units of the variable factor are applied to a fixed factor, the fixed factor is used more intensively and production increases rapidly.
- 2. In the beginning, the fixed factor cannot be put to the maximum use due to the non applicability of sufficient units of the variable factor. But when units of the variable factor are applied in sufficient quantities, division of labour and specialization lead to per unit increase in production and the law of increasing returns operates.
- 3. Another reason for increasing returns is that the fixed factors are indivisible which means that they must be used in a fixed minimum size. When more units of the variable factor are applied on such a fixed factor, production increases more than proportionately. This points towards the law of increasing returns.

Stage-II : Diminishing Returns: It is the most important stage of production. Stage II starts when at point E where the MP curve intersects the AP curve which is at the maximum. Then both continue to decline with AP above MP and the TP curve begins to increase at a decreasing rate till it reaches point C. At this point the MP curve becomes negative when the TP curve begins to decline. Table 1 shows this stage when the workers are increased from 4 to 7 to cultivate the given land. In Figure 1, it lies between BE and CF. Here land is scarce and is used intensively. More and more workers are employed in order to have larger output. Thus the total product increases at a diminishing rate and the average and marginal product decline. This is the only stage in which production is feasible and profitable because in this stage the marginal productivity of labour, though positive, is diminishing but is not negative. Hence it is not correct to say that the law of variable proportions is another name for the law of diminishing returns. In fact, the law of diminishing returns is only one phase of the law of variable proportion of one factor in a combination of factors is increased, after a point, the average and marginal product of that factor will diminish."

Its Causes : The Law in General Form: But the law of diminishing returns is not applicable to agriculture alone, rather it is of universal applicability. It is called the law in its general form, which states that if the proportion, in which the factors of production combin, is disturbed, the average and marginal product of that factor will diminish. The distortion in the combination of factors may be either due to the increase in the proportion of one factor in relation to others or due to the scarcity of one in relation to other factors. In either case, diseconomies of production set in, which raise costs and reduce output. For instance, if plant is expanded by installing more machines, it may become unwieldy. Entrepreneurial control and supervision become lax, and diminishing returns set in. Or, there may arise scarcity of trained labour or raw material that leads to diminution in output.

In fact, it is the scarcity of one factor in relation to other factors which is the root cause of the law of diminishing returns. The element of scarcity is found in factors because they cannot be substituted for one another. Mrs Joan Robinson explains it thus: "What the Law of Diminishing Returns really states is that there is a limelim it to the extent to which one factor of production can be substituted for another, or, in other words, that the elasticity of substituted for it perfectly, costs will rise with production, and diminishing returns will operate. This is because jute is not in perfectly elastic supply to the industry. If the scarce factor is rigidly fixed and it cannot be substituted by any other factor at all, diminishing returns will at once set in. If in a factory operated by electric power, there being no other substitute for it, frequent power breakdowns occur, as is commonly the case in India, production will fall and costs will rise in proportion as fixed costs will continue to be incurred even if the factory works for less hours than before.

According to Wick steed, the law of diminishing returns "is as universal as the law of life itself." The universal applicability of this law has taken economics to the realm of science.

Stage - III : Negative Marginal Returns: Production cannot take place in stage II either for in this stage, total product starts declining and the marginal product becomes negative. The employment of the 8th worker actually causes a decrease in total output from 60 to 56 units and makes the marginal product minus 4. In the figure, this stage starts from the dotted line CF where the MP curve is below the X-axis. Here the workers are too many in relation to the available land, making it absolutely impossible to cultivate it.

The Best Stage : In stage I, when production takes place to the left of point E, the fixed factor is excess in relation to the variable factors which cannot be used optimally. To the right of point F, the variable input is used excessively in Stage III. Therefore, no producer will produce in this stage because the marginal production is negative. Thus the first and third stages are of economic absurdity or economic nonsense. So production will always take place in the second stage in which total output of the firm increases at a diminishing rate and MP and AP are the maximum, then they start decreasing and production is optimum. This is the optimum and best stage of production.

5.8 Returns to Scale

Returns to scale describes the relationship between outputs and scale of inputs in the long run when all the inputs are increased in the same proportion. In the words of Prof. Roger Miller, "Returns to scale refer to the relationship between changes in output and proportionate changes in all factors of productions." To meet a long run change in demand, the firm increases its scale of production by using more space, more machines and laborers in the factory.

Assumptions

This law assumes that

- 1) All factors (inputs) are variable but enterprise is fixed.
- 2) A worker works with given tools and implements.
- 3) Technological changes are absent.
- 4) There is perfect competition.
- 5) The product is measured in quantities.

Explanation

Given these assumptions, when all inputs are increased in unchanged proportions and the scale of production is expanded, the effect on output three stages: increasing returns to scale, constant returns to scale and diminishing returns to scale. They are explained with the help of Table 2 and Fig. 5.

Unit	Scale of Production	Total Returns	Marginal Returns
1.	1 workers + 2 Acres Land	8	8 Increasing
2.	2 workers + 4 Acres Land	17	9 – Returns
3.	3 workers + 6 Acres Land	27	10
4.	4 workers + 8 Acres Land	38	11 Constant
5.	5 workers + 10 Acres Land	49	11 _ Returns
6.	6 workers + 12 Acres Land	59	10 Diminishing
7.	7 workers + 14 Acres Land	68	9 – Returns
8.	8 workers + 16 Acres Land	76	8

Table 2. Returns to scale in Thysical Onic	Returns to Scale in Physical Units
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1. Increasing Returns to Scale

Returns to scale increase because the increase in total output is more than proportional to the increase in all inputs.



The table reveals that in the beginning with the scale of production of (1 worker +2 acres of land), total output is 8. To increase output when the scale of production is doubled (2 workers + 4 acres of land), total returns are more than doubled. They become 17. Now if the scale is trebled (3 workers + 6 acres of land), returns become more than three-fold, i.e., 27. It show increasing returns to scale. In the figure RS is the returns to scale curve where R to C portion indicates increasing returns.

Causes of Increasing Returns to Scale

Returns to scale increase due to the following reasons:

- (i) Indivisibility of Factors : Returns to scale increase because of the indivisibility of the factors of production. Indivisibility means that machines, management, labour, finance, etc. cannot be available in very small size. They are available in very small sizes. They are available only in certain minimum sizes. When a business unit expands, the returns to scale increase because the indivisible factors are employed to their maximum capacity.
- (ii) Specialization and Division Labour : Increasing returns to scale also result from specialization and division of labour. When the scale of the firm is expanded there is wide scope of specialization and division of labour. Work can be divided into small tasks and workers can be concentrated to to narrower range of processes. For this, specialized equipment can be installed. Thus with specialization, efficiency increases and increasing returns to scale follow.
- (iii) Internal Economics: As the firm expands, it enjoys internal economies of production. It may be able to install better machines, sell its products more easily, borrow money cheaply, procure the services of more efficient manager and workers, etc. All these economies help in increasing the returns to scale more than proportionately.
- (iv) External Economies: A firm also enjoys increasing returns to scale due to external economies.
 When the industry itself expands to meet the increased long run demand for its product, external economies appear which are shared by all the firms in the industry. When a large number of firms are concentrated at one place, skilled labour, credit and transport facilities are easily available.
 Subsidiary industries crop up to help the main industry. Trade journals, research and training centers appear which help in increasing the productive efficiency of the firms . Thus these external economics are also the cause of increasing returns to scale.

2. Constant Returns to Scale

Returns to scale become constant as the increase in total output is in exact proportion to the increase in inputs. If the scale of production in increased further, total returns will increase in such a way that the marginal returns become constant. In the table, for the 4 and 5 the units of the scale of production, marginal returns are 11, i.e., returns to scale are constant. In the figure, the portion from C to D of the RS curve is horizontal which depicts constant returns to scale. It means that increments of each input are constant at all levels of output.

Causes of Constant Returns to Scale

Returns to scale are constant due to:

- (i) Internal Economies and Diseconomies. But increasing returns to scale do not continue indefinitely. As the firm expands further, internal economies are counterbalanced by internal diseconomies. Returns increase in the same proportion so that there are constant returns to scale over a large range of output.
- (ii) External Economies and Diseconomies. The returns to scale are constant when external diseconomies and economies are neutralized and output increases in the same proportion.
- (iii) Divisible Factors. When factors of production are perfectly divisible, substitutable, and homoge neous with perfectly elastic supplies at given prices, returns to scale are constant.

3. Diminishing Returns to Scale

Returns to scale diminish the increase in output is less than proportional to the increase in inputs. The table shows that when output is increased from the 6th, 7th and 8th units, the total returns increase at a lower rate than before so that the marginal returns start diminishnig successively to 10, 9 and 8. In the figure, the portion from D to S of the RS curve shows diminishing returns.

Causes of Diminishing Returns to Scale

Constant returns to scale is only a passing phase, for ultimately returns to sacel start diminishing indivisible factors may become inefficient and less productive. Business may become unwieldy and produce problems of supervision and coordination. Large management creates difficulties of control and rigidities. To these internal diseconomies are added external diseconomies of scale. These arise from higher factor prices or from diminishing productivities of the factors. As the industry continues to expand, the demand for skilled labour, land, capital, etc. rises. There being perfect competition intensive bidding raises wages, rent and interest. Prices of raw materials also group. Transport and marketing difficulties emerge. All these factors tend to raise costs and the expansion of the firms leads t diminishing returns to scale so that doubling the scale would not lead to doubling the output.

5.9 Economies of Scale

Economies of scale, in microeconomics, refers to the cost advantages that a business obtains due to expansion. There are factors that cause a producer's average cost per unit to fall as the scale of output is increased. "Economies of scale" is a long run concept and refers to reductions in unit cost as the size of a facility and the usage levels of other inputs increase. Diseconomies of scale are the opposite. The common sources of economies of scale are purchasing (bulk buying of materials through long-term contracts), managerial (increasing the specialization of managers), financial (obtaining lower-interest charges when borrowing from banks and having access to a greater range of financial instruments), marketing (spreading the cost of advertising over a greater range of output in media markets), and technological (taking advantage of returns to scale in the production function). Each of these factors reduces the long run average costs (LRAC) of production by shifting the short-run average total cost (SRATC) curve down and to the right. Economies of scale are also derived partially from learning by doing.



Economies of scale is a practical concept that is important for explaining real world phenomena such as patterns of international trade, the number of firms in a market, and how firms get "too big to fail".

The exploitation of economies of scale helps explain why companies grow large in some industries. It is also a justification for free trade policies, since some economies of scale may require a larger market than is possible within a particular country - for example, it would not be efficient for Liechtenstein to have its own car maker, if they would only sell to their local market. A lone car maker may be profitable, however, if they export cars to global markets in addition to selling to the local market. Economies of scale also play a role in a "natural monopoly."

An economy of scale exists when larger output is associated with lower per unit cost. Economies of scale have been classified by Marshall into Internal Economies and External Economies.

Internal Economies are internal to firm when it expands its size or increases its output. They "are open to single factory or a single firm independently of the action of other firms. They result from an increase in the scale of output of the firm, and cannot be achieved unless output increases. They are not the result of invention of any kind, but are due to the use of known methods of production which a small firm does not find worthwhile." (A.K. Cairncross)

External Economies are external to a firm which is available to it when the output of the whole industry expands. They are "shared by a number of firms or industries when the scale of production in any industry or group of industries increases. They are not monopolized by a single firm when it grows in size, but are conferred on it when some other firms grow large". (A.K. Cairncross).

Modern economists distinguish economies of scale in terms of real and pecuniary internal and external economies.

Real Internal economies are "associated with a reduction in the physical quantity of inputs, raw materials, various types of labour and various types of capital (fixed or circulating) used by a large firm."2 Real internal economies which arise from the expansion of a firm are the following:

- 1. Labour Economies. As the firm expands, it achieves labour economies with increased division of labour and specialization. When a firm expands in size, this necessitates division of labour whereby each worker is assigned one particular job, and the splitting of processes into sub-processes for greater efficiency and productivity. This, in turn, leads to the increase in the dexterity (skill) of every worker, the saving time to produce goods, and to the invention of labour and specialization lead to grather productive efficiency and reduction in per unit cost in a large firm.
- **2. Technical Economies.** Technical economies are associated with all types of machines and equipments used by a large firm. They arise from the use of better machines and techniques of production which increase output and reduce per unit cost of production. Technical economies are classified as follows:

(i) Economies of Indivisibility. Mrs. Joan Robinson refers to economies of factor indivisibility. Fixed capital is one such factor. It is indivisible in the sense that a machine, an equipment or a plant mush be used in a fixed minimum size or capacity to justify its use. Such machines can be most efficiently used at fairly large output than at small outputs because they cannot be divided into smaller units. For example, an automated car assembly plant is not a viable proposition, if the number of cars to be assembled is small because much of the plant would remain idle. But a large firm assembling a large number of cars may be able to utilise the plant to its full capacity and achieve lower per unit cost.

(ii) Economies of Superior Technique. It is only a large firm which can afford to pay for costly machines and install them. Such machines are more productive than small machines. The high cost of such machines can be spread over a larger output which they help to produce. Thus ther per unit cost of production falls in a large firm which employs costly and superior plant and equipment and thereby enjoys a technical superiority over a small firm.

(iii) Economies of Increased Dimensions. The installation of large machines itself brings may advantages to a firm. The cost of operating large machines is less than that of operating small machines. Even the cost of construction is relatively lower for large machines than for small ones. The cos of manufacture of a double-decker bus is lower as compared to the manufacture of two single-decker buses. Moreover, a double-decker carries more passengers than a single-decker and at the same time requires only a driver and a conductor like the latter. Thus its operating costs are relatively lower.

(iv) Economies of Linked Processes. A large firm is able to reduce itsper unit cost of production by linking the various processes of production. For instance, a large sugar manufacturing firm may own its sugarcane farms, manufacture sugar, pack it in bags, transport and distribute sugar through its own transport and distribution departments. Thus by linking the various processes of production and sale, a large firm saves the expenses incurred on intermediaries there by reducing unit cost of production.

(v) Economies of the Use of By-products. A large firm possesses greater rosources than a small firm and is able to utilise its waste material as a by product. For example, the molasses left over after manufacturing sugar from the surgarcane can be used for producing spirit by installing a plant for the purpose.

(vi) Economies in Power Consumption. A large firm which operates large machines and runs them continuously, economies in power consumption as compared to small machines.

- **3. Marketing Economies.** A large firm also reaps the economies of buying and selling. It buys its requirements of various inputs in bulk and is, therefore, able to secure them at favorable terms in the form of better quality inputs, prompt delivery, transport concessions, etc. Because of its larger organization, it produces quality products which are offered for sale in attractive packing by its packing department. It may also have a scale department manned by experts who carry on salesmanship, propaganda and advertisement through the various media efficiently. Thus a large firm is able to reap the economies of marketing through its superior bargaining power and efficient packing and sales organization.
- 4. Managerial Economies. A large firm can afford to put specialists to supervise and manage the various departments. There may be a separate head for manufacturing, assembling, packing, marketing, general administration, etc. This decentralization leads to functional specialization which increases the productive efficiency of the firm. "Large firms apply techniques of management involving a high degree of mechanization, such as telephones, telex machines, television screens and computers. These techniques save time in decision making process and speed up to processing of information, as well as increasing its amount and its accuracy." These managerial economies also reduce per unit cost of management because with expansion of the firm, the various departmental managers will manage large output as efficiently as they were managing small output at the same salary.

5.10 Summary

Production function is an equation that asserts the relationship between the quantities of productive factors used and the maximum amount of product obtained at certain technological level. The production function can thus measure the marginal productivity of a particular factor of production and determine the cheapest combination of productive factors. Some inputs can be varied flexibly in a relatively short period of time. We conventionally think of labor and raw materials as "variable inputs" in this sense. Other inputs require a commitment over a longer period of time. We have seen that the concept of marginal productivity and the law of diminishing marginal productivity play central parts in both the efficient allocation of resources in general and in profit maximization.

5.11 Key Words

- **Production Function:** In micro-economics, A production function is a function that specifies the output of a firm, an industry, or an entire economy for all combinations of inputs.
 - Law of variable proportions: I n economics, diminishing returns (also called diminishing marginal returns) refer to how the marginal production of a factor of production starts to progressively decrease as the factor is in creased, in contrast to the increase that would otherwise be normally expected.
- **The law of returns to scale:** An economic concept referring to a situation in which economies of scale no longer function for a firm. Rather than experiencing continued decreasing costs per increase in output, firms see an increase in marginal cost when output is increased.
- Economies of Scale : Economies of scale, in microeconomics, are the cost advantages that a business obtains due to expansion. They are factors that cause a producer's average cost per unit to fall as scale is in creased.

5.12 Self Assessment Test

- 1 What do you mean by production? Define production function and describe the assumptions.
- 2 What are fixed and variable inputs?
- 3 Distinguish between laws of return to variables proportion and laws of returns to scale
- 4 How will you define economy of scale?
- 5 What do you mean by internal and external economy of scale?

5.13 Suggested Books /References

- 1. Mathur N.D., Managerial Economics, Shivam book House (P.) Limited, Jaipur
- 2. Mishra & Puri : Managerial Economics, Himalaya Publishing House, Mumbai

Unit – 6 Cost Concepts and Analysis

Unit Structure

- 6.0 Objectives
- 6.1 Introduction
- 6.2 Cost Function
- 6.3 Determinants of Costs
- 6.4 Cost Concepts
- 6.5 Components of Costs
- 6.6 Short Run Cost Function
- 6.7 Long-Run Average Cost Curve
- 6.8 Summary
- 6.9 Key Words
- 6.10 SelfAssessment Test
- 6.11 Suggested Books / References

6.0 Objectives

The studying this unit, you should be able to understand:

- The Concept of cost
- Different cost concepts
- Cost function
- Determinats of cost
- Components of cost

6.1 Introduction

It is necessary for the proper understanding of cost analysis, to know various cost concepts that are often employed. When an entrepreneur decides to produce a commodity, he has to pay the price for inputs which he uses in production. When he employes labour, he pays wages to them and pays money when buys raw materials, fuel and power, rent for the factory building and so on. All these are included in cost of production. The kind of cost concept used in a particular situation dependes on cost of production. The kind of cost concept used in a particular situation dependes on cost of production. The kind of cost concept used in a particular situation depends upon the business decision that the management makes. An accountant will take into account only the payments and charges made by the manager to the suppliers of various productive inputs, but the managerial economist views the cost in some what different form. The cost estimates made by contentional, financial accounting are not appropriate for all managerial uses, Further different problems call for different kinds of costs, therefore it is necessary to have a complete understanding of different cost concepts for clear business thinking.

6.2 Cost Function

Cost function is derived from the production function. Time factor is very important in cost theory. The short-run costs are the costs over a period during which some factors of production are fixed. The long-run costs are the costs over a period long enough to permit changes in all factors of production. Both in the short-run and in the long-run, cost is a multivariate function, i.e., it is determined by many factors simultaneously, symbolically, the long run cost function is given as:

$$C = f(X, T, Pf)$$

And the shot-run-run cost function is:

$$C = f(X, T, Pf, K)$$

Where C = Total Cost

X = Output T = Technology Pf = prices of factors K = Fixed factor (s)

Graphically, the cost function is generally shown on a two-dimensional diagram by taking C = f(x), ceteris paribus, If other factors (i.e.T,Pf) to change, then the cost curve will shift.

6.3 Determinants of Costs

Factors determining the cost are

- (a) Size of plant: There is an inverse relationship between size of plant and cost. As size of plant increases, cost falls and vice versa.
- (b) Level of Output: There is a direct relationship between output level and cost. More the level of output, more is the cost (i. e., total cost) and vice Versa.
- (c) **Price of Inputs:** There is a direct relationship between price of inputs and cost. As the price of inputs rises, cost ruses and vice versa.
- (d) State of technology: More modern and upgraded the technology implies lesser cost and vice versa.
- (e) Management and administrative efficiency: Efficiency and cost are inversely related. More the efficiency in management and administration better will be the product and less will be the cost. Cost will case of inefficiencies in management and administration.

6.4 Cost Concepts

According to Marshall, the real cost of production includes the "real cost of efforts of various Qualities" and "real cost of waiting"

It is also known as "alternative sacrificed cost, or "transfer cost". Opportunity cost of a commodity is the alternative sacrificed in order of order to order to obtain it.

Cost concepts differ because of differences in view point. Different combinations of cost ingredients are important for various kinds of management problems. Disparities occur form deletions, from additions from recombination which do not appear anywhere in the accounting records. Different cost concepts explained in our study are

- (a) Actual cost and opportunity costs
- (b) Past and future costs
- (c) Short run and long run costs
- (d) Variable or Prime cost and fixed costs or supplementary costs

- (e) Incremental costs and sunk costs
- (f) Traceable and Non-Traceable costs
- (g) Explicit and Implicit costs
- (h) Controllable and Non-Controllable Costs
- (i) Private, External and social costs
- (j) Total. Average and Marginal Costs

(a) Actual Cost and Opportunity Cost

Actual costs are those that involve financial expenditure incurred for acquiring inputs for producing a commodity. These expenditures are recorded in the books of accounts of the firm. The expenditures are wages, payment made for the purchase made for the purchase of raw materials machinery etc. These costs are called actual costs or outlay costs or real costs. The real cost of production has been interpreted in different forms. According to Adam Smith, "Pains and sacrifices of labour are real cost of production" Opportunity cost is not the actual expenditure but it is the revenue earned by employing that good or service in some other alternative uses. Opportunity cost is the cost of producing any commodity in the next best alternative cost. For example the inputs which are used to manufacture a car may also be used in the productions of military equipment. A farmer who is producing paddy can also produce sugar cane with the same factors. Therefore, the opportunity cost of one quintal of paddy is the amount of sugarcane given up. Main points of opportunity cost are:

1. The opportunity cost of any commodity is only the next best alternative forgone.

2. The next best alternative commodity that could be produced with the same value of the factors, which are more or less the same.

- 3. It helps in determining relative prices of factor inputs at different places.
- 4. It helps in determining the remuneration to services.
- 5. It helps the manager to decide what he should produce in the factory.

(b) Past and Future Costs

Past costs are actual costs incurred in the past. These costs are mentioned in the financial accounts. Future costs are those costs which are to be incurred in the near future. This is only a forecast. Future costs matter for managerial decisions because, the management can evaluate the desirability of that expenditure, since the past costs are costs that have already been incurred, and there is no scope for managerial decision. If the management finds out that the past costs are excessive, it cannot do anything to rectify it now. In the case of future costs, if the management considers them very high , it can either reduce them or postpone the use of them.

(c) sort Run and Long Run Costs

Shorts run costs are those associated with variation in the utilization of fixed plan or other facilities, whereas long run costs encompass changes in the size and kind of plant. Short run cost is relevant when a firm has to decide whether or not to produce more or less with the given plant and equipments. If the firm dicides to expand the capacity of the plant, it must examine the long run cost. Long run cost is useful in making investment decisions.

(d) Prime or Variable Costs and Supplementary or Fixed Costs

Prime costs are variable or direct costs. Normally, they include the money cost of the raw material used in making a commodity, the wages of the labour directly spent on it and the extra wear and tear of the

machine that makes it. Suppose a carpenter has been asked to charge for a chair, he would first think of the wood and cane that he used and the number of days he spent in making it. This is the prime cost.

It is clear that prime cost of a commodity differs with the quantity produced. When more chairs are made, more money will have to be spent on carpenter's wages as well as on wood. When production is stopped, the prime costs disappear. Prime costs therefore are also called the Variable Costs.

Supplementary or Fixed Costs

The carpenter will not only charge for the chair but also for the wood and his wage. In addition to the above he will think of including a portion of rent in the cost that he is paying and also interest on the capital invested, the municipal taxes, etc. A big company will further have to include a portion of the salaries of the manager, the peons, the cost of advertisement and salesmanship, etc. These costs must also be covered. They are called supplementary costs on costs or over head charges or fixed costs.

The fixed costs do not change with the volume of production. Irrespective of quantity of goods produced, big or small, the charges on account of rent, taxes, interest salaries, etc will be included. Even if the orders cease to flow in and the factory is closed, these costs will continue. They are fixed costs.

Generally, the distinction between the variable and fixed costs applies only to the short period, because nothing can really remain fixed in the long run. In the long the strength and the salary bill of the staff may change, the amount of capital invested may be different, hence the amount of interest would vary. Thus, all costs, which ware regarded as fixed in the short run, may vary in the long run. Thus in the long run, all costs are variable.

(e) Incremental Costs and Sunk Costs

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

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

The distinction between the sunk cost and the incremental cost is important in evaluating the alterative. Incremental cost will be different in the case of different alternative. Hence incremental cost is relevant for the management in decision making. Sunk cost will remain the same irrespective or the alternative in decision making. Sunk cost will remain the same irrespective of the alternative selected. Marketing programme has its own set of incremental costs for equipment, delivery men and executive time and so on.

(f) Traceable Costs and Non-traceable Costs

Traceable costs are those which can easily be identified by a producing unit. These are directly related to a unit of operation like a product, a process or department of firm. These are also know as direct costs or assignable costs.

Non-traceable costs or indirect costs are not traceable to plant, department or unit or operation or individual final product. Fox example, for operating air-services, the cost of runway, airport equipment, staff, etc. cannot be assigned to one passenger. These are common costs to distinguish between traceable and non-traceable costs. Change in the total output and product-mix affect the total costs in complex ways. Even a traceable cost gets lost in the process and has to be indentified as overhead cost only.

(g) Explicit Cost and Implicit Costs

The total cost of production of a particular commodity can be said to include 'Expenditure' or 'explicit' cost, 'non-expenditure' or 'implicit' cost. Explicit costs are paid by the employer to owners of the factor units, which do not belong to the employer himself. These costs include payments for raw materials interest on borrowed funds, rent on hired land and taxes paid to the government.

Non-expenditure or implicit costs arise when factor units are owned by the employer himself. The two non expenditure costs are supplied by the shareholders; in the case of small business units the depreciation and an average or normal return on the money capital wages of the entrepreneur or organizer himself will have to be included in this category.

Expenditure costs are explicit since they are paid to factors outside the firm while non-expenditure costs are implicit and hence they are imputed costs.

(h) Controllable Costs and Non-Controllable costs

Controllable costs are those that cannot be controlled by some executive action on the part of the management These can improve the efficiency of the factor inputs.

Non-controllable costs are those that cannot be controlled through any administrative or supervisory action. These tend to wastage of resources and encourage inefficiency.

(i) Private, External and Social Costs

Some times, there is a discrepancy between the cost incurred by a firm and the cost that must be incurred by the society as a whole. For example, a factory may dispose of its untreated waste into a river or a lake. Such a method of waste disposal may minimize the private cost but it does impose a cost to the society in the form of polluted waterways. A cost that is not borne by the firm, but is incurred by others in society is called an external cost. The true cost to the society must include all costs regardless of who bears them. Thus, the social cost is the sum of private and external cost. This is

Social cost = Private Cost + External Cost

Or

External Cost = Social Cost- Private Cost

(j) Total, Average and Marginal Costs

Total cost is made up of both the fixed cost and the variable cost. They are represented in the following diagram. OX and OY are the two axes, along OX is represented the quantity produced and along OY the cost. FC, a straight horizontal line represents the fixed cost and the area above is the variable cost so that the TC is total cost curve.



Fixed Cost, Variable Cost, Total Cost Curves



Average Cost: Average cost is the sum of average variable cost and average fixed cost; it is also called average total cost. If the totalcost of producing 60 units of good is 2400 rupees, then average cost.will be

 $\frac{2400}{120} = 20$

Marginal Cost : Marginal cost is the cost of producing an additional unit of output. In other words, marginal cost is the addition made to the total cost by producing one more unit of output. for example, if the total cost of producing 120 units is 2400 rupees and the total cost of producing 121 units is 2436 rupees, the marginal costing in this case will be equal to 36 rupees. The concepts of total cost, average cost and marginal cost can be understood easily form the following table;

Output	Total Cost	Average Cost	Marginal cost
	Rs.	Rs.	Rs.
1.	60	60	60
2.	80	40	20
3.	90	30	10
4.	96	24	6
5.	100	20	4
6.	144	24	44
7.	210	30	66
8.	320	40	110
9.	540	60	220
10.	900	90	360

Iotal, Average and Mar	ginal	Costs
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It is evident from the above table that marginal cost of the second unit has been derived from subtracting Rs60 from Rs80 (80-60) =20. Marginal costs of subsequent units are obtained in the same manner. Hence Marginal cost is the addition made to the total cost at each step.

Marginal Cost and Average Cost

Generally, the average and marginal costs are related together. It is evident from the above table that when the average cost is falling, the marginal cost is less than the average cost and when average cost is rising, the marginal cost is higher than the average cost. When the marginal cost neither goes up nor comes down, the average and marginal cost are equal. In the table, up to 5th unit average cost is falling. It will be seen from the fourth column that from 6th to 10th unit average cost is rising. It will be seen from the table that marginal cost is higher than average cost in this range.

For instance, let us assume that a cricket player's batting average is 50. suppose, in the next match, he scor less than 50, say 45, his batting average will decrease, because his additional (i.e. marginal) scores (45) is less than his average score (50). Suppose, on the other hand in the next match, he scores more than the average (50), say 60, his average will go up for the obvious reason that this new or additional (i.e., marginal score 60) is higher than his average score (50) thus, when the marginal is rising, the average goes up, and if the marginal is falling, the average goes down. When, however, the marginal remains unchanged, the average and marginal are equal.

The following diagram show the average – marginal cost relationship:



In the above figure, A represents the average cost and M represents the marginal cost. It can be clearly seen that when marginal cost (M) is above the average cost (A), the average cost rises which is shown by the rising arrow. On the other hand, when the marginal (M) is below the average cost (A), than the average cost falls, as is shown by the falling arrow. But when the marginal cost is the same as the average cost remains constant, as if M is pulling A along horizontally.

Curve can be drawn to represent costs. The marginal cost (MC) and the average cost (AC) are shown in the following diagram.



OX and OY are two axes, along OX is shown the quantity produced and along OY the cost. It will be seen that as output is increased, both average cost (AC) and marginal cost (MC) fall, but MC is below AC, i.e., marginal cost is less than the average cost. The fall is due to the economics of scale. But beyond a point (M) i.e. when output is expanded too much, both AC and MC start rising and now MC is above AC, i.e., the marginal cost is greater than the average cost. That is why MC cuts AC from below at its lowest point. 67
6.5 Components of Costs

Classification of total cost on the basis of the cost fixed and variable inputs is not enough for taking managerial decisions. A firm has to work out in detail the different expenses that it incurs on various heads. In order to compute profit and loss a form has to analyse the 'components' or 'elements' of total cost.

Functionally, the major components of the total cost of a product the comprises the total costs can be divided as follows:

(i) Prime Cost = Direct Material + Direct Wages + Direct Expenses

(ii) Production Overhead = Indirect Material + Indirect Wages + Indirect Expenses

(iii) Production cost = Prime Cost + Production overhead

(iv) Costs Related to = General Administration = Marketing/Sales = Research = Development

(v) Total = Production Cost + Costs Related to other functions





The difference between total revenue and total cost revenue and total cost represents profits or loss. In case, the TR is move than the cost of sales the firm gets profit, while if TR is less than the cost of sales the firm suffers loss.

6.6 Short Run Cost Function

The short-run refers to that period of time within which a firm can vary its output by varying onlythe amount of variable factors, factors such as labour and raw material. In the short run period the firm cannot alter the fixed factors such capital equipment management personal, the factory buildings etc. Suppose a firm wants to increase production in the short run it can do so only by hiring more worker or buying and using more raw materials. In the short run a firm cannot enlarge the size of the existing plant or build a new plant of a bigger capacity. Thus in the short run only variable factors can be varied while the fixed factors remain the same.

Short-run Fixed and Variable Costs

In the period, the prime costs relating to lobour and raw material can be varied whereas the fixed costs remain the same. On the other hand, in the long period, even the fixed costs relating to plant and machinery, staff salaries, etc, can be varied. That is, in the long run all costs are variable and no costs are fixed.

Short-run Cost Curve

Generally, in the short-run a firm will adjust output to demand by varying the variable factors. When the factors of production can be used in varying proportions, it means that the scale of operations of the firm can be changed. Each time the scale of operations is changed, a new short-run curve will have to be drawn for the firm such as SAC' SAC" and SAC" in the next.



Suppose, a firm has the short-run cost curve SAV". In this case, the optimum will be OM'. When it wants to increase the output to OM" in the short-run it can be obtained at the average cost M"L" along the short-run cost curve Sac:, because in the short-run the scale of operation is fixed.

On the other hand, during the long run, a new and bigger plant can be built on which OM" is the optimum output. That is, the firm has now a short run average cost curve SAC", and by increasing the scale of its operations, the firm can produce the OM" output at a cost of M"L" instead of M"L".

It is evident form the above figure that at any scale of operations in the short-run, a firm will have regions of rising and falling costs. On the other hand, in the long-run the firm can produce on a completely short-run cost curve, and there will be an output where the average cost is minimum. This is the optimum output.

6.7 Long-Run Average Cost Curve

In the following diagram SAC', SAC" and SAC" refer to the short run cost curve corresponding to the different scales of operations. In the following situations the firm will be producing the desired output at the lowest cost. For example. OM output is produced at PM in the scale of operations represented by the curve SAC. OM will be produced on SAC, and so on.



However, it is imperative that only in the long-run the scale of operations can be altered; in the short-run, in it will be fixed and the average cost of output above of below the optimum level will necessarily rise along the short-run cost curve in question whether it will be SAC1, SAC2 and SAC3.A long run average cost will show what is the long-run cost of producing each output.

The short-run average cost curve SAC2 has a lower minimum point that either the curves SAC1, SAC2 and SAC3. The maximum output of the firm is obtained at OM. The long-run average cost curve LAC is a tangent to all the short run cost curve. SAC1, SAC2 and SAC3. The LAC curve will therefore, be U-shaped like the short-run cost curve. It will be flatter. That is why the long-run cost curve is called an 'Envelope', because it envelops all the short-run cost curves.

According to Dewett and Varma, the cost curve, whether short-run or long-run are U-shaped because the cost of production first starts falling as output is increased owing to the various economies of scale. But after touching the lowest point at the optimum output level, it starts rising, and goes on rising if production is continued beyond the optimum level. This obviously makes a U-shape.

The U-shape of the long-run cost curves is less pronounced. In other words, the long run average costs are than the short-run curves. The longer the period to which the curve relates the less pronounced will be the U-shape of the curve. By the long period the size and organization of the firm can be altered to meet the changed conditions.

6.8 Summary

For clear business decisions it is necessary to have complete understanding of different cost concepts. For proper knowledge of cost analysis, various cost concepts include and determine cost of production which enables management for correct business decisions. Various combinations of costs ingredients account for various kind of management decisions.

In short period, the price cost relating to labour and raw material can be varied whereas fixed cost remains the same. On the other hand in long period even fixed cost relating to plant & machinery staff salaries can be varied or in other words in long run all costs are variable.

For Completing profit & loss a firm has to analyse the components or elements of total costs.

6.9 Key Words

- Short run cost: Cost over a period during which some factors of production are fixed.
- Long run cost: Cost over a long period to permit changes in all factors of production.
- Post costs: Actual costs incurred in the past.
- Future costs: Which are to be incurred in near future.
- Prime costs: Refers to variable or direct costs.
- Incremental cost: Added cost of a change in the level of production.
- Sunk cost: Which have all ready been incurred and cannot be altered.
- **Traceable cost:** Which are easily be identified by a producing unit.
- Non Traceable cost: Which are not traceable to plant, department of unit of operation.
- **Explicit cost & inexplicit cost:** Total cost of production of a commodity can be said to include expenditure explicit cost and non expenditure or inexplicit cost.
- Controllable cost: That can be controlled by some executive action in the part of management.
- Non Controllable cost: That can not be controlled through any administrative or supervisory action.
- Total Cost: Made up of both fixed and variable cost.
- Average Cost: Product of total cost to units of output or sum of average variable cost and fixed cost.

6.9 Self Assessment Test

- 1. Discuss briefly the different cost concepts.
- 2. Explain the determinants of costs.
- 3. Distingusish between:
 (a) Fixed and variable cost
 (b) Average and implicit cost
 (c) Explicit and Implicit cost
- 4. Firm plans in long run and operate in short run. Explain.

6.11 Suggested Books/References

- 1. Mathur N.D.: Managerial Economics, Shivam Books House (P.) Limited, Jaipur
- 2 Adhikari M.: Managerial Economics, Khosla Educational Publisher, New Delhi.

Unit - 7 Market Structure

Unit Structure

- 7.0 Objectives
- 7.1 Introduction
- 7.2 Objective of Market Structure
- 7.3 Classification of Market
- 7.4 Market Structure
- 7.5 Summary
- 7.6 Key Words
- 7.7 Self assessment Test
- 7.8 Suggested Books / References

7.0 Objectives

After studying this unit, you should be able to understand:

- The concept of market
- The saliant features of market
- Classification of market
- Concept of market structure
- Types of market structure
- The issues in market structure

7.1 Introduction

In general, market means a place where there are many buyers and sellers of different products who are actively engaged in buying and selling acts. The firm's demand curve is expected to depend on such things as the numbers of sellers in the market and the similarity of their products. These are the aspects of market structure which may be termed as the characteristics of market of generalisation that are likely to influence a firm's behaviour and performance. In broader sense face to face contact between buyers and sellers is not necessary. They can establish contact through different means of communication like letters, agents, telegraphs, telephone etc. or newspapers. Thus, the terms market does not mean and particular place but the entire area where buyers and sellers of a commodity are in such close contact with each other that the price of the same commodity tends to be one throughout that area.

According to Cournot, "Economists understand by the term market not any particular market place in which things are bought and sold but the whole of any region in which buyers and sellers are in such free intercourse with each other that the price of the same goods tends to uniformity, easily and quickly."

According to J.C. Edwards, "A market is that mechanism by which buyers and sellers are brought together. It is not necessarily a fixed place."

Chapman defines as "The term market refers not necessarily to place but always to a commodity and the buyers and sellers who are in direct competition with one another."

7.2 Objective of Market Structure

Market Structure influences how a firm behaves in pricing, supply, barrier of entry, efficiency, competition.

- It enables an organisation to control its market plan.
- Market Structure helps in strategic decision making.
- Market Structure aligns the organisation to the changed environment.
- Market Structure is important and it affects market outcomes through its impact on motivation, opportunities & decision of economic factors.

On the basis of above mentioned definition following characteristics can be brought out:

- Area: Market does not mean any particular place where buyers and sellers meet, rather, it means the entire area within which buyers and sellers are spread and have close contacts with each other. For example Bata Shoes has market all over India., because its buyers and sellers are found in every city and state.
- 2- Buyers & Sellers: For exchange at least one buyer and one seller are needed. Thus, the existence of buyers and sellers is a must. If one of the two does not exist in a region, it does not satisfy the function of market. It is not necessary that buyers and sellers should be physically present to exchange or transact the things. They can come in contact through correspondence.
- 3- One Commodity: For the existence of the market there must be one commodity like wheat, sugar, ghee, vegetables and utensils. Thus they can be termed as wheat market, sugar market, ghee market, vegetables market, utensils market respectively.
- 4- Free Competition: There must be healthy and free competition among the buyers and sellers. Thus in practice, there should not be any restrictions on them. There must be free competition.
- 5- One Price: Generally it is remarked that in a market one price prevails which is the main feature and testimony of a market.

7.3 Classification of Market

(1) On the basis of area or region:

The economists have classified the market on the basis of area or region which further can be summarised as under.

(i) Local Market(ii) Regional or Provincial Market(iii) National Market(iv) International Market

(i) Local Market: If the buyers and sellers of a certain commodity are limited to certain area or region, then it is called local market. The perishable goods and low price goods have their local market like milk, ghee, hand-made fans, basket, cots etc.

(ii) Regional or Provincial Market: If the buyers and sellers of a commodity are confined to certain region, say a province like Rajasthan or Haryana, then it is known as regional or provincial market. The area of regional market is greater than that of local market e.g. the demand for Red Bangles in Rajasthan or the demand for Laharia in Rajasthan.

(iii) National Market: When the buyers and sellers are not confined to state boundary, but are

spread throughout the country e.g., the market of sarees and dhotis or of Gandhian cap or of Nehru cut jacket etc. have national market. These are demanded throughout the nation. Hence they come under the purview of national market.

(iv) International Market: When the buyers and sellers are spread across the geographical boundary of a nation and the demand for such product is worldwide or universal demand then its market is known as international market e.g. market for gold and silver.

(2) On the basis of time:

On the basis of time the economist have classified the market as under:

- (i) Very short period Market.
- (ii) Short period Market.
- (iii) Long period Market.
- (iv) Very long period Market.

(i) Very short period Market: This market can further be classified into Daily Market or Weekly market. Very short period market is that market which takes part in transaction for a very short period of time say a few hours a day or so. In very short period the supply of the product cannot be increased e.g. of milk. Here the demand determines the price. In very short period market generally perishable commodities are exchanged.

Daily Market- The market for perishable commodities come under daily market e.g. milk and vegetables.

Weekly Market- Sometimes a market operates on any specific day of week. It is generally found in those areas in which main market has its closed day for the week, say Sunday market, or Tuesday market or whatever the case may be according to the closing day of the main market.

(ii) Short period Market: Its time period is greater than that of the previous one in which the supply of the product can be increased but we cannot make any change in production plant according to the changed demand. In short period also the demand side plays a major role in determining the price as change in the plant and machinery is not possible from the point of view of production.

(iii) Long Period Market: It is such a market in which we can make necessary changes in the plant and machinery as well to increase the supply of the product according to its demand. The supply of the product plays a vital role in price determination resulting in normal price for the product in such market.

(iv) Very long period Market: There can be an enormous change in the supply of the product in very long period market. New techniques of production, innovations and the new models of products can be produced because of a very long period. And in very long periods the demand also increases because of change in population, habits, customs, fashions etc.

(3) On the basis of Functions:

On the basis of functions the markets can be classified as under:

- (i) Mixed or general Market.
- (ii) Specialised Market
- (iii) Marketing by samples.
- (iv) Marketing by grading.

(i) Mixed or general Market: When different types of commodities are transacted simultaneously in a market then it is known as mixed or general market e.g. Chandni Chowk market in Delhi.

(ii) Specialised Market: When only one product or any of the special product is transacted in a market then it is known as specialised market. In such market, a particular thing is traded with its different brand names of possibly different kinds, e.g. bathing soap is bought and sold in soap market could be Lux, Liril, Hamam, Rexona, Lifebuoy, etc.

(iii) Marketing by Samples: In such market the firms need not show whole of their product. They only send samples through their agents or they may themselves show the samples of their product, e.g. in case of wool, cloth, paints etc.

(iv) Marketing by Grading: The product is first graded according to its quality and then put forth for selling is known as marketing by grading e.g. in an Agricultural product market the product is graded accordingly and then sold. It is known as Marketing by grading.

(4) On the basis of nature of commodity:

The market can also be classified on the basis of nature of commodity.

(i) Product Market.

(ii) Stock Market.

(iii) Bullion Market.

(i) Product Market: The production goods are exchanged in these market e.g. Agriculture product is bought and sold in Agriculture produce market.

(ii) Stock Market: Stock market is a market where stock and shares, bonds, securities, debentures etc. are bought and sold. Bulls and Bears do transactions in the stock market as per their market reading.

(iii) Bullion Market: This is such a market in which Metallic trading exists e.g. the goods like silver and gold better known as Bullion are traded and transacted.

(5) On the basis of Legality:

On the basis the market can be sub-divided as under:

- (i) Legal or fair Market.
- (ii) Illegal Market.

(i) Legal and Fair Market: When the goods are transacted in a market under certain norms and rules, the market is known as legal market which also has a legal sanctity behind it issued by the legal authorities in a country. Here every consumer gets commodities at fair prices. These markets are also known as Fair Market.

(ii) Illegal Market: When the transaction of certain commodities is taking place in more than or less than quantity prescribed by the legal authorities in operation say a government and then it is termed as illegal trade. The Hong Kong Market is an illegal market at International level. Generally it is also termed as Chor Market.

CLASSIFICATION OF MARKET

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

S.No.	On the basis of Area or Region	On the basis of Time	On the basis of Functions	On the basis of nature of commodity	On the basis of legality
1-	Local Market	Very short period market	Mixed mark <i>e</i> t or general market	Product market	Legal market
2-	Regional Market or Provincial market	Short period market	Specialised market	Stock market	Illegal market
3-	National market	Long period market	Marketing by sample	Bullion market	
4-	International market	Very long period market	Marking by grades	Bullion market	

General classification of market

7.4 Market Structure

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

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

- (i) Nature of the commodity : It is to be taken into account whether the goods are homogeneous or heterogeneous.
- (ii) Number of buyers and sellers of the product in the market.
- (iii) Mutual inter-dependence of buyers and sellers.

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

- (1) Perfect Competition
- (2) Monopoly
- (3) Imperfect Competition

PERFECT COMPETITION:

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

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

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

The main characteristics of perfect competition are as follows:

(1) Large number of buyers and sellers: There is a large number of buyers and sellers of a commodity under perfect competition but each buyer and each seller is so small in comparison with entire market of product that he cannot influence the market price by changing the quantity of the product sold by him. If a seller supplies the entire stock of the product produced by him the total supply will not increase to such as extent as to lower the price and on the other hand if he withdraws from the market the total supply will not fall to such an extent as to raise the price. Thus, every seller has to accept the prevailing price. Hence a uniformity of price is there under perfect competition and as a consequence of uniform price prevailing in the market average revenue (AR) or the price of the product is equal to the marginal revenue (MR) as shown in diagram .7. Average revenue is total sales proceeds of the product divided by the total production.



Diagram 7.1

- (2) Homogeneous Product: The second important charactristic of the perfectly competitive market is that the product sold by the various firms are homogeneous. The products are homogenous in the sense that they are perfect substitutes from the buyer's point of view. The sellers do not spend on advertisement and publicity etc. because all the firms sell homogeneous product.
- (3) Absence of artificial Restrictions: The third major characteristic of the perfect competition is the non-existence of any artificial restrictions on the demands, supplies, prices of goods and factors of productions in the market. There must not be any external intervention in price fixation and any controls on the product.
- (4) Free entry and exit: The fourth characteristic of perfect competition is free entry and free exit for the firms under perfectly competitive market. The firms are free to enter or to exit from the industry whenever they want to do so. Any firm can enter or leave the industry at any time as there are no legal restrictions.

- (5) Perfect knowledge about the market: There is perfect knowledge on the part of buyers and sellers about market conditions. The buyers and sellers are fully aware of the price prevailing in the market. Due to this awareness all the firms charge on price from the buyers.
- (6) Perfect mobility of the factors of production: The existence of perfect mobility of the factors of production is another important characteristic of the perfect competition for its smooth functioning. It means all the factors of production are perfectly mobile under perfectly competitive market. Factors will move to the industry which pays the higher remuneration.
- (7) Non-Existence of transportation cost: A perfectly competitive market also assumes the characteristic of non-existence of transport costs as uniform price prevails throughout the market. It is essential that there is no transportation cost across different areas of the market. Thus, the existence of a single uniform price is an essential feature of a perfectly competitive market and a single uniform price for the same product cannot exist in the market if transportation costs are taken into accounts.

MONOPOLY:

It is a market structure in which there is only a single seller of the product. Here one firm is selling the product and has full control over the supply of the product e.g. the supply of electricity by the Rajasthan State Electricity Board or postage stamps, post cards, envelopes Indian Postal Orders etc. are supplied by the Postal Dept. This is such a situation of market where, there is only one producer of a commodity with no close substitutes. Hence, monopoly is a market structure in which there is only one producer of a commodity with no close substitute. Thus, the analysis of monopoly begins with two simple assumptions:

- (i) First, that an entire industry in supplied by a single seller who is called a monopolist;
- (ii) Second by the monopolist sets a single price and supplies all buyers who wish to buy at that price.

According to Ferguson, "A pure monopoly exists when there is only one producer in a market. There are no direct competitors."

According to A. Koutsoyiannis, "Monopoly is a market situation in which there is a single seller, there are no close substitutes for commodity it produces, there are barriers to entry."

For the smooth functioning of a monopoly market situation it is necessary to have the following characteristics or features.

- 1. Sole supplier of the product and large number of buyers: The monopoly is characterised by the sole seller of product in an industry. Firm represents the industry as a whole which has complete control over the supply of product. Thus, there is only one firm under monopoly but the buyers of the product are in large number, consequently, no buyer can influence the price of the product.
- 2. No close substitutes: Under Monopoly there are no close substitutes of the product. Monopoly cannot continue if there is availability of substitute goods.
- 3. One firm industry: There being only one firm, the distinction between the firm and the industry is no longer in existence.
- 4. Monopoly may vary from industry to industry: The form and structure of a monopoly may also vary from industry to industry.
- 5. Absence of Entry: Under monopoly market structure no other firm can enter the market. It implies the absence of actual entry. The barriers to the entry may be artificial, legal, natural, economic and institutional etc.

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

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

IMPERFECT COMPETITION:

The market structure may be imperfect because of the number of firms in the industry may be relatively small, and the commodity or service may not be homogeneous. A small number of firms may compete vigorously with one another. Thus, in real life, it is imperfect by competitive market that exists. The concept of imperfect competition was developed in 1933 by Mrs. Joan Robinson and Prof. Chamberlin. It is such a market structure where there are many sellers of the products, but the product of each seller is different from the product of other sellers. This product differentiation manifests itself in trade mark, name of the brand, patent, rights, colour composition of goods, chemical composition, packaging, advertising, incentive schemes, or different facilities and services offered to the consumers. Thus, imperfect competition can be of various types as follows:

- (1) Monopolistic Competition
- (2) Oligopoly
- (3) Duopoly

(1) MONOPOLISTIC COMPETITION:

As a matter of fact, monopolistic competition is a mid-way between perfect competition and monopoly. Under perfect competition the number of sellers is very large and unlimited and under monopoly there is only single seller of the product, while under monopolistic competition the number of sellers is relatively limited.

Some main definitions of monopolistic competition are as follows:

According to J.S. Bain, "Monopolistic competition is a market structure found in the industry where there are large number of small sellers, selling differentiated but close substitute products."

According to Lim Chungyoh, "Monopolistic competition is a market situation where there are many producers but each offers a slightly differentiated product."

- (1) Large number of firms: There is a large number of firms or sellers operating under monopolistic competition but a relatively small fraction of the total market is shared by each firm or seller.
- (2) Product differentiation: The second distinct feature of monopolistic competitive market structure is product differentiation. The number of firms is large but their products differ from one another in colours, shape and size, brand, chemical composition, quality, trade mark, packaging, durability etc. For example, firms produce different kinds of bathing soap e.g. Hamam, Lux, Lifebuoy, Rexona, Liril, Dove, Ganga, Pears, Le Sancy etc. but these products are close substitutes.
- (3) Freedom of entry and exit: Under monopolistic competition the firms are relatively free to enter the industry and to exit from the industry, but they have no absolute freedom of entry the industry. New firms are free to enter into the market with new brands as close substitute of the existing brands.

- (4) Non-price competition: Under monopolistic competition firms compete with one another without changing the price of their products. The firms attract the potential buyers by offering them gifts, incentives, credit schemes, selling schemes and other services. Thus, the firms compete at other than price front.
- (5) Price policy: Every firm has its own price policy. As under monopoly and monopolistic competition the average revenue curve and marginal revenue curve are sloping downward means that the firm will have to fix low price for fulfilling sales maximisation as shown in diagram 7.2 and high price for less sales.



Diagram 7.2

- (6) Less Mobility: There is no perfect mobility of factors of production and of goods and services in practical life. The factors are less mobile because of psychological reasons and disparity among the regions.
- (7) No perfect knowledge: Under monopolistic competition the buyers and sellers do not have perfect knowledge about the market conditions. The buyers and sellers of the products and owners of the factors of production are ignorant about the prices of the products and factor services.
- (8) Selling Costs: Under monopolistic competition each firm wants to promote the sales of its products by incurring selling costs. The expenditure incurred on advertisement and publicity to increase sales is called selling costs. The selling costs shift the demand for a firm's product and the rival firms also retaliate by incurring more and more selling costs.
- (9) Close Substitutes: Under monopolistic competitions the product are not homogeneous products but they are close substitutes to each other which tends to create competition among the firms regarding their products.
- (10) Group Equilibrium: Under monopolistic competition the industry is not said to be in equilibrium but there is a position of group equilibrium for the group as whole e.g. soap manufacturing group combine a group of soap manufacturers and that group itself needs to be in equilibrium position. Group denotes the collection of firms producing unidentical but close substitutes.

(2) OLIGOPOLY:

An oligopoly is a market structure in which there are a few sellers of a product selling identical or differentiated products. If they are selling identical products, it is a case of pure oligopoly and if they are selling differentiated products, it is a case of differentiated oligopoly. In this case each firm has to take into

account the price being charged by the others. One studies the reaction curves of the other firms and in this way the firms are interdependent. They may even charge high price if they enter into agreement and there is no pricing policy under oligopoly because of the kinky shape of demand curve which is a broken one. Thus, price rigidity and price war are the common features of oligopoly.

The various features of oligopoly are discussed as follows:

- (1) Relatively small number of sellers: There are relatively small number of sellers under oligopoly market structure selling identical or differentiated products. Each seller controls a large part of the demand and the policies of every seller influence the price and output of the industry as a whole.
- (2) Interdependence of the firms: Under the oligopoly market structure all the firms are sailing in the same boat and every tilting position influences each of the firm as well with equal proportion. No firm can be neutral. They depend on each other while determining the price and output of the firm.
- (3) Price rigidity and price war: Price rigidity and price was are the common features of an oligopoly market structure. Each firm retaliates and acts according to the actions of the other firms and a tug of war starts between them which is better known as 'Price War' which further paves way to price rigidity.
- (4) Difficulty in entry and exit: Under oligopoly the entry and exit of the firms is banned. The new firms cannot enter the market as the old firms have complete hold over the market conditions and the firms are also reluctant to leave because of the huge investment made by them.
- (5) Selling costs: Under oligopoly market structure, each firm pursues an aggressive and defensive marketing strategy to control the market. Advertisement is an important method used by the oligopolists to control the bigger part of the market.
- (6) Indeterminateness of the demand curve: Under oligopoly market structure the shape of the demand curve is broken and is indeterminate because the firms cannot assume that the rival firms will not make a change in their price policy in response to change in price affected by it. Thus, the fact that the reaction pattern of the rival firms are indeterminate leaves the demand curve in a indeterminate position.
- (7) Complex Market Structure: The market structure of oligopoly is quite complex. As there is a possibility of rival firms to end rivalry by working out some policy of collusion and the collusive oligopoly manifests itself in the form of combination of rival firms to fix the same price and also share in output as in case of cartels. Besides it, non-collusive oligopoly is also found in practice which presents a complex market structure.

(3) DUOPOLY:

When there are only two firms in a market having complete hold over the supply of the product it is termed as a case of duopoly. It is such a market structure when two firms produce a standardised product or produce two products which are very much similar to each other and price of both the products is also uniform. Under such market, each firm has to think over the possible impact on the rival firm of its price policy, discount policy and production techniques. Both the firms try to maximize the profits of each other and by pacts and collusion they try to come in monopoly power situation and exploit the consumers.

DIFFERENT MARKET STRUCTURES AT A GLANCE:

	Perfect Competition	Monopoly	Imperfect Competition		
Points of Difference			Monopolistic competition	Oligopoly	Duopoly
No. of sellers	Very large	One	Large	A few	Two
Product	Homogeneous	One Product	Product differentiation	Product differentiation	Similar of product differentiation
Price	Uniform	Single Price and Price discrimination	Different	Different	Similar or Different
Entry	Free entry	Restricted	Not absolute freedom	Not absolute freedom	Not restricted and absolute freedom
Mobility	Perfect	Partial	Partial	Partial	Partial
Price elasticity of demand	Perfectly elastic	Highly inelastic	Less elastic	Less elastic	Less elastic or inelastic
Knowledge of the market	Perfect knowledge	Partial knowledge	Partial knowledge	Partial knowledge	Partial knowledge
Selling cost	NIL	NIL	Exist	Exist	May or may not exist
AR & MR	Horizontal and AR = MR	Both are different AR > MR	Both are different AR > MR	AR is indeterminate	Downward sloping AR>MR
Transportation cost	NIL	Exist	Exist	Exist	Exist
Price determination	By industry equilibrium	By firm but firm and industry is same	Firms them- selves	Counter pricing	Uniformity

7.5 Summary

Perfect competition is a utopian market situation or a myth. Monopoly is an extreme market situation and consumer has to pay exorbitant prices in it. In case of imperfect competition a lot of selling cost in incurred and the poor consumer bears all the burden of non-price competition or selling cost. Then which market situation is good from the consumer's point of view? What is good for the consumer may be imaginary market situation. Hence, what is prevailing is good. Imperfect competition seems to be much near to the reality in the market. Perfect competition and monopoly both are two extremes. Monopoly is not advantageous to buyer and perfect competition is not that much advantageous to seller. Hence, imperfect competition seems to be an in-between solution.

7.6 Key Words

- Market: A place where buyers & sellers are actively engaged in buying and selling acts.
- Market Structure: Market structure is called characteristics of market.
- **Perfect Competition:** It is characterized by the presence of many firms and they all sell identical product, the seller is a price taker not price maker.
- Monopoly: Market structure, which there is only a single seller of the product.
- **Imperfect Market:** Here many seller of the product but the product of each seller is different from other seller.
- Monopolistic Competition: It is the mid-way between perfect competition & monopoly.
- **Oligopoly:** In this market structure, there are a few sellers of a product selling identical or differentiated products.
- **Duopoly:** Only two firms in a market having complete hold over the supply of the product.

7.6 Self Assesment Test

- 1. Define Market.
- 2. What are the essentials of a market?
- 3. Give the characteristics of Perfect Competition.
- 4. What is Monopoly and what are its characteristics?
- 5. What is imperfect competition and its forms?
- 6. What are the characteristics of Monopolistic competition?
- 7. What is oligopoly and what are its characteristics?
- 8. Compare Oligopoly and Monopoly.

7.8 Suggeted Books/References

- 1. Gupta, E.S. : Managerial Economics, Tata MC Grow Hill, New Delhi
- 2. Dholakiya R.H. and A.H. Ojha: Micro Economics for Management students, Oxford University Press, Delhi.

Unit - 8 Pricing Under Different Market Conditions

Unit Structure

- 8.0 Objectives
- 8.1 Introduction
- 8.2 Objective of Price Output Decision
- 8.3 Price Output Decisions Under Perfect Competition
- 8.4 Price and Output Decisions under Monopoly
- 8.5 Price and Output Decisions under Monopolistic Condition
- 8.6 Pricing and Output Decisionsunder Oligopoly
- 8.7 Summary
- 8.8 Key Words
- 8.9 SelfAssessment Test
- 8.10 Suggested Books / References

8.0 Objectives

After studying this unit, you should be able to understand:-

- The concept of market
- The objective of price output decision
- Price output under Perfect Competition
- Price and output under Monopoly
- Price and output under monopolistic condition
- Pricing and output under Oligopoly

8.1 Introduction

Market:- In general, market means a place where there are many buyers and sellers of different products who are actively engaged in buying and selling acts. The firm's demand curve is expected to depend on such things as the number of sellers in the market and the similarity of their products. These are the aspects of market structure which may be termed as the characteristics of market of generalisation that are likely to influence firm's behaviour and performance. In broader sense face to face contact between buyers and sellers is not necessary. They can establish contact through different means of communication like letters, agents, telegraphs, telephone etc. or newspapers. Thus, the term market does not mean any particular place but the entire area where buyers and sellers of a commodity are in such close contact with each other that the price of the same commodity tends to be one throughout that area.

The market environment is a marketing term and refers to all of the forces outside marketing that affect marketing management's ability to build and maintain successful relationships with target customers. The market environment consists of both the macroenvironment and the microenvironment.

The microenvironment refers to the forces that are close to the company and affect its ability to serve its customers. It includes the company itself, its suppliers, marketing intermediaries, customer markets, competitors, and public.

The company aspect of microenvironment refers to the internal environment of the company. This includes all departments, such as management, finance, research and development, purchasing, operations

and accounting. Each of these departments has an impact on marketing decisions. For example, research and development have input as to the features a product can perform and accounting approves the financial side of marketing plans and budgets.

The suppliers of a company are also an important aspect of the microenvironment because even the slightest delay in receiving supplies can result in customer dissatisfaction. Marketing managers must watch supply availability and other trends dealing with suppliers to ensure that the product will be delivered to customers in the time frame required in order to maintain a strong customer relationship.

8.2 Objective of Price Output Decision

- In decision-making analysis, market structure and pricing has an important role through its impact on the decision-making environment.
- Pricing and market structure is important because it affects market outcomes through its impact on the motivations, opportunities and decisions of economic actors participating in the market.
- The goal of economic market structure and pricing analysis is to isolate these effects in an attempt to explain and predict market outcomes.
- There is close relationship between the price and demand of product.
- Pricing must take into account the competitive and legal environment in which the company oper ates.

8.3 Price Output Decisions Under Perfect Competition

Perfect competition is a market situation where there are large number of buyers and sellers of a homogeneous product and the price of the product is determined by the market forces in an industry. Only single price prevails in the market and all the time products are sold at the prevailing price.

PRICE AND OUTPUT DETERMINATION UNDER SHORT PERIOD:

A firm is said to be in equilibrium in short period where marginal cost (MC) is equal to marginal revenue (MR) and the curve MC cuts MR from below. This also determines the level of output. A short period is the period in which all factors of production cannot be changed, only variable factors like labour, raw material etc. can be changed for the change in the level of output. Hence, short period is such a period in which no firm enters or leaves an industry.

Under equilibrium position, a firm in short period can have the following situations:

- (1) Super Normal profit or Profit situation.
- (2) Normal profit situation.
- (3) Loss situation.
- (4) A case of shut down point.
- (1) Super normal profit or a profit situation: As depicted in the diagram 8.1 average revenue (AR) is equal to marginal revenue (MR) which is shown by horizontal line parallel to the x-axis and short run average cost (SAC) and short run marginal cost (SMC) have also been shown in the diagram.



Diagram 8.1

According to the condition of equilibrium of a firm the equilibrium will be at E where SMC equals MR from below and also cuts SAC at its minimum. Hence the price and output are determined at point E. The price is OP and the level of output is OQ.

Average cost = OL or MQ Then profit per unit = EQ-MQ = EM or PL Hence, Total profit of the firm = $\frac{\text{Price per unit}}{\text{shaded area}} X$ Total output = PLEM

(2) Normal profit situation: Next possible situation in short period can be of a normal profit. When there is no profit i.e. average cost equals the average revenue or price per unit. In diagram 7.2 OP is the price given by the industry and SMC also cuts MR from below and at its point E, SMC and SAC, AR and MR are all equal. Hence, the level of output is determined equal to OQ and the price charged by the firm is OP or EQ.

Average Cost = EQ

Profit per unit = EQ-EQ = Zero



Diagram 8.2

Hence, at this point of equilibrium E the firm is has normal profit i.e. no profit i.e. no profit situation. Normal profit situation is a situation in which a firm neither makes a profit nor makes a loss. Normal profit is a minimum revenue a firm must get to continue in the industry. Normal profit situation not only covers explicit cost but also covers the implicit cost of production i.e. cost of owners own resources engaged in production.

(3) Loss situation: Third possibility in short period under perfect competition may be of a loss situation where the prevailing market price may be less than the average cost of the firm that is to say that AR is less than its MC. In such situation the firm will be incurring losses which is well depicted in Diagram 8.3



Here in equilibrium at a point E and output is determined equal to OQ and OP is the price charged by the firm. At point E, SMC cuts MR from below and SAC at its minimum.

Per unit price = OP or EQ Per unit cost = OL or MQ Per unit Loss = ME (=MQ-EQ)

Hence, total loss = LP ME is shown by the shaded area. Under loss situation all the firms will incur losses and many firms will try to make exit from the industry but due to short period they will be unable to do so. But at the equilibrium position E the firms will be incurring minimum losses.

(4) A case of shut down point: The position is very much clear that in a short period situation the firm can neither enter can exit. Now the question arises whether the firms will continue production or break away, the answer is that the firm will continue production up to a particular level if it is able to meet its variable cost of production but if AR is less than its average variable cost (AVC) then it will close its doors and stop production this is well depicted as in diagram 8.4



It is also further elaborated that when the price falls so much that the firm is not able to meet even its variable cost then it is advisable to stop the production in the short period. The shut down point arises at that point where the price is below the variable cost. Thus, in short period when the price is less than the variable cost then it will stop production. When the price is OP then the level of output is OQ and firm is

incurring losses equal to LP ME at equilibrium point E. When the price is OP then output will be less as before equal to OQ1 and the equilibrium is at E1. Here the firm is meeting its average variable cost and if the price reduces beyond this to OP2 then it will close its doors. Thus, E is the shut down point of the firm where price is equal to average variable cost (P=AVC). At point E1 the firm is not meeting any fixed cost but meeting its variable cost. Here the firm is indifferent, if it stops products on, then it will incur losses equal to fixed cost. Hence, it can be said that the firm is indifferent, it can either stop the production or continue its production. In both the situations the firm is having the same losses. Thus E1 is the shut down point of the firm.

PRICE AND OUTPUT DETERMINATION UNDER THE LONG PERIOD

Long run is that period in which all the factors of production, production as well as technique, size of the plant etc can be adjusted for production according to its demand and any firm can enter or exit. Thus, in the long run every firm is enjoying the normal profit. If in long run the firms make super normal profit then other firms will enter the industry and start production which will increase the supply side and lower down the price. Hence, there will be normal profits. On the other hand if the firms are incurring losses then the firms will exit from the industry and the supply will decrease so as to increase the price, the losses will disappear and the situation of normal profit will prevail under perfect competition in the long run as is well depicted in the diagram 8.5



Diagram 8.5

Here is long run the firm will be in equilibrium at E, OP is the price and OQ is the level of output. In long run the equilibrium will be where

$$\begin{split} MR &= MC \\ AR &= AC \\ or AR &= MR = AC = MC \\ and at point E this condition is fulfilled. The long run equilibrium equation in perfect competition is. \\ (SAC &= SMC = LAC = LMC = AR = MR = P) \\ Per unit price (AR) &= OP or EQ \\ Average cost (AC) &= EQ \\ Output &= OQ \\ Profit &= AR-AC i.e. EQ-EQ = 0. \end{split}$$

Here the firm is earning normal profits. Here the price will not be more then OP because of long run. Other firm will enter and on the other hand the same situation will be there. If the price is less than OP then firm will incur losses and the firm will leave the industry because of long run.

8.4 Price and Output Decisions Under Monopoly

Monopoly is such a market structure in which there is a single seller of the product. Pure monopoly refers to a firm producing products which have no close substitutes, which is a rare phenomenon. For the monopoly to exist it is necessary to have producer of the product with no close substitutes of the products but there are strong barriers to entry into the industry. In monopoly there is no difference between firm and industry. Firm and industry is the same which always faces a negatively sloped demand curve for its products. Hence, the monopolist is a price maker not a price-taker. Monopoly therefore, refers to that market in which a single firm controls the whole supply of a particular product which has no close substitutes.

PRICE AND OUTPUT DETERMINATION UNDER SHORT PERIOD

Under monopoly market structure a monopolist can make a change in the level of production with making a change in scale of production or with intensive use of the productive technique keeping in view the time factor which enables the monopolist to do this, is called short period. If a monopolist has to produce more he can employ more of labour and can change in quantity of raw material and power resources as required by him. In short period a monopolist cannot influence the fixed costs but variable costs can only be influenced in the matters of taking decision regarding value and production. A monopolist in short period cannot charge price less than the average variable cost (AVC) and if he charges then he will have to close the door of his firm. Thus a monopolist will remain producing until his marginal cost (MC) equals his marginal revenue (MR) and on this point he enjoys maximum profits. Under short period a monopolist may have super normal profit, normal profits or the losses which is discussed as under.

A case of super-normal profit under short period: Diagram 8.6 shows the short period equilibrium of the firm where the monopolist has maximum of the profits. In diagram AR and MR are the Average Revenue and Marginal Revenue curves of the firm and AC and MC are in Average cost and Marginal cost curves of the firm. The firm's MC curve cuts MR curves at point E and establishes equilibrium at point E. At this point the firm's output is OQ and the price is equal to OP and OR or QM is the average cost of the firm. The difference of OP and OR shows profit equal to PR (per unit profit). Thus, PR MT the shaded area represents the supernormal profit of a monopolist under short period.



A case of normal profit under short period: Under monopoly market a firm may have normal profit situation which is well illustrated in the diagram 8.7



Diagram 8.7

In this diagram, AR and MR are the Average Revenue and Marginal Revenue curves of the firm and AC and MC are the Average cost and Marginal cost curve in the short period. Marginal cost curve cuts marginal revenue curve at point E and also establishes equilibrium at E point and the output level is OQ with OP level of price and QM is the average cost of the firm which is equal to its price (OP). At this position the firm is neither having profits nor incurring losses.

A case of losses under short period: Under monopoly market structure a firm may incur losses which can be depicted in diagram 8.8



Diagram 8.8

The diagram illustrates a position of losses in short period by a monopolist. Here, price is less than its cost. In diagram SMC and SAC are the short run marginal cost curve and short run average cost curve of the firm respectively. AR and MR are the average revenue and marginal revenue curves of the firm.

SMC cuts the MR at point E and establishes the equilibrium. Here OQ is the level of output to be produced. OP is the price and QM is the average cost of the produce in short period which results in loss equal to OM-OP = PM per unit of output making a total loss equal to the shaded area PMST.

PRICE AND OUTPUT DETERMINATION UNDER LONG PERIOD -

Under long period a monopolist has enough time to adjust the supply according to the demand of the product. In the long period a monopolist will remain in business only if he can make a profit by producing the optimum level of output with the most appropriate scale of plant. The optimum level of output in the long period is given by the point where the LMC curve intersects the MR curve from below and the most appropriate scale of plant is that whose SAC curve is tangent to the LAC curve at the best level of output and the firm or the industry will be in equilibrium. As new entry into the industry in restricted

and the firm is the industry as well, the monopolist will adjust the long run output by means of size of plant adjustment depending upon the level and slope of the AR and MR curves.



Diagram 8.9

In the long run the firm will be in equilibrium where firm's LMC curve cuts the long run MR curve and at this point of intersection the firm will enjoy profits. Generally, the firm in the long period is earning super-normal profit as shown by diagram 8.9

In the diagram the firm at point E is in equilibrium where LMC cuts MR from below. Thus, E is the equilibrium point where OQ is the output and OP is the price and OM is the average cost of the firm (OM = PQ), hence, the firm is having profit equal to shaded area MPSR. This is a case of profit in long run situation.

8.5 Price and Output Decisions Under Monopolistic Condition

Monopolistic competition is a situation of imperfect competition. In the previous chapters we have discussed the perfect competition and monopoly. Both the situations are exceptions to the market structure and the former is imaginary and not found in the real world.

PRICE AND OUTPUT DETERMINATION OF A FRIM UNDER MONOPOLISTIC COMPETITION : A CASE OF SHORT PRIOD EQUILIBRIUM:

The analysis of short period equilibrium of a firm under monopolistic competition is based on the following assumptions:

- (1) Large number of sellers who behave independently.
- (2) Product of each seller is different (i.e. product differentiation).
- (3) The firm has determinate demand curve (AR) which is elastic.
- (4) No new firms enter the industry in short period situation.
- (5) Short run cost curves of each firms differ from the other.
- (6) Factor services are in perfectly elastic supply.

Given these assumptions, each firm fixes such price and output as maximizes its profit. The equilibrium price and output is determined at a point where the short period marginal cost equals marginal revenue. Since the cost differs in short period, a firm can earn normal profits, super normal profit or incur losses. This analysis can be very well depicted in the following diagram 8.10

The diagram 8.10 (a) 8.10 (b) and 8.10 (c) shows the super normal profit situation, normal profit situation and losses situation of a firm under monopolistic competition in the short period. AR and MR are average revenue and marginal revenue of the firms SMC and SAC are short period marginal cost curves and short period average cost curves and of the corresponding firms operating under monopolistic competition in short period.



Diagram 8.10

In diagram 8.10 (a) the short period marginal cost curves (SMC) intersects the marginal revenue curve (MR) at point E from below which establishes equilibrium at E point. Here the total output is produce equal to OQ, and the price (per unit) OP is maintained and the cost per unit is OT or RQ. Hence the difference between price and cost i.e. (OP-OT=PT) shows the profits of the firm, then the total profit at equilibrium position (E) would be

 $PT \times OQ (OQ = TR) = PTMR$

Thus, the firm enjoys super normal profit equal to the area PTMR in short period under monopolistic competitive market structure.

Likewise, the diagram 8.10 (b) shows the normal profit situation of a firm under short period in a monopolistic competitive market. The diagram depicts the same equilibrium point E which is derived with intersection of SMC and MR and E point shows the same price and same cost for the product i.e. OP is the per unit price of the product and MQ or OP (as MQ = OP) is the cost (per unit) of the product. Here both price and cost are equal and same and the difference which determines the size of the profits is nil. Thus, here the firms enjoy normal profit. It just covers its short-run average unit cost as represented by the tangency of demand curve (AR) and the short period average cost curve (SAC) at M earns normal profits.

The diagram 8.10 (c) shows a situation where the firms is unable to cover its short period average cost (SAC) and tends to incur losses. The equilibrium point E is established as SMC equals MR but the short period average cost is higher than its average revenue and the firm has to incur losses. In this situation. MQ or OT is the cost per unit which is higher than the price (AR) where price per unit is equal to OP and their difference shows the losses (i.e. OT - OP = PT loss per unit) and total output produced is equal to OQ then the total loss then firm would incur is equal to the area PTMR. This area PTMR shows

the losses of the firm and the firm in short period will continue its production in the hope of lowering down its costs in the long period under monopolistic market structure.

Hence, it should be remembered that in the short period under monopolistic competition the individual firm may be in equilibrium position but the group as a whole is not in stable equilibrium because the number of firms will have a tendency to change. The existence of full equilibrium, for the group is now here to be seen in the short period under monopolistic competitive market structure.

PRICE AND OUTPUT DETERMINATION UNDER MONOPOLISTIC COMPETITION: A CASE OF LONG PERIOD EQUILIBRIUM:

In the long period the price and output policy of an individual firm is determined by the one general principle where Marginal revenue (MR) and Marginal cost (MC) are equal to each other as shown in the short period. The firm can maximise its net profits by equating the long run marginal cost with its marginal revenue. In long period the individual firm as well as the group as a whole remain in stable equilibrium whereas in short period the individual firm is in equilibrium but the group is not in stable equilibrium. So, it is possible to achieve the full equilibrium position in the long period under monopolistic competitive market structure. To achieve the position of full equilibrium in the long run two adjustments have to be made.

(1) All the quantity offered for sale must be equal to its demand in the market at a given price.

(2) Entry and exit of firms in response to the general position of the existing firm.

The first type of adjustment is similar to that of perfect competition. But under monopolistic competition all the firms do not charge the same price. They charge different prices but the differentials are too much. So, under monopolistic competition there is a general level of price and also a general level of AR (Average Revenue) curves of the individual firms. Each firm adjusts its price and output in such a way that LMC must equal to MR and therefore, each firm determines its output independently. The summation of the output of the firms provide us the total output available for sale in the market as shown by diagram 8.11. It is assumed here that entry of new firm is restricted.

In diagram 8.11 AR and MR are the average revenue and marginal revenue curve of the firm. LMC and LAC are the long period marginal cost curve and long period average cost curve of the firm. Every firm equates its marginal cost to its marginal revenue. In the diagram E1 is the point of equilibrium when the entry of new firms is restricted then the firms enjoying super-normal profits with the OQ level of output as OP is the price and EQ or OM is cost per unit of product and difference between the two shows the profit situation (i.e. OP-OM = MP) profit per unit and total output is OQ hence, total profit is MP × OQ) equal to the area MPTE. Thus, MPTE is the super-normal profit of a firm under long period situation when the entry of the new firms is restricted but this profit situation will attract other firms to enter.



Diagram 8.11

WITH OPEN ENTRY:

If the monopolistic competitive industry is earning supernormal profits new firms will be attracted towards the group. With



Diagram 8.12

the entry of the new firms in the industry the super-normal profit tends to decline and a situation of normal profit will prevail. With entry of the new firms, the existing market is divided among more sellers so that each firm may sell lesser quantity of goods than before resulting the demand curve to shift downward. And at the entry of new firm, increase in demand will cause the individual cost curve to shift upward. This two way shifting i.e. the demand to downward and cost to upward squeezes the position of super-normal profit. Hence in the long run the firm earns only normal profits which is depicted in the diagram 9.18 as under.

Before the entry of the new firms in the industry under monopolistic competition the firm is in equilibrium at point E where LMC cuts MR and OQ level of output is produced and OP level of price is maintained, EQ or OC is the cost per unit and OP is the price per unit thus PC is the profit per unit with which accrue to firm thus CPME is the super normal profit accrued to the firm in the long run when there is no entry in the industry which is well shown in the diagram 8.11 (a)

Similarly, the diagram 8.11 (b) depicts the normal profits situation when there is free entry. The new firms will be attracted when the existing are earning super-normal profits and with the entry of the new firms the demand curve will slope downward and the price will also lower down and ultimately at the point of equilibrium position at E, OP is price and MQ is the cost per unit of production leaving the firms with normal profit with OQ level of output.

If the firms do not earn super normal profits under monopolistic competition they will not incur losses either because under loss situation the firm will exit from the industry, as to decrease the supply and price to go up and resources will be in surplus and will become cheaper than before to decrease the cost which further will eliminate the losses as shown in diagram 8.11 (b). This long run equilibrium analysis under monopolistic competition reveals that each individual firm and the whole industry do not produce optimum level of output as is clear from the diagram that the point M is tangent point which is not lowest considering the cost conditions, whereas L is the lowest point for the cost conditions and for the firms to produce. Thus, under monopolistic competition in the long run situation there is excess capacity.

8.6 Pricing and Output Decisions Under Oligopoly

The word oligopoly is derived from the Greek words (i.e. Oligos + Pollen); Oligos means few and pollen means to sell. It is also a situation of imperfect competition where there are a few sellers of a

particular product or a differentiated product. When the firms are selling homogeneous product then it is a case of 'pure oligopoly' and when the firms are selling differentiated product, then it is case of differentiated oligopoly. According to Stigler, "Oligopoly is that market situation in which a firmbases its market policy in part on the expected behaviour of a few close rivals." To make the meaning more clear oligopoly is that form of imperfect competition where there are few firms in the market, producing either an homogeneous product or producing products which are close but not perfect substitutes of each other.

PRICE AND OUTPUT DETERMINATION UNDER OLIGOPOLY:

Generally the firm is in equilibrium position where its marginal cost curves equals its marginal revenue curves and price is depicted with the help of average revenue curve or demand cure. But this analysis is not true in the case of oligopolistic situation because of the interdependence of the firms and indeterminateness of the demand curve and considerable distinction in the allocation of common cost to specific products, with the result that there is no single definite cost curve. Price and output determination can be studied under the following three situations:

(1) Independent pricing (2) Pricing under collusion and (3) Pricing under Price Leadership.

Independent Pricing: Under oligopolistic market situation each firm tries to follow an independent price and output policy. The price fixed by each firm may be more or less than monopoly price, because each firm produces a differentiated product. And on the basis of fixing the prices in a competitive manner, the price war breaks out between the firms. Thus, there can be two limits; the upper limit laid down by the monopoly price and the lower limit is determined by the actual price which may come to be fixed under oligopolistic conditions. There is no simple theory that explains where the actual price will be set between these limits which further depends on the circumstances and conditions prevailing in the market. In case where the firms are producing similar products and all the firms in existence are showing the market proportionately and equally, then a uniform pricing policy is to be fixed by them. But in case of differentiated products as discussed earlier each oligopolistic firm is in such a position as to fix the price like a monopolist.

But some modern economists say that free price policy is not found in the real situation because of the wrong assumptions like identical products, iso-cost, equal and proportionate distribution of market etc. So, under oligopoly the price does not remain stable. The economists are of the view that behaviour of an oligopolistic market is indeterminate. What they mean is that its behaviour cannot be explained by the same conceptual apparatus that applies to other market structures. The independent pricing under oligopolistic market leads to lot of uncertainty, insecurity and antagonism in the market. It is because of this uncertainty, insecurity and antagonism some economists points out that independent price setting under oligopoly cannot remain for a longer period and it will further be replaced by other forms of price fixation. Thus, on the basis of uncertainty, insecurity and antagonism independent pricing is not possible under oligopolistic market structure which leads to price war and price rigidity.

Price War : Price war sets in when a firm reduces the price of its product in order to increase its sales and maximise revenue. Its rival firms also resort to cutting down the price of its product so each firm tries to undercut the other which paves way to price war as can be well depicted in the diagram 8.13



ell depicted in the diagram 24.1.

To explain the price war we take two firm A & B with their respective reaction curve Ra and Rb as the price line. The firm A & B whose price moves are taken along X-axis and Y-axis respectively as shown in diagram 8.13 with Ra and Rb respective reactive reaction curves. The curve R focuses the price reaction of firm A and Rb is the reaction curve of firm B. The curve Ra focuses the price reaction of firm A to the price move of firm B, similarly, Rb shows the price reaction of B to the price move of A. Suppose, initially the firm A changes price equal to OA then firm B reacts and cuts its price to OB1 from OB; Further A reacts and charges a price equal to QA1 and B will react to this decline in A's price and B charges a price equal to OA3 and B charges price equal to OB3 and further price cutting will be disastrous for both firm. A and firm B. Thus a position of stable equilibrium is not to be found under oligopolistic market due to the presence of uncertainty, insecurity and antagonism.

Price Rigidity:

The Kinked Demand Curve is also known as Paul M. Sweezy Model. The oligopolistic price that remain stable over a period of time is known as price rigidity. It is such a situation when there is a change in cost of production and demand conditions there is no change in the price of the goods and services from the firm's side. As the price of the durable goods do not change throughout the year say fan, radio, television, watch etc.

Reasons for Price Rigidity:

There are the following reasons which are responsible for price rigidity under oligopolistic market.

- (1) When the Oligopolists might happen to understand the basic element that it is futile to exercise price war as price war does favour none.
- (2) The oligopolists may be self content with the current prices so as to avoid uncertainty, insecurity, antagonism etc.
- (3) The oligopolists may stick to prevailing price so as to discourage the entry of the new firms.
- (4) If any price is fixed through collusion or an agreement, no firm is going to change it so as to avoid the fear of price war.

- (5) As high selling cost is involved no firm is ready to change its price.
- (6) The firm may increase their profits by sales maximisation rather than cutting down the prices. So, price rigidity is maintained.
- (7) Finally, the shape of the Kinked Demand Curve goes in support for price rigidity in oligopolistic market structure.

Assumptions of kinked demand curve:

The Kinked demand curve analysis is based on the following assumption:

- (1) Under oligopolic market an established price prevails.
- (2) The behaviour of each firm or seller depends upon its rival.
- (3) If one firm raises or reduces the price the same is followed by its rivals.
- (4) The marginal cost curve passes through the dotted portion of the Marginal revenue curve which further explains that changes in marginal cost do not affect price and output under oligopolistic market.
- (5) The firms follow non-competitive price policy.

The analysis of price rigidity can be explained with the help of Kinked Demand Curve as under with the help of diagram 8.14



Diagram 8.14

The diagram 8.14 explains that the firm is starting at a point P with the corresponding current price equal to OP1. The diagram shows that KPD is the Kinked demand curve and P is the Kinkey point on the Kinked demand curve KPD, therefore OP1 is the prevailing price in the oligopolistic market with OQ level of output and MR is the discontinuous Marginal Revenue curve, the portion AB shows its discontinuity and MC is the marginal cost curve faced by an oligopolist. Starting from point P with corresponding prevailing prince OP1 any increase in the price will reduce its sales for the firm and rival may or may not follow the same, then the firm will reduce its sales and profit will be limited. It is because of the KP portion of the Kinked demand curve being elastic and the corresponding portion of KA of the Marginal revenue curve is positive. Thus, any increase in price is liable to reduce its sales and revenue frontiers and then profit to decline.

On the contrary, if the firm or seller reduces its price below OP1 its rival firm will also reduce the price of its product which may lead to an increase in its sales but the profit would be less than before. The reason is very clear that PD portion of Kinked demand curve is less elastic and the corresponding part of marginal revenue curve below B is negative. Thus, in both the situations either price increases or price decreases and the oligopolist remains the loser. Thus, the oligopolist would stick to the prevailing market price OP1 which remains rigid. Hence the rigidity is maintained at Kinky point P of the Kinked Demand curve under oligopolistic market. This is such a situation in which the oligopolistic firm does not want to

have a change in its price, maintaining rigidity at the Kinky point of the Kinked demand curve. Thus price rigidity is always maintained at the Kinky point on the Kinked demand curve under oligopolistic market. The demand curve KPD with P as Kinky point on it presents a discontinuity in marginal revenue curve equal to the portion AB and beyond B the marginal revenue curve is negative. The elasticity of Kinked demand curve determines the size of discontinuity in the marginal revenue curve. The more elastic the demand curve is to the left of the Kinky point P and more inelastic to right of the Kinky point, the more will be discontinuity in the marginal revenue curve under oligopolistic market in the price rigidity analysis. If the angle, KPD becomes a right angle the gap or discontinuity (AB) will be the widest. Thus, the price will be stable and rigid till marginal cost curve cuts marginal revenue curve, somewhere between the discontinuity portion AB. The Theory of Kinked demand curve has its drawbacks.

- (i) The gap or discontinuity or Marginal Revenue Curve (MR) may be unstable.
- (ii) The theory does not tell us how the initial price OP1 is maintained.
- (iii) Price determination is illusionary as it does not follow the market behaviour.
- (iv) It is doubtful about the stability of price under oligopoly as actual sales price in case of many products is not possible.
- (v) Kinked theory follows a price cut but does not follow a price rise but Stigler remarked that a price rise has not been taken into consideration.

PERFECT COLLUSION UNDER OLIGOPOLY:

A collusion or a cartel is a combination of firms whose object is to limit the scope of competitive forces within a market. Individual firms of a certain industry surrender to a central association the power to make price and output decisions. Thus, the cartel or collusive oligopoly assumes monopoly power the determines the price and output in the same capacity with zeal and jest. Perfect collusion implies cartel agreements which is an association of the independent firms within the industry. Perfect cartel under oligopoly with complete control over the price and output policy of the member firms and with the threat of entry is a situation for consideration.

(1) **Perfect collusion:** Perfect cartel is an extreme form of perfect collusion. Each firm reserves profits according to the assigned quota and therefore the principle of cost maximisation is not likely to be followed. Thus, it is also contemplated that price and output results obtained under perfect collusive oligopoly are the same as obtained under monopoly. The price and output under central can be illustrated with the help of following diagram 8.15.



Diagram 8.15

In diagram 8.14 DD is the industry demand curve and MR is the corresponding marginal revenue curve taking three oligopolistic firms A, B and C in the industry. Their marginal cost curves are MC1, MC2 and MC3 respectively with OP1 level of price with their respective output equal to OQ1m OQ2 and OQ3. MC is the lateral summation of the marginal cost curves of all the individual firm in the industry which equals Marginal revenue curve at point E with OQ level of output with the price level OP, as DD is the demand curve for the industry and also determines the price for the industry as a whole under the conditions of perfect collusion and each firm will produce that level of output at which marginal cost curves equals industry's marginal revenue curves i.e. EP1. Thus A will produce OQ1, B will produce OQ2 and C will produce OQ3 of the output and OQ being the total output of the industry (OQ1+OQ2+OQ3 = OQ). It results into the maximum joint profit for the industry but it is not necessary that each firm may have profit equal to their quota allotment. Mutual agreement and relative bargaining power determine the division of profit.

(2) Market Sharing Cartel under Oligopoly:

Another form of perfect collusion under oligopolistic market is that of market sharing cartel by the member firms of a cartel. Market sharing cartel is an equal division of total market sales among allits firms. In differentiated oligopoly all firms in an industry enter into a collusion for charging a uniform price which is agreeable to all the firms. They divide the market among themselves according to an agreement and get profits according to its sales and their demand curve will be a part of the demand curve for the industry. As each firm has its own demand curve with the same elasticity as that of industry demand curve which can be illustrated in diagram 8.16

When equal market's sharing DD is the industry demand curve and MR is the corresponding marginal revenue curve (DD1) MC is the aggregate marginal cost curve of the industry. MR curve DD1 intersects MC curve at point E and set OP price and OQ level of output under this situation. Industry output OQ is shared equally by the firms at MC curve of firms cuts MR curve at point C and OQ level of output is determined as OQ level of output is for the industry as a whole. Thus, OQ is just half of the total output QO or OQ0 - QoQ level of output. Thus, equal level of output is shared by the firms. Each firm tries to increase the share of the market by means of secret price concessions which tends to change the demand cost conditions further and price variations among firms become more common and ultimately the agreement becomes a farce and all the firms act independent oligopolists.



Diagram 8.16 99

PRICE LEADERSHIP:

Price leadership is imperfect collusion among the oligopolistic firms in an industry with the dominant firm as all firms follow the dominant firm as one of the big firm in an oligopolistic market. There is an agreement among all the firms to sell the product at a price set by the leader of the dominant firm in an industry. Sometimes a meeting is held and a definite agreement is taken by the dominant firm. In case of homogeneous or heterogeneous product the price may be a uniform price and the same is announced by the leader of the firms for example, price leadership industries are like cement, cigarettes, flour, fertilizers, petroleum, milk, steel, etc. Price leadership may be of different types.

- (i) There is a barometric price in which there is no dominant firm which announces the price but the wisest firm announces the price by taking into consideration the demand and cost conditions and the rest follow suit.
- (ii) When the price is announced by a dominant firm then it is known as dominant price leadership. It is also known as partial monopolistic price leadership.
- (iii) The dominating firm may fix the profit maximisation price for itself and for the others to accept it; it is known as aggressive price leadership. It may fix such a low price as some of the firms may resort to exit from the industry.
- (iv) When the pricing is done by the dominant firm suppressing competition among oligopoly firms is known as effective price leadership.

The real test of the dominant firms price leadership is the extent to which the other firms follow its lead. The moment the firms cease to follow the price leader, the model of price leadership by the dominant firm seems to break down. Besides, if the other firms have different cost curves the same price may not maximise short run profits for all the firms under oligopolistic situation under the head of price leadership.

The price leadership minima very minima the ronowing points while exercising price leadership:

- 1- The reactions of the firms when the price is announced.
- 2- Elasticity of substitution between the product of the price leadership firm and the competitive firms.
- 3- Knowledge about the policy of the competitive firms.

The price determination by the price leadership firm can be illustrated with the help of the diagram 8.17



Diagram 8.17

In this diagram, MC and MC1 are the marginal cost curves of the two firms A & B and AR and MR are their respective average revenue curve and marginal revenue curve. The firm A's marginal cost curve MC and its marginal revenue curve MR intersect each other at E and E is the point of Equilibrium with OQ level of output and QP level of price and similarly, in case of firm B its equilibrium point is also set at point E1 where its respective marginal cost curve MC1 and Marginal revenue curve MR cut each other at point E1 and OQ1 is level of output with OQ1 is level of output with P1Q1, being the price, making a comparison between the two firms firm A's price is lower than the price of firm B but the output is greater than B's firm so, in this way firm A will act as price leadership firm and will determine the price and output policy for the rest of the firms under oligopolistic market under the case of price leadership. Thus, firm A is the price leadership firm which quotes the price for rest of the firms and acts as a torch bearer in the field of pricing and output.

8.7 Summary

Markets are the heart and soul of a capitalist economy, and varying degrees of competition lead to different market structures, with differing implications for the outcomes of the market place. Market structure and pricing decisions are closely related

The degree to which the firm gets to choose price is determined in large part by market structure. These elements are perfect competition, monopolistic competition, oligopoly and monopoly. Based on the differing outcomes of different market structures, economists consider some market structures more desirable, from the point of view of the society, than others. The extent to which an individual firm exercises control over the price of the product it sells is another important characteristic of a market structure. Under perfect competition, an individual firm has no control over the price of the product it sells. A firm under monopolistic competition or oligopoly has some control over the price of the product it sells. Finally, a monopoly firm is deemed to have considerable control over the price of its product.

8.8 Key Words

- Firm: One or more than one units which are under the same ownership.
- Industry: It is a union of all the individual firms producing the same product.

8.9 Self Assessment Test

- 1. Define Market environment.
- 2. Explain price output determination under Perfect Competition.
- 3. Explain Price and output determination under monopolistic condition with suitable diagram.
- 4. Illustrate Pricing and output determination under Oligopoly.

8.10 Suggested Books/Refernces

- 1. Mathur N.D., Managerial Economics, Shivam book House (P.) Limited, Jaipur
- 2. Mehta P.L. : Managerial Economics-Analysis Problems and Cases: Sultan Chand, New Delhi.

Unit - 9 Price Discrimination

Unit Structure

- 9.0 Objectives
- 9.1 Introduction
- 9.2 Objectives of Price Discrimination
- 9.3 Conditions necessary for Price Discrimination to Work
- 9.4 Types of Price Discrimination
- 9.5 International Price Discrimination: Dumping
- 9.6 Disadvantages of Price Discrimination
- 9.7 Price Discrimination-harmful or Beneficial to Society
- 9.8 Summary
- 9.9 Key Words
- 9.10 SelfAssessment Test
- 9.11 Suggested Books / References

9.0 Objectives

After studying this unit, you should be able to understand:

- The concept of price discrimination
- The objectives of price discrimination
- Types of price discrimination
- The concept of dumping
- Price Discrimination-harmful or beneficial to society

9.1 Introduction

Price discrimination or price differentiation exists when sales of identical goods or services are transacted at different prices from the same provider. In a theoretical market with perfect information, perfect substitutes, and no transaction costs or prohibition on secondary exchange (or re-selling) to prevent arbitrage, price discrimination can only be a feature of monopolistic and oligopolistic markets, where market power can be exercised. Otherwise, the moment the seller tries to sell the same goods at different prices, the buyer at the lower price can arbitrage by selling to the consumer buying at the higher price but with a small discount. However, product heterogeneity, market frictions or high fixed costs (which make marginal-cost pricing unsustainable in the long run) can allow for some degree of differential pricing to different consumers, even in fully competitive retail or industrial markets. Price discrimination also occurs when the same price is charged from customers which have different supply costs.

Difference between price discrimination and product differentiation

Product differentiation differentiation of the product gives the supplier greater control over price and the potential to charge consumers a premium price because of actual or perceived differences in the quality / performance of goods or services.

Price discrimination occurs when a firm charges a different price from different groups of consumers for an identical good or service, for reasons not associated with costs.

9.2 Objectives of Price Discrimination

There are several objectives of price discrimination. Some are as given below.

- Firms will be able to increase revenue. This will enable some firms to stay in business which otherwise would have made a loss. For example price discrimination is important for train companies which offer different prices for peak and off peak.
- Increased revenues can be used for research and development which benefit consumers
- Some consumers will benefit from lower fares. Eg. old people benefit from lower train companies, old people are more likely to be poor
- The other objective to the consumer of price discrimination are price discrimination is likely to increase output and make the good or service available to more people and the increased competition in the market leads to lower prices and more choice.

9.3 Conditions Necessary for Price Discrimination to Work

Essentially there are two main conditions required for discriminatory pricing

- Differences in price elasticity of demand between markets: There must be a different price elasticity
 of demand from each group of consumers. The firm is then able to charge a higher price from the
 group with a more price inelastic demand and a relatively lower price from the group with a more
 elastic demand. By adopting such a strategy, the firm can increase its total revenue and profits (i.e.
 achieve a higher level of producer surplus). To profit maximize, profit the firm will seek to set
 marginal revenue equal to marginal cost in each separate (segmented) market.
- 2) Barriers to prevent consumers switching from one supplier to another: The firm must be able to prevent "market seepage" or "consumer switching" defined as a process whereby consumers who have purchased goods or services at a lower price are able to re-sell it to those consumers who would have normally paid the expensive price. This can be done in a number of ways, and is probably easier to achieve with the provision of a unique service such as a haircut rather than with the exchange of tangible goods. Seepage might be prevented by selling a product to consumers at unique and different points in time for example with the use of time specific airline tickets that cannot be resold under any circumstances.

The effects of price discrimination on social efficiency are unclear; typically such behavior leads to lower prices for some consumers and higher prices for others. Output can be expanded when price discrimination is very efficient, but output can also decline when discrimination is more effective at extracting surplus from high-valued users than expanding sales to low valued users. Even if output remains constant, price discrimination can reduce efficiency by misallocating output among consumers.

9.4 Types of Price Discrimination

There are many forms of price discrimination, but the standard method of classification identifies three types or degrees of discrimination. But there are other two types also named as skimming and combination. Their common characteristic is that they allow the firm to capture part of the consumer surplus that would have resulted from uniform pricing.

First degree price discrimination

In first degree price discrimination, price varies by customer's willingness or ability to pay. This arises from the fact that the value of goods is subjective. A customer with low price elasticity is less deterred by a higher price than a customer with high price elasticity of demand. As long as the price
elasticity (in absolute value) for a customer is less than one, it is very advantageous to increase the price: the seller gets more money for fewer goods. With an increase of the price elasticity tends to rise above one. One can show that in optimum price, as it varies from customer to cuustomer, is inversely proportional to one minus the reciprocal of the price elasticity of that customer at that price. This assumes that the consumer passively reacts to the price set by the seller, and that the seller knows the demand curve of the customer. In practice however there is a bargaining situation, which is more complex: the customer may try to influence the price, such as by pretending to like the product less than he or she really does or by threatening not to buy it.

An alternative way to understand first Degree Price Discrimination is as follows: This type of price discrimination is primarily theoretical because it requires the seller of goods or services to know the absolute maximum price that every consumer is willing to pay. As above, it is true that consumers have different price elasticities, but the seller is not concerned with thus. The seller is concerned with the maximum willingness to pay (or reservation price) of each customer. By knowing the reservation price, the seller is able to absorb the entire market surplus, thus taking all of the consumer's surplus from the consumer and transforming it into revenues. From a social welfare perspective though, first degree price discrimination is not necessarily undesirable. That is, the market is still entirely efficient and there is no deadweight loss to society. In a market with first degree price discrimination, the seller simply captures all surplus. Efficiency is unchanged but the wealth is transferred. This type of market does not exist much in reality, hence it is primarily theoretical. Examples of where this might be observed are in markets where consumers bid for tenders, though still, in this case, the practice of collusive tendering undermines efficiency. It is a classic part of price competition between firms seeking a market advantage or to protect an established market position.

Perfect Price Discrimination - charging whatever the market will bear

Sometimes known as optimal pricing, with perfect price discrimination, the firm separates the whole market into each individual consumer and charges them the price they are willing and are able to pay. If successful, the firm can extract all consumer surplus that lies beneath the demand curve and turn it into extra producer revenue (or producer surplus). This is impossible to achieve unless the firm knows every consumer's preferences and, as a result, is unlikely to occur in the real world. The transactions costs involved in finding out through market research what each buyer is prepared to pay is the main block or barrier to a businesses engaged in this form of price discrimination.

If the monopolist is able to perfectly segment the market, then the average revenue curve effectively becomes the marginal revenue curve for the firm. The monopolist will continue to see extra units as long as the extra revenue exceeds the marginal cost of production.

The reality is that, although optimal pricing can and does take place in the real world, most suppliers and consumers prefer to work with price lists and price menus from which trade can take place rather than having to negotiate a price for each unit of a product bought and sold.



Diagram 9.1

Diagram 9.1 shows the demand curve faced by a monopolist. The curve indicates the maximum price that can be obtained for successive units of output. For example, the first unit Q1, could command a maximum price of P1, the second could be sold for a maximum of P2, and so on. To simplify the discussion, it is assumed that marginal cost is constant and equal to average cost.

First-degree discrimination involves charging the maximum price possible for each unit of output. Thus, the consumer who attaches the greatest value to the product is identified and charged a price of P1. Similarly, the consumers willing to pay P2 for the second unit and P3 for the third are identified and required to pay P2 and P3, respectively.

With first-degree price discrimination, the profit-maximizing output rate is where the marginal cost and demand curves intersect. In Figure 9.1, it occurs at QD. At this point, the maximum price that can be obtained for the product is just equal to the marginal cost of production. Any attempt to sell more than QD units would reduce profits because price would have to be less than marginal cost. Conversely, any rate of output less than QD would not maximize profits because the additional units could be sold (as shown by the demand curve) at prices greater than the marginal cost.

First-degree discrimination is the most extreme form of price discrimination and the most profitable pricing scheme for the firm. Because buyers are charged the maximum price for each unit of output, no consumer surplus remains. Consumer surplus is the difference between the price a consumer is willing to pay and the actual price charged for the good or service. The maximum consumer surplus results when there is no price discrimination, and price is set equal to marginal cost. In Fig 9.1, this maximum consumer surplus is shown as the area of the triangle APcB. In contrast with first-degree price discrimination, there is no consumer surplus because APcB is captured by the firm as economic profit.

Second degree price discrimination

In second degree price discrimination, price varies according to quantity sold. Larger quantities are available at a lower unit price. This is particularly widespread in sales to industrial customers, where bulk buyers enjoy higher discounts.

Additionally to second degree price discrimination, sellers are not able to differentiate between different types of consumers. Thus, the suppliers will provide incentives for the consumers to differentiate themselves according to preference. As above, quantity "discounts", or non-linear pricing, is a means by which suppliers use consumer preference to distinguish classes of consumers. This allows the supplier to

set different prices to the different groups and capture a larger portion of the total market surplus.

Second degree price discrimination is an imperfect form of first-degree discrimination. Instead of setting different prices for each unit, it involves pricing based on the quantities of output purchases by individual consumers. This is illustrated by Diagram 9.2. For each buyer, the first Q1 unit purchased are priced at P1, the next Q2 - Q1 units are priced at P2, and all additional units are priced at P3



In reality, different pricing may apply to differences in product quality as well as quantity. For example, airlines often offer multiple classes of seats on flights, such as first class and economy class. This is a way to differentiate consumers based on preference, and therefore allows the airline to capture more consumer's surplus.

This type of price discrimination involves businesses selling off packages of a product deemed to be surplus capacity at lower prices than the previously published/advertised price.

Examples of this can often be found in the hotel and airline industries where spare rooms and seats are sold on a last minute standby basis. In these types of industry, the fixed costs of production are high. At the same time the marginal or variable costs are small and predictable. If there are unsold airline tickets or hotel rooms, it is often in the businesses best interest to offload any spare capacity at a discount prices, always providing that the cheaper price that adds to revenue at least covers the marginal cost of each unit.

There is nearly always some supplementary profit to be made from this strategy. And, it can also be an effective way of securing additional market share within an oligopoly as the main suppliers' battle for market dominance. Firms may be quite happy to accept a smaller profit margin if it means that they manage to steal an advantage on their rival firms. The expansion of e-commerce by both well established businesses and new entrants to online retailing has seen a further growth in second degree price discrimination.

Peak and Off-Peak Pricing

Peak and off-peak pricing are common in the telecommunications industry, leisure retailing and in the travel sector. Telephone and electricity companies separate markets by time: There are three rates for telephone calls: a daytime peak rate, and an off peak evening rate and a cheaper weekend rate. Electricity suppliers also offer cheaper off-peak electricity during the night.

At off-peak times, there is plenty of spare capacity and marginal costs of production are low (the supply curve is elastic) whereas at peak times when demand is high, we expect that short run supply becomes relatively inelastic as the supplier reaches capacity constraints. A combination of higher demand and rising costs forces up the profit maximising price.



Diagram 9.3

Third degree price discrimination

In third degree price discrimination, price varies by attributes such as location or by customer segment, or in the most extreme case, by the individual customer's identity; where the attribute in question is used as a proxy for ability/willingness to pay.

Additionally to third degree price discrimination, the suppliers of a market where this type of discrimination is exhibited are capable of differentiating between consumer classes. Examples of this differentiation are student or senior discounts. For example, a student or a senior consumer will have a different willingness to pay than an average consumer, where the reservation price is presumably lower because of budget constraints. Thus, the supplier sets a lower price for that consumer because the student or senior has a more elastic price elasticity of demand (see the discussion of price elasticity of demand as it applies to revenues from the first degree price discrimination, above). The supplier is once again capable of capturing more market surplus than would be possible without price discrimination.

Note that it is not always advantageous to the company to discriminate price even if it is possible, especially for second and third degree discrimination. In some circumstances, the demands of different classes of consumers will encourage suppliers to simply ignore one/some class(es) and target entirely to the other(s). Whether it is profitable to discriminate is determined price by the specifics of a particular market.

Third Degree (Multi-Market) Price Discrimination

This is the most frequently found form of price discrimination and involves charging different prices for the same product in different segments of the market. The key is that third degree discrimination is linked directly to consumers' willingness and ability to pay for goods or services. It means that the prices charged may bear little or no relation to the cost of production. The market is usually separated in two ways: by time or by geography. For example, exporters may charge a higher price in overseas markets if demand is estimated to be more inelastic than it is in home markets. MC=AC



Diagram 9.4

Suppose a firm has separated a market by time into a peak market with inelastic demand, and an off-peak market with elastic demand. The demand and marginal revenue curves for the peak market and off peak markets are labelled A and B respectively. This is illustrated in the diagram above. Assuming a constant marginal cost for supplying to each group of consumers, the firm aims to charge a profit maximising price to each group.

In the peak market the firm will produce where MRa = MC and charge price Pa, and in the off-peak market the firm will produce where MRb = MC and charge price Pb. Consumers with an inelastic demand for the product will pay a higher price (Pa) than those with an elastic demand who will be charged Pb.

Price Skimming

In price skimming, price varies over time. Typically a company starts selling a new product at a relatively high price then gradually reduces the price as the low price elasticity segment gets satiated. Price skimming is closely related to the concept of yield management. Price skimming is a pricing strategy in which a marketer sets a relatively high price for a product or service at first, then lowers the price over time. It is a temporal version of price discrimination/yield management. It allows the firm to recover its sunk costs quickly before competition steps in and lowers the market price.



Diagram 9.5

Price skimming is sometimes referred to as riding down the demand curve. The objective of a price skimming strategy is to capture the consumer surplus. If this is done successfully, then theoretically no customer will pay less for the product than the maximum they are willing to pay. In practice, it is almost impossible for a firm to capture all of this surplus.

Combination

These types are not mutually exclusive. Thus a company may vary pricing by location, but then offer bulk discounts as well. Airlines use several different types of price discrimination, including:

- Bulk discounts to wholesalers, consolidators, and tour operators
- Incentive discounts for higher sales volumes to travel agents and corporate buyers
- Seasonal discounts, incentive discounts, and even general prices that vary by location. The price of a flight from say, Singapore to Beijing can vary widely if one buys the ticket in Singapore compared to Beijing (or New York or Tokyo or elsewhere). In online ticket sales this is achieved by using the customer's credit card billing address to determine his location.
- Discounted tickets requiring advance purchase and/or Saturday stays. Both restrictions have the effect of excluding business travelers, who typically travel during the workweek and arrange trips on shorter notice.
- First degree price discrimination based on customer. It is not accidental that hotel or car rental firms may quote higher prices to their loyalty program's top tier members than to the general public

9.5 International Price Discrimination: Dumping

In economics, "dumping" can refer to any kind of predatory pricing. However, the word is now generally used only in the context of international trade law, where dumping is defined as the act of a manufacturer in one country exporting a product to another country at a price which is either below the price it charges in its home market or is below its costs of production. The term has a negative connotation, but advocates of free markets see "dumping" as beneficial for consumers and believe that protectionism to prevent it would have net negative consequences. Advocates for workers and laborers however, believe that safeguarding businesses against predatory practices, such as dumping, help alleviate some of the harsher consequences of free trade between economies at different stages of development (see protectionism). The Bolkestein directive, for example, was accused in Europe of being a form of "social dumping," as it favored competition between workers, as exemplified by the Polish Plumber stereotype. While there are very few examples of a national scale dumping that succeeded in producing a national-level monopoly, there are several examples of dumping that produced a monopoly in regional markets for certain industries. Ron Chenow points to the example of regional oil monopolies in Titan: The Life of John D. Rockefeller, Sr. where Rockefeller receives a message from Colonel Thompson outlining an approved strategy where oil in one market, Cincinnati, would be sold at or below cost to drive competition's profits down and force them to exit the market. In another area where other independent businesses were already driven out, namely in Chicago, prices would be increased by a quarter.

A standard technical definition of dumping is the act of charging a lower price for a good in a foreign market than one charges for the same good in a domestic market. This is often referred to as selling at less than "fair value". Under the World Trade Organization (WTO) Agreement, dumping is condemned (but is not prohibited) if it causes or threatens to cause material injury to a domestic industry in the importing country.

Remedies and penalties

In the United States, domestic firms can file an antidumping petition under the regulations determined by the United States Department of Commerce, which determines "less than fair value" and the International Trade Commission, which determines "injury". These proceedings operate on a timetable governed by U.S. law. The Department of Commerce has regularly found that products have been sold at less than fair value in U.S. markets. If the domestic industry is able to establish that it is being injured by the dumping, then antidumping duties are imposed on goods imported from the dumpers' country at a percentage rate calculated to counteract the dumping margin.

Related to antidumping duties are "countervailing duties". The difference is that countervailing duties seek to offset injurious subsidization while antidumping duties offset injurious dumping.

Some commentators have noted that domestic protectionism, and lack of knowledge regarding foreign cost of production, lead to the unpredictable institutional process surrounding investigation. Members of the WTO can file complaints against anti-dumping measures.

Legal issues

If a company exports a product at a price lower than the price it normally charges on its own home market, it is said to be "dumping" the product. Opinions differ as to whether or not this is unfair competition, but many governments take action against dumping in order to defend their domestic industries. The WTO agreement does not pass judgment. Its focus is on how governments can or cannot react to dumping-it disciplines anti-dumping actions, and it is often called the "Anti-Dumping Agreement". (This focuses only on the reaction to dumping contrasts with the approach of the Subsidies & Countervailing Measures Agreement.)

The legal definitions are more precise, but broadly speaking the WTO agreement allows governments to act against dumping where there is genuine ("material") injury to the competing domestic industry. In order to do that the government has to be able to show that dumping is taking place, calculate the extent of dumping (how much lower the export price is compared to the exporter's home market price), and show that the dumping is causing injury or threatening to do so.

Definitions and degrees of dumping

While permitted by the WTO, General Agreement on Tariffs and Trade (GATT) (Article VI) allows countries the option of taking action against dumping. The Anti-Dumping Agreement clarifies and expands Article VI, and the two operate together. They allow countries to act in a way that would normally break the GATT principles of binding a tariff and not discriminating between trading partners-typically anti-dumping action means charging extra import duty on the particular product from the particular exporting country in order to bring its price closer to the "normal value" or to remove the injury to domestic industry in the importing country.

There are many different ways of calculating whether a particular product is being dumped heavily or only lightly. The agreement narrows down the range of possible options. It provides three methods to calculate a product's "normal value". The main one is based on the price in the exporter's domestic market. When this cannot be used, two alternatives are available-the price charged by the exporter in another country, or a calculation based on the combination of the exporter's production costs, other expenses and normal profit margins. And the agreement also specifies how a fair comparison can be made between the export price and what would be a normal price. Calculating the extent of dumping on a product is not enough. Anti-dumping measures can only be applied if the dumping is hurting the industry in the importing country. Therefore, a detailed investigation has to be conducted according to specified rules first. The investigation must evaluate all relevant economic factors that have a bearing on the state of the industry in question. If the investigation shows dumping is taking place and domestic industry is being hurt, the exporting company can undertake to raise its price to an agreed level in order to avoid anti-dumping import duty.

Procedures in investigation and litigation

Detailed procedures are set out on how anti-dumping cases are to be initiated, how the investigations are to be conducted, and the conditions for ensuring that all interested parties are given an opportunity to present evidence. Anti-dumping measures must expire five years after the date of imposition, unless a review shows that ending the measure would lead to injury.

Anti-dumping investigations are to end immediately in cases where the authorities determine that the margin of dumping is, de minimis, or insignificantly small (defined as less than 2% of the export price of the product). Other conditions are also set. For example, the investigations also have to end if the volume of dumped imports is negligible (i.e., if the volume from one country is less than 3% of total imports of that product-although investigations can proceed if several countries, each supplying less than 3% of the imports, together account for 7% or more of total imports). The agreement says member countries must inform the Committee on Anti-Dumping Practices about all preliminary and final anti-dumping actions, promptly and in detail. They must also report on all investigations twice a year. When differences arise, members are encouraged to consult each other. They can also use the WTO's dispute settlement procedure.

9.6 Disadvantages of Price Discrimination

- 1. Some consumers will end up paying higher prices. These higher prices are likely to be allocatively inefficient because P>MC.
- 2. Decline in consumer surplus.
- 3. Those who pay higher prices may not be the poorest.
- 4. There may be administration costs in separating the markets.
- 5. Profits from price discrimination could be used to finance predatory pricing.

9.7 Price Discrimination-Harmful or Beneficial to Society

Pigou and Joan Robinson have analyzed the circumstances under which price discrimination is harmful or beneficial to society. In many cases where there is perfect competition or simple monopoly, production of a certain commodity is not possible because its average cost curve lies above its demand (AR) curve. But under price discrimination, the average cost curve is likely to be below the average revenue curve at some point. Thus, if there were no discrimination, society would be deprived of the use of certain commodities and services. As emphasized by Mrs Robinson: "It may happen, for instance, that a railway would not be built, or a country doctor would not set up practice, if discrimination were forbidden. From the point of view of society, it is only necessary that the concern should make sufficient profits to maintain the efficiency of the plant, and not a profit which would have been sufficient to justify the original investment." If a doctor charges a uniform fee from all his patients, his income may be so low as to induce him to leave his private practice and join some hospital. The community is thus deprived of his services in that particular area where he is practicing. If, however, he charges more fee from his rich patients than from the ordinary, his income is likely to be so high as to induce him from stay in that area.

Similarly, the existence of railways depends upon their charging higher rates to some customers than from others.

If discrimination occurs under conditions of falling average costs, it is actually beneficial to consumers because it results in larger output for the market. This is illustrated in Figure 4 where D is the average revenue curve of the discriminating monopolist and d/MR is the ordinary demand curve which becomes the MR curve to the discriminator. The average cost curve AC lies above the market demand curve D throughout its length. So no production is possible at any price on the D curve. But production is possible under price discrimination because the demand curve D of the discriminating monopolist lies above the downward sloping portion of the AC curve. Equilibrium is established at E where MC = MR and the output OQ is produced and sold at QP price and the discriminator earns RP profits per unit of output.



Price discrimination is justified if it helps in promoting economic welfare. Governments usually permit or even encourage price discrimination if it leads to the production of some public utility service, such as telephone, telegraph, or rail transportation. In public utility services, the higher income groups are charged higher prices and the funds so collected may be used to subsidies the goods meant for the poor.

Price discrimination is also beneficial to society for it helps in reducing inequalities of personal incomes when higher prices or fees are charged from the rich than from the poor. In public utility services, the higher price charged from the higher income groups serves as a tool for income redistribution because the government may use these funds to subsidies the lower income groups. Thus price discrimination helps in promoting social welfare.

Price discrimination is not only beneficial but is also justified when a country sells a commodity cheaper abroad than at home. If a foreign market is elastic, more will be sold at a lower price. It means expansion in output, the use of larger resources of the economy, more employment and income to the community. Price discrimination of this type proves particularly useful if the industry obeys the law of decreasing costs. It implies the realization of larger economies of scale, lowering of costs and prices to the home market also. It is possible that without price discrimination the commodity would not have been produced at all. In that case, had it been imported from abroad, it would have cost the economy more both in monetary and real terms. Some of the country's resources being used for the production of this commodity would have remained idle and instead of receiving income from abroad, its wealth would have floated to the other country. May be, economies of scale could be realized only when the monopolist started producing for the foreign market. Hence price discrimination is justified.

Price discrimination is, however, harmful to society when it leads to a misdistribution of resources as between different uses with the result that output, employment and income are not maximized. Further, it may lead to the diversion of resources from their socially optimal uses. It leads to wastes of resources when people are made to pay higher prices for smaller quantities. Even on international plane when price discrimination takes the form of dumping, it deliberately shatters the economy of the other country by undercutting the foreign producers and forcing them to close their business. Such discrimination is highly undesirable.

9.8 Summary

Price discrimination is the practice of one retailer, wholesaler, or manufacturer charging different prices for the same items from different customer. This is a widespread practice. Price discrimination, as it is now understood, is separated into degrees. First, second and third degree price discrimination exist and apply to different pricing methods used by companies. Much depends on the understanding of the market in segments, and also the consumer's ability to pay a higher or lower price, called elasticity of demand. Aperson who might pay more for an item is thought to have a low elasticity of demand. Another person who will not pay as much has a high elasticity of demand.

9.9 Key Words

- **Price discrimination:** Price discrimination exists when sales of identical goods or services are transacted at different prices from the same provider. In general, the practice of charging different customers different prices is called price discrimination.
- **First degree price discrimination:** Price discrimination exists when sales of identical goods or services are transacted at different prices from the same provider. In general, the practice of charging different customers different prices is called price discrimination.
- Second degree price discrimination: Price discrimination exists when sales of identical goods or services are transacted at different prices from the same provider. In general, the practice of charging different customers different prices is called price discrimination.
- **Third degree price discrimination:** Price discrimination exists when sales of identical goods or services are transacted at different prices from the same provider. In general, the practice of charging different customers different prices is called price discrimination.
- **Dumping:** Selling goods abroad at a price below that charged in the domestic market.

9.10 Self Assessment Test

- 1 What is price discrimination? What are the conditions for discriminating price?
- 2 What are the objectives of price discrimination?
- 3 Briefly explain types of price discrimination.
- 4 What do you think price discrimination-harmful or beneficial to society?
- 5 What is international price discrimination? Explain its legal issues.

9.11 Suggested Books/References

- 1. Mansfield E.C. : Micro Economics Selected Reading W.W. Norten, New York
- 2. Koutsoyiannis A: Reading in applied Economics: Oxford Clarendoor Press.

Unit - 10 Pricing Strategies

Unit Structure

- 10.0 Objectives
- 10.1 Introduction
- 10.2 Objectives of Pricing Strategy
- 10.3 Cost-Plus Pricing
- 10.4 Pricing Over Life-Cycle of a Product
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10.0 Objectives

After studying this unit, you should be able to understand:

- The concept of pricing strategy.
- Pricing strategies followed by firms in specific situations.
- Pricing strategy and their impact on demand.
- The objectives of pricing strategy.

10.1 Introduction

In every economics system, the prices of goods and services are crucial. A price is a sacrifice for one who pays it but it is a gain for one who gets it. Everybody is concerned with the prices in one way or another. The price of the commodity would be determined by the market itself through interplay of demand and supply for the commodity, because there is a relationship between price and quantity demanded, it is important to understand the impact of pricing on sales by estimating the demand curve for the product. For existing products, experiments can be performed at prices above and below the current price in order to determine the price elasticity of demand. Inelastic demand indicates that price increases might be feasible.

Pricing strategy las an instrument to achieve the objective of a firm and it should be formulated in such a way as to maximize the sales revenue and profit. Maximum profit refers to the highest possible profit. In the short run, a firm not only should be able to recover its total costs, but also should get excess revenue over costs.

One of the most difficult, yet important, issues you must decide as an entrepreneur is how much to charge for your product or service. While there is no one single right way to determine your pricing strategy, fortunately there are some guidelines that will help you with your decision.

10.2 Objectives of Pricing Strategy

The firm's pricing strategy objectives must be identified in order to determine the optimal pricing in different market situations. Common objectives include the following:

- Current profit maximization seeks to maximize current profit, taking into account revenue and costs. Current profit maximization may not be the best objective if it results in lower long-term profits.
- Current revenue maximization seeks to maximize current revenue with no regard to profit margins. The underlying objective often is to maximize long-term profits by increasing market share and lowering costs.
- Maximize quantity seeks to maximize the number of units sold or the number of customers served in order to decrease long-term costs as predicted by the experience curve.
- Maximize profit margin attempts to maximize the unit profit margin, recognizing that quantities will be low.
- Quality leadership use price to signal high quality in an attempt to position the product as the quality leader.
- Partial cost recovery an organization that has other revenue sources may seek only partial cost recovery.
- Survival in situations such as market decline and overcapacity, the goal may be to select a price that will cover costs and permit the firm to remain in the market. In this case, survival may take a priority over profits, so this objective is considered temporary.
- Status quo the firm may seek price stabilization in order to avoid price wars and maintain a moderate but stable level of profit.

10.3 Cost-Plus Pricing

Cost-plus pricing is also known as 'mark-up pricing', 'average cost pricing' or 'full cost pricing'. The cost-plus pricing is the most common method of pricing used by the manufacturing firms. It is used primarily because it is easy to calculate and requires little information. There are several varieties, but the common thread in all of them is you first calculate the cost of the product, and then include an additional amount to represent profit.

Calculating price using the cost-plus method

There are several ways of determining cost, and the profit can be added as either a percentage markup or an absolute amount. One example is:

$$P = (AVC + FC\%) \times (1 + MK\%)$$

Where:

- P = price
- AVC = average variable cost
- FC% = percentage allocation of fixed costs
- MK% = percentage markup

For example: If variable costs are 30 yen, the allocation to cover fixed costs is 10 yen, and you feel you need a 50% markup then you would charge a price of 60 yen:

$$P = (30 + 10) x (1 + 0.50)$$

P = 40 x 1.5

P = 60

An alternative way of doing the same calculation is:

P = (AVC + FC%) / (1 ? MK%)

To make things simpler, some firms, particularly retailers, ignore fixed costs and just use the purchase price paid to their suppliers as the cost term. They indirectly incorporate the fixed cost allocation into the markup percentage. To simplify things even further, sometimes a fixed amount is applied rather than a percentage. This fixed amount is usually determined by head-office to make it easy for franchisees and store managers. This is sometimes referred to as turnkey pricing.

Another variant of cost plus pricing is activity based pricing. This involves being more careful in determining costs. Instead of using arbitrary expense categories when allocating overhead, every activity is linked to the resources it uses.

Advantages of cost-plus pricing :-

- 1. easy to calculate
- 2. minimal information requirements
- 3. easy to administer
- 4. tends to stabilize markets insulated from demand variations and competitive factors
- 5. ethical advantages

Disadvantages of cost-plus pricing :-

- 1. tends to ignore the role of consumers
- 2. tends to ignore the role of competitors
- 3. use of historical accounting costs rather than replacement value
- 4. inclusion of sunk costs rather than just using incremental costs
- 5. ignores opportunity costs

10.4 Pricing over Life-Cycle of a Product

Product life cycle management (or PLCM) is the succession of strategies used by business management as a product goes through its life cycle. The life-cycle of a product is generally divided into four stages: (i) Introduction (ii) Growth, (iii) Maturity, (iv) Decline. Diagram 11.1 presents the four stages of a product's life-cycle through a curve showing the behavior of the total sales over the life cycle. The introduction phase is the period taken to introduce the product to the market. The total sale during this period is limited to the quantity put on the market for trial with considerable advertisement. The sales during this period remain almost constant. Growth is the stage, after a successful trail, during which the product gains popularity among the consumers and sales increase at an increasing rate as a result of cumulative effect of advertisement over the initial stage. Maturity is the stage in which sales continue to increase but at a lower rate and the total sale eventually becomes constant. After the maturity stage, comes the stage of decline in which total sales register a declining trend for such reasons as (i) increase in the availability of substitutes, and (ii) the loss of distinctiveness of the product.



Diagram 10.1

The pricing strategy varies from stage to stage over the life-cycle of a product depending on the market conditions. From the pricing strategy point of view, growth and maturity stages may be treated likewise. We have first discussed the pricing of a product in its initial stage as pricing of a new product and then in the 'maturity' and 'decline' stage.

Pricing a New Product:

Pricing policy in respect of a new product depends on whether or not close substitutes are available. Depending on whether or not close substitutes are available, in pricing a new product, generally two kinds of pricing strategies are suggested, viz., (i) price skimming and (ii) price penetration.

Price Skimming:-

It is a pricing strategy in which a marketer sets a relatively high price for a product or service at first, then lowers the price over time. It is a temporal version of price discrimination/yield management. It allows the firm to recover its sunk costs quickly before competition steps in and lowers the market price.

Price skimming is sometimes referred to as riding down the demand curve. The objective of a price skimming strategy is to capture the consumer surplus. If this is done successfully, then theoretically no customer will pay less for the product than the maximum they are willing to pay. In practice, it is almost impossible for a firm to capture this entire surplus. The initial high price would generally be accompanied by heavy sales promoting expenditure. This policy succeeds for the following reasons.

First, in the initial stage of the introduction of product, demand is relatively inelastic because of consumers' desire for distinctiveness by the consumption of a new product.

Second, cross-elasticity is usually very low for lack of a close substitute.

Third, step-by-step skimming consumers' surplus available at the lower segments of demand curve.

Penetration Pricing:-

It is the pricing technique of setting a relatively low initial entry price, often lower than the eventual market price, to attract new customers. The strategy works on the expectation that customers will switch to the new brand because of the lower price. Penetration pricing is most commonly associated with a marketing objective of increasing market share or sales volume, rather than to make profit in the short term.

The success of penetration price policy requires the existence of the following conditions.

First, the short run demand for the product should have elasticity greater than unity. It helps in capturing the market at lower prices.

Second, economies of large-scale production are available to the firm with the increase in sales. Otherwise, increase in production would result in increase in costs which might reduce the competitiveness of the price.

Third, the product should have a high cross-elasticity in relation to rival products for the initial lower price to be effective.

Finally, the product, by nature should be such that it can be easily accepted and adopted by the consumers.

Pricing in Maturity Period:

Maturing period is the second stage in the life-cycle of a product. It is a stage between the growth period and decline period of sales. Sometimes maturity period is bracketed with saturation period. Maturity period may also be defined as the period of decline in the growth rate of sales (not the total sales) and the period of zero growth rate. The concept of maturity period is useful to the extent it gives out signals for taking precaution with regard to pricing policy. However, the concept itself does not provide guidelines for the pricing policy. Joel Dean suggests that the "first step for the manufacturer whose specialty is about to slip into the commodity category is to reduce real...prices as soon as the system of deterioration appears." But he warns that "this does not mean that the manufacturer should declare open price war in the industry". He should rather move in the direction of "product improvement and market segmentation".

Pricing a Product in Decline:

The product in decline is one that enters the post-maturity stage. In this stage, the total sale of the product starts declining. The first step in pricing strategy in this stage is obviously to reduce the price. The product should be reformulated and remodeled to suit the consumers' preferences. It is a common practice in the book trade. When the sale of a hard-bound edition reaches saturation, paper-back edition is brought into the market. This facility is, however, limited to only a few

10.5 Multiple Product Pricing

The price theory or microeconomic models of price determination are based on the assumption that a firm produces a single, homogeneous product. In actual practice, however, production of a single homogeneous product by a firm is an exception rather than a rule. Almost all firms have more than one product in their line of production. Even the most specialized firms produce a commodity in multiple models, styles and sizes, each so much differentiated from the other that each model or size of the product may be considered a different product. For example, the various models of refrigerators, TV sets, radio and car models produced by the same company may be treated as different products for at least pricing

purpose. The various models are so differentiated that consumers view them as different products and in some cases, as perfect substitutes for each other. It is, therefore, not surprising that each model or product has different AR and MR curves and that one product of the firm competes against the other product. The pricing under these conditions is known as multi-product pricing or product-line pricing.

The major problem in pricing multiple products is that each product has a separate demand curve. But, since all of them are produced under one organization by interchangeable production facilities, they have only one inseparable marginal, cost curve. That is, while revenue curves, AR and MR, are separate for each product, cost curves, AC and MC, are inseparable. Therefore, the marginal rule of pricing cannot be applied straightaway to fix the price of each product separately. The problem, however, has been provided with a solution by E.W. Clements. The solution is similar to the one employed to illustrate third degree price discrimination. As a discriminating monopoly tries to maximize its revenue in all its markets, so does a multi-product firm in respect of each of its products.

To illustrate the multiple product pricing, let us suppose that a firm has four different products -A, B, C and D in its line of production. The AR and MR curves for the four goods are shown in four segments of Diagram 10.2 The marginal cost for all the products taken together is shown by



Diagram 10.2

The marginal cost for all the products taken together is shown by the curve MC, which is the factory marginal cost curve. Let us suppose that when the MRs for the individual products are horizontally summed up, the aggregate MR (not given in the figure) passes through point C on the MC curve. If a line parallel to the X-axis, is drawn from point C to the Y-axis through the MRs, the intersecting points will show the points where MC and MRs are equal for each product, as shown by the line EMR, the Equal Marginal Revenue line. The points of intersection between EMR and MRs determine the output level and price for each product. The output of the four products are given as OQ1 of product A; Q1Q2 of B; Q2Q3 of C; Q3Q4 of D. The respective prices for the four products are: P1Q1 for product A; P2Q2 for B; P3Q3 for C, and P4Q4 for D. These price and output combinations maximize the profit from each product and hence the overall profit of the firm.

10.6 Transfer Pricing

Transfer pricing refers to the setting, analysis, documentation, and adjustment of charges made between related parties for good, services, or use of property (including intangible property). Transfer prices among components of an enterprise may be used to reflect allocation of resources among such components, or for other purposes. we can say the price at which transfer takes place called transfer price. A high price will increase profits of the units at the earlier stage of production, whereas alow price will make later stage production more profitable. while an incorrect price can affect the total profit earned by the firm.

Transfer Pricing with No External Market

The discussion in this section explains an economic theory behind optimal transfer pricing with optimal defined as transfer pricing that maximizes overall firm profits in a non-realistic world with no taxes, no capital risk, no development risk, no externalities or any other frictions which exist in the real world. In practice a great many factors influence the transfer prices that are used by multinational corporations, including performance measurement, capabilities of accounting systems, import quotas, customs duties, VAT, taxes on profits, and (in many cases) simple lack of attention to the pricing.



Diagram 10.3

From marginal price determination theory, the optimum level of output is that where marginal cost equals marginal revenue. That is to say, a firm should expand its output as long as the marginal revenue from additional sales is greater than their marginal costs. In the diagram that follows, this intersection is represented by point A, which will yield a price of P*, given the demand at point B.

It can be shown algebraically that the intersection of the firm's marginal cost curve and marginal revenue curve (point A) must occur at the same quantity as the intersection of the production division's marginal cost curve with the net marginal revenue from production (point C).

Transfer Pricing with a Competitive External Market

When a firm is selling some of its product to itself, and only to itself (i.e. there is no external market for that particular transfer good), then the picture gets more complicated, but the outcome remains the

same. The demand curve remains the same. The optimum price and quantity remain the same. But marginal cost of production can be separated from the firm's total marginal costs. Likewise, the marginal revenue associated with the production division can be separated from the marginal revenue for the total firm. This is referred to as the Net Marginal Revenue in production (NMR) and is calculated as the marginal revenue from the firm minus the marginal costs of distribution.



If the production division is able to sell the transfer good in a competitive market (as well as internally), then again both must operate where their marginal costs equal their marginal revenue, for profit maximization. Because the external market is competitive, the firm is a price taker and must accept the transfer price determined by market forces (their marginal revenue from transfer and demand for transfer products becomes the transfer price). If the market price is relatively high (as in Ptr1 in the next diagram), then the firm will experience an internal surplus (excess internal supply) equal to the amount Qt1 minus Qf1. The actual marginal cost curve is defined by points A,C,D.

Transfer Pricing with an Imperfect External Market

If the firm is able to sell its transfer goods in an imperfect market, then it need not be a price taker. There are two markets each with its own price (Pf and Pt in the next diagram).



Diagram 10.5

The aggregate market is constructed from the first two. That is, point C is a horizontal summation of points A and B (and likewise for all other points on the Net Marginal Revenue curve (NMRa)). The total optimum quantity (Q) is the sum of Qf plus Qt.

10.7 Pricing for Established Products

In pricing a product in relation to its well established substitutes, generally three types of pricing strategies are adopted, viz., (i) pricing below the ongoing price, (ii) pricing at par with the prevailing market price, and (iii) pricing above the existing market price. Let us now see which of these strategies are adopted under what conditions.

Pricing Below the Market-Price:

Pricing below the prevailing market price of the substitutes is generally preferred under two conditions. First, if a firm wants to expand its product-mix with a view to utilizing its unused capacity in the face of tough competition with the established brands, the strategy of pricing below the market price is generally adopted. This strategy gives the new brand an opportunity to gain popularity and establish itself. For this, however, a high cross-elasticity of demand between the substitute brands is necessary. This strategy may, however, not work if existing brands have earned a strong brand loyalty of the consumers. If so, the price incentive from the new producers must, therefore, overweigh the brand loyalty of the consumers of the established products, and must also be high enough to attract new consumers. This strategy is similar to the penetrating pricing. Second, this technique has been found to be more successful in the case of innovative products. When the innovative product gains popularity, the price may be gradually raised to the level of market price.

Pricing at Market Price:

Pricing at par with the market price of the existing brands is considered to be the most reasonable pricing strategy for a product which is being sold in a strongly competitive market. In such a market, keeping the price below the market price is not of much avail because the product can be sold in any quantity at the existing market rate. The strategy is also adopted when the seller is not a 'price leader'. It is rather a 'price-taker' in an oligopolistic market. This is, in fact, a very common pricing strategy, rather the most common practice.

Pricing Above the Existing Market-Price:

The strategy is adopted when a seller intends to achieve a prestigious position among the sellers in the locality. This is a more common practice in case of products considered to be a commodity of conspicuous consumption of prestige goods of deemed to be of much superior quality. Consumers of such goods prefer shopping in a gorgeous shop of a posh locality of the city. This is known as the 'Veblen Effect'. Sellers of such goods rely on their customers' high propensity to consume a prestigious commodity. After the seller achieves the distinction of selling high quality goods, though at a high price, they may sell even the ordinary goods at a price much higher than the market price. This practice is common among sellers of readymade garments.

Besides, a firm may sets a high price for its product if it pursues the 'skimming price strategy'. This pricing strategy is more suitable for innovative products when the firm can be sure of the distinctiveness of its product. The demand for the commodity must have a low cross-elasticity in respect of competing goods.

10.8 Peak-load Pricing

In this pricing technique applied to public goods. Instead of different demands for the same public good, we consider the demands for a public good in different periods of the day, month or year, then finding the optimal capacity (quantity supplied) and, afterwards, the optimal peak-load prices.

This has particular applications in public goods such as public urban transportation, where day demand (peak period) is usually much higher than night demand (off-peak period). By subtracting the marginal costs of operation from the original demands we find the marginal benefits of capacity, which must then be vertically aggregated and equated to the marginal cost of increasing capacity. With the optimal capacity found, the optimal peak-load prices are found by adding the marginal costs of operation to the marginal benefit generated, in each period, by the optimal capacity. It may happen, however, that the optimal capacity is not fully used during the off-peak period. In that case, the capacity expansion will be totally supported by the peak demanders.

As Diagram 10.6 shows, if electricity price is fixed in accordance with peak-load demand OP3 will be the price and if it is fixed according to off-load demand, price will be OP1. The problem is what price should be fixed? If a 'peak-load' price (OP3) is charged uniformly in all reasons, it will be unfair because consumers will be charged for what they do not consume. Besides, it may affect business activities adversely. If electricity production is a public monopoly, the government will not allow a uniform 'peak-load' price.



On the other hand, if a uniform 'off load' price (OP1) is charged, production will fall to OQ2 and there will be acute shortage of electricity during peak hours. It leads to 'breakdowns' and 'load-shedding' during peak-load periods, which disrupt production and make life miserable. This is a regular feature in Delhi, the capital city of India. This is because electricity rates in Delhi are said to be one of the lowest in the country.

Alternatively, if an average of the two prices, say P2 is charged, it will have the demerits of both 'peak-load' and 'off-load' prices. There will be an excess production to the extend of AB during the 'off-load' period, which will go waste as it cannot be stored. It production is restricted to OQ1, price P2 will be unfair. And, during the 'peak-load' period, there will be a shortage to the extent of BC, which can be produced only at an extra marginal cost of CD.

10.9 Ramsey Pricing

If an enterprise has common costs, marginal cost pricing may not be feasible. Ramsey pricing is the second best alternative that allows the firm to recover its cost while minimizing adverse effects of allocative efficiency. It is applicable to public utilities or regulation of natural monopolies, such as telecom firms.

Ramsey pricing is sometimes consistent with a government's objectives because Ramsey pricing is economically efficient in the sense that it can maximize welfare under certain circumstances. There are, however, problems with Ramsey pricing. A profit-maximizing operator will choose Ramsey prices only if all markets are equally monopolistic or equally competitive. If markets are not equally monopolistic or competitive, then the regulator has an interest in taking steps to ensure that the extent to which the operator can use Ramsey pricing is limited to groups of services that are subject to similar degrees of competition. Regulators typically do this by forming baskets of services that are subject to similar degrees of competition and allowing the operator price flexibility within each service basket. Even though Ramsey pricing can be economically efficient, it may not be consistent with the government's goal of providing affordable service to the poor and the rate by which prices change to achieve Ramsey-efficient prices may not be consistent with political sustainability. As a result of these two concerns, the regulator sometimes limits the operator's ability to pursue Ramsey pricing within a service basket. In the case of services to the poor, the regulator may place upper limits on the prices. Lastly, regulators often note that Ramsey pricing is a form of price discrimination - although not necessarily a bad form of price discrimination - and customers sometimes object to it on that basis. The public sometimes believes that it is unfair to cause one type of customer to pay a higher mark-up above marginal cost than another type of customer. In such situations regulators may further limit an operator's ability to adopt Ramsey prices.

Practical issues exist with attempts to use Ramsey pricing for setting utility prices. It may be difficult to obtain data on different price elasticities for different customer groups. Also, some customers with relatively inelastic demands may acquire a strong incentive to seek alternatives if charged higher markups, thus undermining the approach. Politically speaking, customers with relatively inelastic demands may also be viewed as those for whom the service is more necessary or vital; charging those higher markups can be challenged as unfair.

10.10 Limit Pricing

A limit price is the price set by a monopolist to discourage economic entry into a market, and is illegal in many countries. The limit price is the price that the entrant would face upon entering as long as the incumbent firm did not decrease output. The limit price is often lower than the average cost of production or just low enough to make entering not profitable. The quantity produced by the incumbent firm to act as a deterrent to entry is usually larger than would be optimal for a monopolist, but might still produce higher economic profits than would be earned under perfect competition. The problem with limit pricing as strategic behavior is that once the entrant has entered the market, the quantity used as a threat to deter entry is no longer the incumbent firm's best response. This means that for limit pricing to be an effective deterrent to entry, the threat must in some way be made credible. A way to achieve this is for the incumbent firm to constrain itself to produce a certain quantity whether entry occurs or not. An example of this would be if the firm signed a union contract to employ a certain (high) level of labor for a long period of time.

10.11 Loss leader Pricing

A company loses money on one service but earns on a related product. This strategy is often implemented as a part of a promotion campaign. The intent of this practice is not only to have the customer buy the (loss leader) sale item, but other products that are not discounted. These bargains will attract customers who may then purchase other products/services even if they don't buy the product which price had been initially reduced. This is where a company will make up for the loss as it will be selling other items that generate high profits. One example is HP inkjet printers that are often sold to retail customers below their true value, at a price which seems to be affordable to most consumers. Moreover, these printers are sometimes offered for free - free after rebate, free with a purchase of an HP computer, etc. However, consumers have to pay the regular price for ink cartridges. It is ink cartridges, not the printers that generate high profits for the HP. Another example is Gillette's safety razor handles that are sold at a loss, but sales of disposable razor blades are very profitable.

Major forces influencing pricing are company's strategic goals, demand for its products or services, and/or competition. Management should pay particular attention when deciding on pricing methods since the success of the entire business depends on it.

10.12 Summary

Pricing decisions require a synthesis of economic and marketing principles, an appreciation of legal and ethical constraints, and the ability to use accounting, financial, and market research data. Pricers face different market conditions which require distinguished pricing strategies. One of the most important drivers of the variability on those conditions is the state of demand. In real business world, firms practices numerous pricing strategies followed by firms in specific situations.

10.13 Key Words

- **Cost-plus pricing:** Cost-plus pricing is the simplest pricing method. The firm calculates the cost of producing the product and adds on a percentage (profit) to that price to give the selling price.
- Skimming: Selling a product at a high price.
- Penetration pricing: Selling a product at a high price.
- Limit price: Limit price is the price that the entrant would face upon entering aslong as the in cumbent firm did not decrease output.
- **Transfer pricing:** The price that is assumed to have been charged by one part of a company for products and services it provides to another part of the same company, in order to calculate each division's profit and loss separately.
- Loss leader pricing: A loss leader or leader is a product sold at a low price (at cost or below cost) to stimulate other, profitable sales.
- **Peak-load pricing:** it is a pricing technique applied to public goods Instead of different demands for the same public good, we consider the demands for a public good in different periods of the day, month or year, then finding the optimal capacity (quantity supplied) and, after wards, the optimal peak-load prices.
- **Ramsey pricing:** Ramsey pricing is concerned with prices that maximize the sum of industry consumer surplus and profits.

10.14 Self Assessment Test

- 1 What is transfer pricing? How is transfer price determined in the cases i) Transfer Pricing with No External Market ii) Transfer Pricing with a Competitive External Market iii) Transfer Pricing with an Imper fect External Market.
- 2 Differentiate between skimming price and penetration price policy. Which of these policies is relevant in pricing a new product under different competitive conditions in market?
- 3 Explain the objectives of pricing strategy.
- 4 Describe cost plus pricing.
- 5 What kind of pricing strategy is adopted over the life cycle of a product. what do you think will be an appropriate price policy when the demand reaches its saturation and substitute product are likely to enter the market?
- 6 Briefly explain the concept of Ramsey pricing

10.15 Suggested Books/Reference

- 1. Mathur N.D.: Managerial Economics, Shivam Book House (P.) Limited, Jaipur
- 2. Piny C.K., R.S. and D.L. Rulinfeld, Micro Economics, Prentice Hall, New Jersey

Unit-11 Economic Theory of a Firm

Unit Structure

- 11.0 Objectives
- 11.1 Introduction
- 11.2 Concept of A Firm
- 11.3 Objectives of A Firm
- 11.4 Concept of Profit Maximization
- 11.5 Fundamental Propositions for the Theory of A Firm
- 11.6 Assumptions of the Theory of A Firm
- 11.7 Equilibrium of A Firm
- 11.8 Two Approaches to A Firm's Equilibrium
 - 11.8.1 Total Revenue & Total Cost approach
 - 11.8.2 Marginal Cost & Marginal Revenue Approach
- 11.9 Critical Appraisal of the Economic Theory of the Firm
- 11.10 Summary
- 11.11 Key Words
- 11.12 SelfAssessment Test
- 11.13 Suggested Books / References

11.0 Objectives

After studying this unit, you should be able to understand:

- Concept of Profit Maximization
- Fundamental Propositions for the theory of the firm
- Assumptions of the theory of the firm
- Equilibrium of the Firm
- Two Approaches to a firm's equilibrium
- Firm's Equilibrium under different market situations
- Critical Appraisal of the Economic theory of the firm

11.1 Introduction

Managers of the firm deal primarily with the problem of deciding how best to allocate a firm's scarce resources among competing uses.

The traditional theory of economics defined the firm as a collection of resources that is transformed into products demanded by consumers. The costs at which the firm produces are governed by the available technology, and the amount it produces and the prices at which it sells are influenced by the structure of the markets in which it operates. The difference between the revenue it receives and the costs it incurs is profit. It is the aim of the firm to maximize its profit.

A firm is an organization which converts hired inputs into saleable outputs. The inputs are divisible into two broad categories- labour and capital. The function of the firm is to hire input and convert them into goods and services for sale. Economists have been using the model of profit maximization for a long time. The 'theory of firm' has been developed on the basis of assumption that rational firms pursue the objective of profit maximization, subject to the technical and market constraints.

11.2 Concept of the Firm

What a consumer is to the theory of demand, a firm is to the price and output analysis. For the study of price theory 'a firm' and the 'industry' are the key concepts. Generally, the firm is taken as a production unit that arrives at an output considering the market conditions and endeavors to produce the same at the least cost. A firm represents a business enterprise striving to get the highest profit under particular conditions. But the concept of a firm is much broader than this including enterprises of all sorts as professional, technical and service activities operated as independent income producing unit. In economic analysis the concept of the firm includes individual proprietorship or a partnership, or a corporation. It is personified in the entrepreneur who to all intents and purposes, represents the firm, exercises ultimate and decisive control over the firm, is the decision-maker about its output and limits its price policy. The entrepreneur is the risk and uncertainty bearer of the firm, not the sole owner nor its manager. For this, he may own a part of the firm to keep its control in his hands. In short, entrepreneur is the firm since he acts for it. In modern large corporations are often made by the board of directors; while risk is borne bye a large number of shareholders; control vests in a few hands to some extent answerable to the stockholders.

For the purposes of present discussion, a firm is conceived as an entrepreneur who takes decisions about the output and its price fixation in a given market. The firm as a producer shall be taken to have produced the decided output at the least cost. Main consideration of the firm is maximizing its profit through sale of its output. An industry is composed of all the firms producing the same product.

11.3 Objectives of the Firm

A firm generally has the following objectives to be pursued:

1. Profit Maximization

Price theory commonly assumes that the sole objective of a firm is to get maximum profits. This implies the test of rationality of the entrepreneur. Although this assumption still continues to be the basis of much of economic analysis, it is been challenged on two grounds:

- It is asserted that firms do not have profit as the only goal before them.
- Serious doubts are cast on the assumption that firms are out to maximize profits.

Practically, the firms seem to be interested in a multiplicity of goals. The larger the firm, greater is the tendency to have goals other than profits. Empirical research has listed several goals for the firms. These goals may be pursued differently and in different intensity by firms of different organizations. To the extent a firm is interested in goals other than profit maximization, economic theory based on the sole assumption of profit maximization, as its goal is unrealistic.

2. Sales Maximization

Several firms seeks to maximize the money value of their sales, their total revenue, provided their profits do not fall short of certain minimum level considered satisfactory. So long as profits are at this satisfactory level, the management of the firm will devote a major part of its effort and resources to the expansion of its sales. The management may be variously motivated to maximize sales; they may strive to maintain their competitive position in the market which is partly dependent on the sheer size of the enterprise or as a matter of prestige. The management of the firm may be interested in the sales expansion if their salaries are related more closely to the size of the firm's operations than to its profits.

3. Other Supplementary Objectives

There are several other objectives than profit maximization such as maintaining or increasing its market shares, growing for the sake of growing, creating or maintaining a desirable financial position, achieving good labor relations and so on.

11.4 Concept of Profit Maximization

In the theory of the consumer, we assumed that consumers act to maximize their utility. The equivalent assumption in the theory of the firm is that firms act to maximize their profits.

Profit is defined as total revenue minus total cost.

$$\mathbf{D} = \mathbf{T}\mathbf{R} - \mathbf{T}\mathbf{C}$$

(We use D to stand for profit because we use P for something else: price.)

Total revenue simply means the total amount of money that the firm receives from sales of its product or other sources.

Total cost means the cost of all factors of production. But – and this is crucial – we have to think in terms of opportunity cost, not just explicit monetary payments. If the owner of the business also works there, we must include the value of his time. If the firm owns machines or land, we must include the payments those factors could have earned if the firm had chosen to rent them out instead of using them. If only explicit monetary costs are considered, we get accounting profit. But to find economic profit, we need to take into account the opportunity cost, implicit or explicit of all resources employed. Just as the consumer faced constraints (income and prices), the firm also faces constraints, but of a somewhat different form. The main constraints faced by the firm are:

- technology, as summarized in the cost curves of the last section;
- the prices of factors of production, also taken into account by the cost curves; and
- the demand for its product.

11.5 Fundamental Propositions for the Theory of A Firm

The fundamental propositions of the theory of firm may be expressed as:

- (a) The firm strives towards the achievement of its goal- usually profit maximization.
- (b) While choosing between alternatives, the firm prefers the alternative which helps it to consistently achieve profit maximization.
- (c) Firm is a unit which transforms valued inputs into outputs of a higher value, given the state of technology.
- (d) The market conditions for a firm to operate are given.
- (e) The primary concern of the theory of firm is to analyze change in the prices and quantities of inputs and outputs.

11.6 Assumptions of the Theory of A Firm

The theory of the profit maximization of the firm is based upon certain assumptions.

- (1) The firm has single goal- to maximize profit.
- (2) The firm acts rationally to pursue its goal. Rationality implies perfect knowledge of all relevant variable at the time of decision-making, and
- (3) The firm is a single-ownership one

The traditional theory compares the cost and revenue of a firm at different levels of output and selects the one which maximizes the absolute difference between the two.

11.7 Equilibrium of A Firm

A firm attains equilibrium when it has no incentive either to expand or to contract its output. A firm would not like to change its level of output only when its total profits are the maximum. A rational firm will expand output if it can increase its total profits. A firm is in equilibrium position when it is earning maximum profits. At the level of maximum profit, there is a particular output and particular price of the product. Every firm has to make two major decisions about its business:

- How much output shall be most profitable for it? How much output to produce under the given cost and revenue conditions?
- At what price shall the firm sell its product?

In determining the profit maximization output, a firm must know the price of its product. At what price the product can be sold in the market depends very much on the quantity of the product to be sold. Thus, the equilibrium output and equilibrium price are determined at the same time.

For identifying the equilibrium output and the equilibrium price for a firm it is assumed that:

- The firm desires to maximize profit,
- The firm knows the prices or price at which it can sell different levels of output,
- The firm understands the behaviour of its costs as it changes its output, and
- There is no uncertainty regarding prices or costs.

11.8 Two Approaches to a Firm's Equilibrium

For reaching the maximum profit, output and price, there are two approaches, where a firm will be in equilibrium:

11.8.1 THE TOTAL REVENUE-TOTAL COST APPROACH

A rational entrepreneur will expand output if he considers he can increase his profits by doing so and he will similarly contract output if thereby he can avoid losses and thus increase profits. A firm will be in equilibrium position at the level of output where its money profits are the maximum. It will then have no incentive either to expand or reduce his output when it is earning maximum money profits. Now, profits are the difference between total revenue and total cost. Hence, the point where this difference is the maximum will represent the position of maximum profit and that of equilibrium.

The cost-revenue position of an imaginary firm is shown in Diagram11.1 where TC represents total cost curve and TR represents the total revenue curve. It is to be noted that total cost curve TC starts not at the origin but the height of F. This is because it is assumed that even if the firm produces zero output, it has to bear certain costs of production due to fixed factors. These are the fixed costs. The figure shows that at any level of output less than OL, total cost exceeds total revenue and the firm incurs losses. At the output OL total cost equals total revenue and the firm is having neither losses nor profits. This point is known as **'Break-even point'.** At the outputs larger than ON, the total revenue is less than total cost and the firm incurs loss. Point N is again a break-even point. Between two levels of output OL and ON lies the optimum point of maximum profits.



The point of maximum profit will be where revenue-cost spread is the largest or the vertical distance between the total revenue and total cost curves is the greatest. In the Diagram 11.1 the point of maximum profit is M where PP' is the longest vertical distance between the two curves. Hence, at this point, the firm is in equilibrium position and is earning maximum profits PP' by producing OM output. In fact the maximum profit point will be situated at that output where the slopes of the two curves are the same or where the tangents to the total cost and total revenue curves are parallel.

11.8.1.1 LIMITATIONS OF THE APPROACH

This approach of identifying the point of maximum profits by total revenue and total cost curves is reasonable and is also often used by businessmen but it has certain limitations:

- 1. It is difficult to see ate glance the maximum vertical distance between the total revenue and total cost curves Several tangents may have to be drawn before one reaches the appropriate one corresponding to the maximum profit point.
- 2. This approach does not assist to discover price per unit at various outputs at first sight. Total revenue has to be divided by total number of units produced in order to get the price per unit. For example, at the equilibrium output OM, the price can be found by dividing MP by OM.

Due to these limitations, modern economists, therefore, adopt a method based on marginal cost and marginal revenue.

11.8.2 THE MARGINAL REVENUE AND MARGINAL COST APPROACH

A firm will be in equilibrium when it is earning maximum profits. For a firm to make maximum profits, two conditions must be fulfilled:

- Marginal Revenue is equal to Marginal Cost, and
- The Marginal Cost intersects the Marginal Revenue from below at the equilibrium point.

It is clear that total profits can be increased by expanding output as long as the addition to the total revenue resulting from the sale of extra unit of output is greater than the addition to the total cost caused by producing an extra output. The addition to total revenue and total cost due to an extra unit of output are marginal revenue and marginal cost respectively.

Thus, a firm will continue to expand output as long as marginal revenue is greater than marginal cost of additional output. If, at any point, marginal revenue falls short of marginal cost, the firm will restrict output to avoid losses and thus increase its profits. **The level of output where marginal revenue and marginal cost are equalized is the point of maximum profit**. Until the point of equality of marginal revenue and marginal cost is reached, the firm will be increasing its total profits by producing more as it is adding more to the total revenue than to the total cost. But beyond this point of equality, the profits will start decreasing as the marginal cost is greater than the marginal revenue for every unit of output.



Diagram 11.2 shows MC is the marginal cost curve and MR the marginal revenue curve. AC and AR are the average cost and average revenue curves. At the output OM, marginal cost is equal to marginal revenue where marginal cost interests marginal revenue from below. This represents the point of maximum profits and hence of equilibrium.

At any level of output smaller than OM, marginal revenue exceeds marginal cost. Therefore, there is scope for increasing profits by increasing output. In the Diagram 11.2 OL, marginal revenue is LG and the marginal cost is LH, where LG is greater than LH. By producing the Lth unit, the firm is adding more to revenue than to its cost. Therefore, it will be profitable for the firm to produce the Lth unit. In the same vein, for every other unit till the Mth level of output, the marginal revenue exceeds marginal cost, and therefore, the firm can increase its total profits by producing up to OM output. If the firm stops producing at OL, the units of output which could have added more money to the firm's revenue than to its cost would not have been produced and profits would have been smaller by the area GHE than they could have been. Thus, a firm has an incentive to produce up to OM level of output.

If the firm increases it output beyond OM, marginal cost would exceed marginal revenue. Every marginal unit produced would add more total cost than to revenue. Thus production of more units than OM would involve losses, and reduce the total profits. Therefore, the firm would not like to produce beyond OM. At OM level of output, the firm's profits are the maximum and the firm is in equilibrium when the marginal cost is equal to marginal revenue.

The condition of equality of marginal cost to marginal revenue is one condition which is necessary but not sufficient condition for equilibrium. The second condition for the equilibrium position that must be met is that the marginal cost curve must cut the marginal revenue curve from below at the point of equilibrium. This indicates that beyond the equilibrium output, marginal cost must exceed marginal revenue. If this condition is satisfied, a firm will not be earning maximum profits and hence will not be in equilibrium.

Diagram11.2 the point E satisfies the second condition, as the MC cuts the MR curve from below at E and MC is greater than MR beyond E. The firm would not decide to expand output beyond OM. But there can be a situation of cost revenue equality but the second condition might not be satisfied. Diagram 11.3 MR, the horizontal straight line, is the marginal revenue actually faced by a perfectly competitive firm. At point S where MC and MR intersect, the marginal cost equals marginal revenue but the marginal cost is cutting the marginal revenue from above. It means that marginal cost is less than marginal revenue and it will be profitable for the firm to expand output. At OT output, the firm instead of making maximum profits makes maximum losses. At point P, marginal cost is intersecting marginal revenue from below and marginal cost beyond the point P is greater than marginal revenue. Hence, if the firm expands output beyond P, it will be adding more to cost than to revenue. Thus point P is the profit maximizing point where the firm is in equilibrium at OQ level of output.



These two conditions of equilibrium hold good both in the short run as well as in the long run. In both the short run as well as long run, a firm aims at maximization of profits. The profits are maximum only when the two conditions are satisfied.

11.9 Critical Appraisal of the Economic Theory of A firm

The concept of profit maximization has been attached as incomplete by many writers.

1. It is asserted that companies may have other economic objectives relating to market share, revenue growth, profit margins, return on-investment, technology, customer satisfaction, and shareholder value. It is crucial to be aware of precisely what a firm's goals are. Different goals can lead to very different managerial decisions given the same limited amount of resources. For example, if the main goal of the firm is to maximize market share rather than profit, the firm might decide to reduce its prices. If the main goal is to provide the most technologically advanced products, the firm might well decide to allocate more resources to research and development. The added research and

development expenses would most likely reduce the amount of profit the firms earns in the short run but may results in increased profits over time as the company increases its technological lead over its competitors. If the main goal of the firm is to carry a complete line of products and services, it may choose to sell certain produced even though they might not be earning a profit.

- 2. In the assumption of profit maximization, the concept of profit has never been clearly stated. Is it rate of profit, total or net profits that a firm tends to maximize? The three concepts have entirely different implications for price theory. If the entrepreneur's share in the total product is taken to be profit, it is not clear, for the concept of profit itself is not fully settled. Sometimes profit maximization means maximization of money profits. However, profit maximization is not an end in itself. For most persons profit is a means to an end and not an end in itself. The majority of entrepreneurs wish that their flow of revenue should carry at least the potentiality of a reasonable margin over cost. In some case of firms, the objective is loss minimization and not profit maximization.
- 3. With the emergence of corporate form of enterprise, profit maximization as a goal has reduced its importance. Other goals have sat on driving seat. This is attributed partly due to the nature of this form of organization itself. In a corporation there are variety of groups and as many interests- the shareholders, the debenture-holders, the management, and the labor force. The end product is a compromise between them, each interest getting the importance according to its force. In a firm where equity holders are in a control of the firm, they may prefer small certain profits to large uncertain profits. In most joint stock company firm, there is a multiplicity of often conflicting interests
- 4. A monopolist has no compulsions to maximize his profit. Since a monopolist usually earns supernormal profits, he has no incentive to maximize the profits. In imperfectly competitive market where barriers to entry are effective, the firm ordinarily does not have to strive hard for economic profits.

11.10 Summary

A firm is an organization which converts hired inputs into saleable outputs. The inputs are divisible into two broad categories- labor and capital. The function of the firm is to hire inputs and convert them into goods and services for sale. A firm usually follows multiple objectives including profit maximization, sales maximization, maintaining or increasing its market shares, growing for the sake of growing, creating or maintaining a desirable financial position, achieving good labor relations and so on. As consumers act to maximize their utility, the firms act to maximize their profits. Profit is defined as total revenue minus total cost. The theory of the firm assumes that the firm has single goal- to maximize profit and acts rationally to pursue its goal. Rationality implies perfect knowledge of all relevant variables at the time of decision-making, A firm is in equilibrium when it has no incentive either to expand or to contract its output and does not like to change its level of output when its total profits are the maximum. There are two approaches to attain a firm's equilibrium- The Total Revenue-Total Cost Approach and the Marginal Revenue and Marginal Cost Approach. In spite of its severe criticism, the profit maximization theory still holds good.

11.11 Key Words

- **Firm:** A firm represents a business enterprise striving to get the highest profit under particular conditions.
- **Profit Maximization:** The level of output where marginal revenue and marginal cost are equal is the point of maximum profit.
- Equilibrium of the Firm: A firm attains equilibrium when it has no incentive either to expand or to contract its output.
- **Total Revenue:**Total revenue is the outcome of multiplication of price by the number of units sold.

- Total Cost: Total cost is sum of fixed cost and variable cost.
- **Break-even-Point:** Break-even point is the point where the firm has covered its total cost and starts earning profit.
- **Marginal Revenue:** The marginal revenue is the addition to total revenue by selling another unit of output.
- Marginal Cost: The marginal cost is the addition to the total cost by producing another unit of output

11.12 Self Assessment Test

- 1. Explain the economic theory of the firm.
- 2. Discuss the assumptions of the economic theory of the firm.
- 3. Describe the multiple objectives of a firm.
- 4. Critically examine the economic theory of firm.
- 5. Critically examine the profit maximization doctrine.

11.13 Suggested Books/References

- 1. Mehta P.L., Managerial Economics Analysis, Problems and Cases: Sultan Chand, New Delhi.
- 2. Mathur N.D.: Managerial Economics, Shivam Book House (P.) Limited, Jaipur

Unit – 12 Behavioural Theory of a Firm

Unit Structure

- 12.0 Objectives
- 12.1 Introduction
- 12.2 The Firm: Objectives and Constraints
- 12.3 Value Maximisation
- 12.4 Size Maximisation
- 12.5 Long-run Survival
- 12.6 Theories of A Firm Behavioural
- 12.7 Problems in Profit Measurement
- 12.8 Profit Maximisation as Business Objective
- 12.9 Theory and Practice of Profit Maximisation Objective
- 12.10 Summary
- 12.11 Key words
- 12.12 Self Assessment Test
- 12.13 Suggested Books / References

12.0 Objectives

After studying this unit, you should be able to understand :

- The concept of a firm.
- Objectives and constraints of a firm.
- Problems in profit measurement.
- Theory and practice of profit maximisation objective.

12.1 Introduction

The classification of a firm is done on the basis of ownership, management and control. Firms can be classified into categories like private sector firms, public sector firms, joint sector firms and nonbusiness firms. On the basis of the ownership they are known as proprietorship, partnership and corporations. Universities, public libraries, hospitals, performing arts groups, museums, churches, voluntary organisations, cooperatives, credit unions, labour unions, professional societies, foundations and fraternal organisations are also understood as group of firms. Such organisations provide services to a group of clients or services to members only. Such classification of firms help us in understanding the objectives of firms.

The output of firms comprises goods and services wherein five factors of production namely land, labour, capital, entrepreneur and organisation are employed. Labour, entrepreneur and organisation are known as human factors of production while natural and man made resources are a part of capital resources.

Thus the production of goods and services is the result of the collective efforts of these five factors of production. The problem of choice of technique of production also arises depending upon the input mix from all alternatives each firm has.

12.2 The Firm : Objectives and Constraints

Traditional theory of firm assumes profit maximimsation, as the sole objective of business firms. But Prof. Baumol has argued that it is not correct to say that all business firm pursue the same objective.

Recent researches have revealed the fact that the objectives of business firms are more than one. There are a number of theories propounded about the objectives of a firm as given under :

(i) Profit maximisation

- (ii) Firm's value maximisation
- (iii) Sales maximisation
- (iv) Size maximisation
- (v) Long run survival
- (vi) Management utility maximisation
- (vii) Satisfying
- (viii) Other (non-profit) objectives

Profit Maximisation

Profit is a comprehensive term and it has different meaning to businessmen, accountants, tax collectors, workers and economists. 'Economic profit' and 'accounting profit' are generally used for decision making in business activities.

The formula for calculating accounting profit is as given under :

Accounting Profit =
$$TR - (W + R + I + M)$$

where W stands for wages and salaries, A stands for rent, I stands for interest and M stands for cost of materials.

While calculating the accounting profit only explicit or book costs are taken into consideration. Economic profit is wider than accounting profit wherein implicit costs are also included. Economic profit makes provision for insurable risks, depreciation and necessary minimum payment to shareholders to prevent them from withdrawing their capital. It's also called pure profit. The economic profit is calculated with the help of the following formula :

Economic/Pure Profit = Total Revenue — (Explicit Costs + Implicit Costs)

Example : A carpenter makes 150 chairs per month and sells them at Rs. 100 per piece. His expenses on rent of the shop, costs of wood and other material are worth Rs.4000. He employs two workers whose monthly wage bills stands at Rs.3000 and pays electricity bill of about Rs.500 per month. He has invested Rs.40000 in the form of machines, tool and inventories in the business of which Rs.25000 is from his own fund and remaining Rs.15000 is a loan from a bank at the interest rate of 18% per annum. Further assuming imputed costs of his own time, his wife's time and his own savings of Rs.25000 for the month are Rs.3000, Rs.1000 and Rs.250 respectively. The various calculations would then be:

Total Receipts=	$Rs.100 \ge 150 = Rs.15000$			
Total explicit costs	=	Rs.40	(0.18)	
			12	
		=	Rs.7725	
Total implicit costs		=	Rs.3000 + 1000 + 250	
		=	Rs.4250	

Business (Accounting) Profit	=	Rs.15000 - 7725
	=	Rs.7275
Economic Profit	=	Rs.15000 - 7725 - 4250
	=	Rs.3025

Thus, business and economic concepts of profit are different. In this chapter we will use profits only in its economic sense.

Economic profits are a powerful instrument in the free enterprise system, particularly for a proprietorship firm. At present we have both private and public sector firms. The public sector firms are known to pursue social objectives such as factor productivity and the supply of essential goods at reasonable prices.

Firm's Constraints

Firms while making decisions are faced with certain restrictions or constraints. Such constraints are internal and external. The internal constraints are concerned with the organisation of the firm. What is to be produced? Where is to be produced? For whom is to be produced? How much is to be produced?

External constraints are related to resource constraints, output quantity or quality constrains, legal constraints and environmental constraints.

12.3 Value Maximisation

Most of firms are expected to operate for a long period. They are interested in maximisation of long term profits instead of maximum short term profit. Value of the firm can be calculated with the help of the following formula :

$$\begin{array}{ccc} \underline{P}_{\underline{1}} & \underline{P}_{\underline{2}} & \underline{P}_{\underline{n}} \\ (1+i) & (1+i)^2 & (1+i)^n \end{array}$$

 P_1 stands for expected profit in period 1, P_2 is expected profit in period 2 and so on. i is the cost of equity capital. The concept of discounting and present value are taken into consideration. Wealth maximisation is recognised at the primary objective of a business firm. Non-business firms also pursue non-value maximisation objectives.

12.4 Size Maximisation

Some experts have suggested growth or size maximisation as one of the alternative goals for a business firm. Growth means an increase in sales, assets and the number of employees. Edith Penrose has rightly pointed out that managers have a vital interest in growth because individuals gain prestige, personal satisfaction in the successful growth of the firm with which they are connected, more responsible and better paid positions, and wider scope for their ambitions and abilities.

12.5 Long Run Survival

This alternative goal for the firm has been suggested by K.W. Rottschild which assures long run survival for the firm. According to this concept the firm seeks to maximise the probability of its survival into

the future. This objective is in the interest of the share-holders and the management. The owners of the business provide security and business to their next generations. The present and future compensation depends on the firm's continued existence. The measurement of long run survival is difficult in practice.

12.6 Behavioural Theories of A Firm

These theories were given by a noble prize winner Herbert Simon in 1956. R.M. Cyert and J.E. Mareh Firms can not maximise profits, sales etc. due to imperfections in data and incompatibility of interest of various constituent of an organisation. The firms should satisfy all the constituents of the firm comprising of the stock holders, management, employees, customers, suppliers and government.

This objective is a multiple goal and it is very difficult to practice and achieve. Human beings want satisfaction not only in an absolute sense but in a relative sense as well. The different constituents of a business firms have diversified interest.

12.6.1 H.A. Simon's Satisfying Behaviour Model

According the satisfying behaviour model given by Simon, managers in their business decisionmaking are constrained by the factors like incomplete information, imperfect data and uncertainty about the future. The management determines a 'satisfactory aspiration level' on the basis of its past experience and judgement about the future uncertainty. They, therefore, seek a second best solution which is called the satisfying behaviour.

The satisfactory behaviour holds that a manager will aim for:

- (i) a satisfactory level of profit maximization.
- (ii) A satisfactory level of cost rather than cost minimization.

If the satisfactory aspiration level is a achieved easily, the expiration level is revised upwards. And if the satisfactory aspiration level is not achieved or upward as well as downward revisions, the management indulges in 'search behaviour' to find the reasons for the deviations from the aspiration level

Simon suggests that if the satisfactory state is not achieved even by lowering the aspiration level and the search behaviour. The behaviour pattern of managers becomes that of apathy or aggression.

The model is positive in the following manner:

- (i) the model explains certain real-world situation. For example, the firms generally use make-up pricing to generate reasonable profits rather resort to marginal cost pricing to maximize profits.
- (ii) Model is consistent with the theory of motivation where human action is a function of derives and it terminates when derives are satisfied.

However, there are serious flaws with the theory of satisfying behaviour as given below:

- (i) the model lakes correctness and complete information. It does not identify the types of information that are sought by a firm and nature of 'incompleteness' the information suffer from.
- (ii) The model fails to appreciate the difference between information about conditions and information about changes in conditions. It is the information regarding changes in conditions that is vitally more important.
- (iii) 'Satisfactory level' is a subjective concept. It depends of many factors like industry one is talking
about, the economic situation, the nature of top management, the perception of the decision-making manager etc.. in each a case the comparison of managerial behavioural becomes a problem.

12.6.2 Cyert and March's behavioural theory of firm

The behavioural model of the firm, propounded by Simon, has subsequently been elaborated by Cyert and March in the behavioural theory of firm (1963)

The behavioural theory of Cyert and March focuses on the way decisions are made in the modern, large multi-product firm underuncertainty in an imperfect market.

Cyert and March base their theory on the internal structure of such firms and try to analyse the typical organizational problems which the internal structure of such firms creates and the effects of these problems on the decision-making process. They explain the difference in reactions of different firm, to the same set of external forces in terms of the differences in internal organisatonal factors.

R.M. Cyert and J.E. March consider the firm as a multi-goal, multi decision organizational coalition. onsists of the various groups associated with the firm like managers, workers, shareholders, customers, suppliers, bankers, lawyers, accountants and so on each group has its own set goals. Cyert and march point out that the most significant groups in the decision making are: shareholders and workers.

Goals of the firm : Satisfying behaviour

The behaviour theory of the firm starts with a recognition that individual members of the coalition-firm have different goals to that of the organization coalition. According to Cyert and March goals of the firms are determined by the demands of individuals in coalition.

The top management in the mode corporate firm enjoys the ultimate authority to act the goals of the firm. According to Cyert and March there are five major goals of term as under:

- (i) Production goal- is set by the production unit of the firm.
- (ii) Inventory goals- is set by the inventory unit of the firm.
- (iii) Salare of the market goals- is set by the sales unit of the firm.
- (iv) Share of the market goals- is set by the sales unit of the firm.
- (v) Profit goals- is set by the top management keeping in view the expectations of the shareholders bankers and other financial institution. It is the ultimate goal of each firm.

Like goals of individuals, the goals of the firm also undergo a change overtime. As the number of goals of the firm increases, the decision-making process becomes increasingly complex and consequently the efficiency of decision-making decreases. The goals of the firm are ultimately decided by the efficiency of decision-making decreases. The goals of the firm are ultimately decided by the top management through continuous bargaining between the groups of coalition. The top management tries to accommodate as many of the conflicting demands as possible.

Cyert and March model is also a satisfying organization and not a maxiimsing organization like Somon's model. It compares its performance with the set goals. In case the goals have not been met a search activity begins to find out the reasons for the non-fulfilment of the target. If it is found that non-fulfilment was due to factors outside the control of the firm, a downward revision of the goals likely for the next period is made. In the organization-coalition if there is often a conflict of goals it needs to be overcome. Cyert and March suggests two ways in which the conflict can be avoided:

Conflict may be phase out overtime in the sense that they are dealt with one by one, as they arise.

Conflicts may be segregated to diffuse their impact on the whole organization. Each conflict may be localized into its respective department and decisions taken accordingly.

For smooth working in the organization, there is some decentralization of decision making. However, at the lower administrative levels managerial staff follows standard procedures stated in blue prints. Rules of the thumb aim at ensuring working that is consistent with the goals set by the top management.

In the process of decision making. The following controversial points create doubts about the merits of the behavioural theory:

- (i) Investment decisions are usually based on long –term considerations which this theory ignores in its eagerness to avoid role of uncertainty in decision making.
- (ii) An adjustment of aspiration levels when costs and demand adjustment fail, implies that any performance of the firm can be considered satisfactory. This is a questionable proposition because downward revision of the goals to lower satisfying levels may not be acceptable to various groups despite the firm's claim that it did its best under the circumstances.
- (iii) By constant revision in the satisfying level, the criterion on which the top management sets the goals of the firm loses its relevance.
- (iv) Estimates of costs and rules of their upward or downward adjustment are simplistic and mechanical.
- (v) Forecast of demand in the current period are simply extrapolation of the demands in the previous periods in estimating current demand, no allowance is made for future uncertainty.

Criticism of Cyert and March behvaioural theory:

Cyert and March are the leading exponents of the behavioural theory. Cyert and March based their theory on four actual case studies and two experimental studies conducted with hyponthetical firms. It is thus, obvious that their attempt to develop a generalized behavioural theory of firm is flawed by lack of adequate empirical evidence.

The behaviour theory suffers from the following weaknesses and criticisms:

- (i) The behavioural theory follows a simulation approach to analyse the working of a multi-product firm. Simulation is a predictive technique and is not appropriate for explaining the behaviour of the firm.
- (ii) The behvaioural theory is concerned with the short run which is unrealistic for dealing with uncertainty. The firm must take a long run view of the environment.
- (iii) The behavioural theory does not deal with equilibrium of the industry.
- (iv) The theory does not explain the interdependence of the firms and thus simply ingress their interactions.
- (v) The behavioural theory does not examine the implications of potential and real threats to established firms.
- (vi) The behavioural theory suggests multiplicity of goals for a modern corporate which is basically incorrect and miseading.

- (vii) The theory attempts to resolve to resolve the problem of olgopolistic interdependence by assuming tacit collusion of firms which is not valid in all cases. An oligopolistic theory may also be non-collusive.
- (viii)The adjustment of aspiration levels downward whenever the goals are unattable implies that there is no objective criterion to judge the satisfactory performance.
- (ix) Search is usually problem oriented and on this issue, the behavioural theory takes a realistic position.

Thus, in brief we may comment that Cyert and March model suggests that the firm attempts to achieve multiple goals and managers are content to achieve satisfactory levels of these multiple tatgets. The model considers firm as an ogranisational coalition consisting of various groups, each group having its aspiration level, the goals of the firms are arrived at by the process of continuous bargaining between groups of the coalition, wherein as many conflicting demands of the various groups as possible are accommodated.

12.7 Problems in Profit Measurement

As we know accounting profit equals revenue minus all explicit costs and economic profit equals revenue minus explicit and implicit costs. Once profit is defined, it should not be difficult to measure the profit of a firm for a given period. The measurement of profit becomes difficult due to two reasons as given below:

- (i) which concepts of profit be used for its measurement?
- (ii) what costs should be and what should not be included in the implicit and explicit costs?

The profit concept to be used for the measurement is the purpose for which such measurement is needed. Accounting concept of profit is used from the point of view of the shareholders, financiers, creditors, managers and tax liability. Necessary revenue and cost data are essential to calculate the accounting profit. If we want to measure 'true profit' the concept of economic profit should be used. This can be used when the ownership of that investment or business is fully terminated. But in practice the life of acorporation is eternal. It can be measured only on the basis of maximum amount that can be distributed in dividends. Depreciation, capital gains and losses and current v/s historical costs are the items of cost and revenue which are taken into consideration for the measurement of accounting profit.

12.8 Profit Maximisation as Business Objective

Various price and production theories of economies have been propounded by economists that profit maximisation is the most important assumption. Traditional economics assumes profit maximisation as the only objective of business firms. It has been a long history in economics. This objective is considered as the most reasonable and analytically the most productive business objective. It helps a business firm in predicting its behaviour as well as the behaviour of price and output under different market structure. There is no alternative to explain and predict such behaviour.

12.9 Theory and Practice of Profit Maximisation

W have discussed that traditional theory assumes profit maximisation as the sole objective of a business firm. But now business practices have undergone a drastic change and firms are pursuing objectives other than profit maximisation. In the large corporations the ownership and management are separate and the goals for the firms they manage are set other than profit maximisation. For examples sales maximisation,

maximisation of utility function, maximisation of firm's growth rate, making a target profit, retaining market share, building up the net worth of the firm etc. are other goals of business firms.

The traditional economics is based on the assumption of perfect competition which is unrealistic and imaginary. The marginal principle of equalising marginal cost and marginal revenue (MC = MR) is also absent in the decision making process of the firms. Thus there is little link between pricing theory and pricing practices.

12.10 Summary

Classification of a firm can be made on the basis of their management, ownership and control. They are proprietorship, partnership and corporations. The output of firms comprises goods and services wherein five factors of production namely land, labour, capital, entrepreneur and organisation are employed. There are several objectives a firm namely profit maximisation, firm's value maximisation, sales maximisation, size maximisation, long run survival, management utility maximisation and non-profit motives as well. A business firm faces constraints both internal and external. These areproduction decision, raw materials, quantity and quality constraints, legal and environmental constraints.

12.11 Key Words

- **Classification :** Categorization of business firms.
- Constraints : Hurdles or obstacles while carrying on the activities by business firms.
- **Profit Maximisation :** Difference between the total revenue and total cost of a business firm.
- **Explicit Costs :**Remuneration paid to hired inputs.
- Implicit Costs : Remuneration calculated at market price for owned factors of production.

12.12 Self Assessment Test

- 1. Give the classification of a firm.
- 2. Discuss the objectives of a business firm.
- 3. Differentiate between accounting profit and economic profit.
- 4. What is profit maximisation?
- 5. Differentiate between value maximisation and size maximisation.
- 6. Discuss the problems in profit measurement.
- 7. Write a note on theory and practice of profit maximisation.
- 8. Describe H.A. Simons satisfying Behaviour Model
- 9. Critically examine Cyert and March's behaviour theory of a firm.

12.13 Suggested Books/References

- 1. Mathur N.D.: Managerial Economics, Shivam Book House (P.) Limited, Jaipur
- 2. Mehta P.L., Managerial Economics Analysis, Problems and Cases, Sultan Chand, New Delhi

Unit – 13 Managerial Theory of a Firm

Unit Structure

- 13.0 Objectives
- 13.1 Introduction
- 13.2 Managerial Aspect of a Firm
- 13.3 Managerial Utility Function
- 13.4 Marris's Theory of Managerial Enterprise
- 13.5 Willamson's Theory of Managerial Discretion
- 13.6 Principal Agent Problem
- 13.7 Reasonable Profits
- 13.8 Profit as Control Measure
- 13.9 Baumol's model of Sales Revenue Maximisation
- 13.10 Summary
- 13.11 Key words
- 13.12 Self Assessment Test
- 13.13 Suggested Books / References

13.0 Objectives

After studying this unit, you should be able to understand :

- The concept of managerial aspect of a firm.
- Managerial utility function.
- Principal agent problem.
- Reasonable profits.
- Profit as control measure.

13.1 Introduction

The members of the board of directors are agents of the share holders. They monitor the decisions of executive managers. Managers are also agents of owners and directors. It creates agency problems between different agents in a business organisation. When business decisions are complicated, the effectiveness of a board of directors is undermined.

Value maximisation decisions are based on the corporate policy on debt financing. If a business firm is financed with debt rather than equity, it increases the interests of shareholders in various ways.

13.2 Managerial Aspect of a Firm

Managerial aspect of a firm deals with the production decisions, exchange decisions and consumption decisions. Most decisions involve a time dimension. Production decision requires an understanding of the market for various commodities in future which is uncertain. A business firm from the managerial point of view has to take decisions regarding the production, exchange and consumption so that the ultimate goal of maximisation of profit and the social responsibility of business firm are also attained. Planning, organisation, direction, coordination, motivation, control and decision making are some of the managerial aspect of a firm to be performed in a rational way. These are the basic roots of the business firm for its survival in the long run, satisfying the needs of all the parties directly indirectly by being connected with it.

13.3 Managerial Utility Function

This model was propounded by Oliver Williamson. It is a combination of the objectives of profit maximisation and growth maximisation. This model emphasizes upon the fact that in modern businesses, ownership is different from management and modern managers have discretionary powers to set the goals of firms. According to this model managers would apply their discretionary power in such a way, as to maximise their own utility function, with the constraint of maintaining minimum profit to satisfy shareholders. The utility function of managers depends upon their salary, job security, power, status, professional satisfaction and the power to influence firm's objectives. Williamson has given the model in the form of a formula as given below:

$$U_{M} = f(S, M, I_{D})$$

where U_M is manager's utility function S is salary, M is managerial emoluments and I_D is power of discretionary investment.

This theory has certain weaknesses. The model fails to deal with the problem of oligopolistic interdependence. The theory holds good only where rivalry between firms are not strong. This model does not offer a more satisfactory hypothesis than profit maximisation.

13.4 Marris's Theory of Managerial Enterprise

Growth of the firm is obviously the cornerstone of corporate strategy. The goal of the firm is the maximisation of the balanced rate of growth of the firm. Marris interprets the goal as the maximisation of the rate of growth of demand for the firm's products and the growth of its capital supply.

Marris's hypothesis is that, executive actions are limited by the need for management to protect it self from dismissal or take-over raids in the event of failure. Marris tried to omprove upon Ballmol's model. He offered a variation of Baumol's model that stressed the maximisation of growth subject to the security of management's position. Marris approach is also based on the fact that ownership and control of the firm is in the hands of two different set of people.

Like Williamson, Marris suggests that managers have a utility function in which salary, status power, prestige and security are important variables. Owners of the firm (shareholders) are however, more concerned about profits, market share, output etc. In other words, goals of the managers and shareholders differ from each other. The utility function of managers (Um) and that of the owners (Uo) may, therefore, be defined as :

Um = f (salaries, power, status, job security)

UO = f (Profits, market share, output, capital, public esteem).

Robin Marris believes that most of the variables entering into the utility function of managers owners are strongly correlated with a single variables : the size of the firm. He, therefore states that the managers would be mainly concerned about the rate of growth of size.

Marris takes the view that the owners being interested in the growth of the firm want maximisation of growth of the supply of capital which is assumed to maximise their utility. Th utility function of owners may be depicted as follows :

UO(f(g))

Where, UO = utility of owners, $g_c = rate o$ growth of capital.

Managers want to maximise rate of growth of the firm rather than absolute size of the firm. They believe that growth of demand for the products of the firm is an appropriate indicator of the growth of the firm. Further, salaries, status and power of managers are strongly correlated with the growth of demand. The managerial utility function can be illustrated as under :

$$Um = f(gD, s)$$

where, Um = utility of managers.

gD = rate of growth of demand for the products of firm

s = a measure of job security.

Marris has suggested that the decision making capacity of the managerial team sets a constaint to rate of growth of demand for the products of firm. Further more, he argues that job security can be measured by a weighted average of the liquidity ratio, the leverage / debt ratio and he profit retention ratio which together reflect the financial policy of the firm.

Marris assumes that there is a saturation level of job security. Below the saturation level marginal utility from an increase in job security is infinity while above the saturation level it is zero. With this assumption, Marris considers job security an exogenously determined constraint. The marginal utility function thus becomes.

 $Um = f(gD) \overline{s}$, where \overline{s} is the security constraint.

In Marris model, there are two constraints :

(a) The managerial team constraint

(b) The job security constraint

(a) The managerial team constraint : Marris is of the view that the capacity of the top management is given at any one time period. Since management is a team work, hiring new managers does not expand the managerial capacity immedaely. New managers take time to get integrated in the team which is extremely essential for the efficient working of the firm.

Moreover, the research and development (R & D) department also sets a limit to the growth of managerial capabilities of the firm. The managerial team constraint sets limits to both the rate growth of demand for the products of the firm (gD) and the rate of growth of capital supply (g_c) .

(b) The Job Security Constraint : Managers want job security. Their desire for security is reflected in the preference for service contracts, generous retirement benefits and their dislike for policies which may result in their dismissal. Job security is assumed to be attained by pursuing a prudent financial policy which requires that the three crucial financial ratios must be maintained at optimum levels.

Ratios :

To judge the prudence of a financial policy, Marris proposes the concept of financial constraint (i) which is mainly determined by the risk attitude of the top management. A risk-loving management would prefer a high value of a, while a risk averting management would prefer a low value of Marris defines 'a'

as the weighted average of the following three ratios :

Liquidity Ratio
$$(a_1) = \frac{LiquidityAssets}{TotalAssets}$$

Leverage Ratio $(a_2) = \frac{Value of Debts}{Total Assets}$; and

Profit - Retention Ratio (a₃) = $\frac{\text{Re tained Pr of its}}{\text{Total Assets}}$

The low liquidity ratio, that is, the ratio of liquid assets to total assets increases the risk of solvency. Likewise, a high leverage / debt ratio, that is, the ratio of debt to value of total assets, poses the firm to a high degree risk of bankruptcy. A high retention ratio which refers to the ratio of retained profits to total profits, contributes most to the growth of the firm's capital.

According to Marris' managers subjectively assign weights to financial ratios and comine them into a single parameter \overline{a} , which is called the financial security constraint, \overline{a} is negative lynelated liquidity ratio and positively to leverage / debt ratio and retention ratio. Moreover, there is a negative relation between job security (S) and the financial security constraint \overline{a} . Thus a Low value of \overline{a} implies that the managers are risk averters while \overline{a} high value of a means that the managers are risk takers. In Marris model, the financial security constraint \overline{a} sets a limit to growth of the supply of capital g_c . (\overline{a} is financial security management).

Equilibrium of the Firm :

The managers of corporate firm aim at maximisation of their own utility which is a function of the growth of demand for the product of the firm, given the job security constraint

Um - f(gD)

The shareholdrs of corporates aim at maximisation of their own utility which according to Morris, is a function of the growth of the supply of capital.

The firm is considered to be in equilbrium when it attains the maximum balanced rate of growth. Thus, the condition for equilibrium of the firm may be writen as follows :

$$gD = gC = g^* maximum$$

In order to follow the above condition for the equilibrium of the firm, it is necessary to grasp the factors that determine gD and gC. Marris argues that the two variables, the diversification rated, and the average profit margin, m, adequately represent the factors that determine gD and gC.

Marris suggests that the corporate first decides subjectively its financial policy. In other words the firm first determines the value of the financial constraint \overline{a} . Subsequently, the rate of diversification 'd' and profit margin 'm' will be chosen.

To achieve balanced growth rate would be to identify the factors that go in to determine gD and gC. According to Marris, these determines can be expressed in terms of two variables :

a) Diversification rate (d); and

(b) Average profit margin (m)

Both thes variables can be, however determined only after the management has decided about its financial policy, a. The diversification rate can be chosen either by changes in style of the production cost, the average profit margin would be affected by the levels of advertising and D, Higher the expenditure on advertisement (A) as well as R and D, lower would be the average profit margin (m). Thus, the Marris' firm three policy variables : a, b and m.

Marris also points out that there can be a conflict between managers' objective of maximising growth and shareholders' objective of maximising profits. Therefore, if the growth maximising solution does not generate sufficient profits, growth rate will have to be reduced to increase given to meet shareholders expectations.

In brief, in Marris model, the management, whose actions are limited by the motivation to protect it itself dismissed or take-over bids, takes to the following course :

- (a) The management must walk on a knife-edge between a debt/asset ratio high enough to stimulate growth but not low enough to suggest financial imprudence.
- (b) The management must also maintain a low liquidity ratio, i.e., liquid asset/total assets. But this ratio must not be so low that it endangers paying all obligations on time.
- (c) The management must try to keep a high retention ratio, viz. retained earnings/total profits. But this ratio should not be so high that shareholder are not paid satisfactory (gd) and growth rate of capital supply (g) :

Max.
$$g = gd = gc$$

g = balanced growth rate

gd = growth of demand for products

gc = growth of supply of capital

By this process the managers achieve maximisation of their own utility as well as that of the shareholders. In case the management wants to exapand too rapidly, it runs the risk of job security. On the other hands, if it wants to expand too slowly, it would be considered as an inefficient management, again impairing job-security.

13.4.1 Criticism of Marris Theory

R. Marris has made a significant contribution in the form of incorporation of financial policies into the decision making process of the corporate firm. His theory suggests that although the managers and the owners have different goals, it is possible to find a solution which maximises utility of both. Still there are certain weaknesses of the theory as under :

- (i) The assumption of given production costs and a price structure is the weakness of Marris theory.
- (ii) Marris theory does not exaplin the determination by either costs or prices.
- (iii) A Koutsoyiannis criticises that oligopolistic interdependence is not satisfactorily dealt with, within Marris ' Model.

- (iv) Marris brushes aside the mechanism by which prices are determined.
- (v) Marris's assumption that the growth of the firm is achived mainly via the introduction of new products which will be imitated by competitors, does not hold the ground.

Thus the maximisation of the goal of balanced growth (maximise g = gd = gs) is that by jointly maximising the rate of growth of demand and capital, managers achieve maximisation of their own utility as well as utility of the shareholders.

In both the Baumol and Marris models, the long-run growth of the firm and its ability to stafisty its constrains depend upon the continued availability of large stream of profits. It seems clear, that whatever differences may exist in the short-run interests of growth-maximising, sales maximising, or profit maximising firms, their long-run interests and decisions are virtually the same. Products that attempts to maximise sales or assets in the long-run will maximise profits.

13.5 Williamson's Theory of Managerial Discretion

O. Williamson evolved a more useful model of managerail utility better known as the 'Model of managerial Discretion'. As per the basic concepts of the model, managers are free to pursue their own self-interest once they have achieved a level of profit that will pay satisfactorily dividends to the shareholders and still ensure growth.

The managers self interests depend upon many other things besides salary. Further, so far as the goodwill of the firm serves their own ends and amibitions, the managers would be concerned about it, else they would try to byepass it.

Williamson is of the view that the managers of a present day business firm, which is organised a corporate unit do not maximise the profits which results in the maximisation of the utility of the owners. Instead, they maximise their own utility using their discretion. However, for their job security managers attempt to ensure a certain mnimum amount of proit to shareholders, in the form of dividend. The profit works as a constraint to the manager's decision.

Managers utility depends on variables such as ; job security, power, prestige, status, job satisfaction and professional excellence. Among those variables, only salary can be measured, other variables are non-measurable. Therefore, Williamson uses measurable variables like staff expenditure, managerial emouluments and discretionary investment in the utility function of managers on the assumption that these are the sources of the job security and reflect power, prestige, status and professional achievements of managers.

Assumptions of the model

Like Baumol, Williamson also adopts in following assumption in his model :

- (i) Market is non-perfectly competitive.
- (ii) Ownership of the firm and management of the firm are divorced from each other.
- (iii) A minimum profit constraint is imposed on the managers by the capital market (or shareholders) which cannot be ignored by the management.Williamson puts the utility function of the managers as follows :

 $U = f(S, M I_{D})$

where

S = staff expenditure including managerial salaries

M = managerial emoluments

 $I_{\rm D}$ = discretionary investment

Basic Concepts

The basic concepts and relations of the management utility function ($U = f(S, M, I_D)$ is produced as under :

The Demand for the Firm :

The firm's demand curve is assumed to be downward sloping and is defined by the function as :

$$X = f_1(P, S, e)$$

or $P = f_2(x, S, e)$

where :

x = output, P = Price, S = Staff expenditure

(2) $O_e = a$ demand shift parameter reflecting autonomous changes in demand.

The demand is negatively related to price and is assumed to be positively related to staff expenditure and to the shift factor.

The Production Cost:

The production is assumed that the total production cost is an increasing function of output.

$$C = f_3(X)$$

where $\frac{\P C}{\P X} > O$

Various Concept of Profit :

The relevant concepts of profit are :

- (i) Actual profit p
- (ii) Reported profit p_R
- (iii) Minimum profit p_o
- (iv) Discretionary profit p_D
- (i) The actual profit p, is sales revenue (R) minus production cost (C) and minus staff expenditure (S)
- (ii) The reported profit ρ_R , is the profit that the firm reports to the tax authorities. It is the actual profit minus tax deductible managerial emoluments (M)

pR = p - M

or = $\mathbf{R} - \mathbf{C} - \mathbf{S} - \mathbf{M}$ (by putting)

Thus, pR = R - C - S - M

(iii) The minimum profit p_o , is required to satisfy the shareholders. If this profit is not earned, the shareholders will either sell their shares or change top management, adversely affecting to the job security of managers.

 $^{p}O \mathfrak{L}^{p} R - T$

where T = tax

(iv) The discretionary profit ${}^{p}D$, is the amount of profit left after subtracting the minimum profit ${\binom{p}{O}}$ and Tax (T) from the actual profit (p).

 $^{p}D = p - ^{p}O - T$

The discretionary investment (I_p)

The discretionary investment is the amount that is left from the reported profit ${}^{p}R$ after subtracting the minimum profit ${}^{p}O$ and the tax (T)

 $I_D = R - P - T$

13.5.1 Williamson's Model of Managerial Discretion

In Williamson's simplified model, it is assumed that managerial emoluments are zero (M = 0) and thus, the actual profit is the same as reported profit.

The simplified model may be as follows :

Maximise $U = f(S, I_D)$

subject to $p^3 pO + T$

Since, it has been assumed that there are no managerial emoluments (M = O), all the discretionary profit $\binom{p}{D}$ gets absorbed in discretionary investment (I_D) . Thus, the managerial utility function may be written as :

 $U = f \left\{ p - pO - T \right\}$

For simplicity it is assumed that there is no lump sum tax so that T = tp

Thus, the managerial utility function assumes the form

$$U = f\left\{S, \left(I - t\right)p - pO\right\}$$

where,

(I - t) p - pO = pD is the discretionary profit.

Equilibrium of the firm : Graphical Presentation.

The equilibrium of the firm in Williamson's model can be shown graphically as under, which requires:

- (i) Construction of indefference curve map of the managers in which such curves show the combinations of staff expenditures (S) and discretionary profit pD providing a certain level of utility; and
- (ii) The discretionary profit staff curve.

In the diagram 13.1, the indifference curve of managers is shown as below :



Diagram 13.1

In the diagram 14.1 staff expenditure (S) is shown on X-axis and discretionary profit (P_D) on Y-axis. Each indifference curve (U) is convex to the origin which implies diminishing marginal rate of substitution of S for pD.

(i) It is assumed that indifference curve do not intersect each other.

(ii) It is also suggested that managers choose only the positive value of S and ρD in their utility function.

Similarly, the relationship between the discretionary profit (pD) and staff expenditure (S) may be depicted in the diagram 13.2



The relationship between the staff expenditure (S) and sicretionary profit (pD) (as shown in the digram 14.2) may be determined by the profit function.

$$p = f(X)$$
$$= f(P, S, e)$$

The minimum profit ρO and tax t are exogenously by the shareholders demand for dividneds and the tax laws.

It is assumed that the output is chosen optimarlly according to the marginal rule MC = MR and the market environemtn is given (e). The relationship between pD and S is shown in the above diagram. It may also be observed in the diagram that in the initial stages of production and upto the point where profits reach their maximum level i.e., BS, both discretionary profits and staff expenditure increase. Once production expands beyond this point, the discretionary profit falls while staff expenditure continues to increase.



Now we can rightly show the equilibrium of the firm in the diagram. 13.3

The equilibrium of the firm in Williamson's model is determined by the point of tangency of the profit-staff curve Ps as shown in the diagram as above and the highest possible managerial indifference curve U_4 . This point is E at U_4 indifference curve.

Under equilibrium, the firm's total discretionary profit is ES_2 which is smaller than the total profit BS_1 which the firm would earn in profit maximising mode. In Williamson's model, the staff expenditure OS_2 will be greater than that of a profit maximiser OS_1 .

Koutsoyiannis commenting on Williamson's model states, "Williamson's model is applicable in markets where rivalry is not strong, or for firms which have some advantage over their rivals. However, in the long-run such advantages which sheter a firm from competition are usually weakened, and competition is enhanced. When rivalry is strong a profit maximising model may be more apropriate unless some from of collusive agreement is achieved and firms adhere to it. Williamson's model no doubt brings in foucs corporate managers' power to exercise their discretion for the maximisation of their utility, but it fails to deal with the core problem of oligopolistic interdependence and of strong oligopolistic rivalry.

Thus, Williamson's model suggests that a firm led by utility-maximising managers spends more on staff expenditure and exhibits more organisational slack than a profit - maximising firm. Evidence provided by Williamson in support of this theory is not fully convincing. The theory of Williamson's Management Discretion' has at least one serious flaw, i .e. the measure of executive compensation does not provide sufficient importance to non-salary components of the compensation, consequently, it may significantly under estimate the profit-maximising behaviour of managers in the real wold. The managers are expected to follow policies which maximise their utility function.

13.6 Principal Agent Problem

We are aware that there is conflict of interests between the owners and the managers of a firm. According to Williamson's hypothesis managers are more interested in maximisation of their own benefits, instead of miximising profits of the corporate world. This is an example of a principal agent problem which arises in the context of firms. The consumers are the principal and service provider is agent. In any business organisation owners are the principal while managers are the agents. An agent is hired to execute a particular task because he has better knowledge about the task. In a business firm owners hire managers who work on a well defined task because they have better knowledge of the market and are expected to steer the business.

13.7 Reasonable Profits

Modern large corporations aim at making a reasonable profit rather than maximizing the profit. According the professor Joel Dean has given the following reasons for reasonable profits :

- (i) Preventing entry of competitors.
- (ii) To present a favourable public image.
- (iii) To put restrictions on trade union demands.
- (iv) To maintain customer goodwill.
- (v) Other factors namely managerial utility function, harmonious relation between executives and to maintain internal control over management by restricting firm's size and profit.

13.8 Profit as Control Measure

An important managerial aspect of profit is its use in measuring and controlling performance of the executives of the large business undertakings. Researches in the field have revealed that business executives deviate from profit objective and try to maximise their own utility function these executives think in terms of job security, personal ambitions for promotion, larger perks etc. which conflicts with firms' profit making objective.

Professor Keith Powlson has pointed out these common deviational tendencies as given under :

- (i) More energy is required for expanding sales volume and product lines than in raising profitability,
- (ii) Subordinates spend too much time, money and energy without caring its cost and usefulness, and
- (iii) Executives are bothered about the needs of job security instead of any reward.

In order to avoid such deviations managerial decentralisation is achieved by changing over from functional division of business activities — Production, sales, purchase to a system of commodity wise division. Managerial responsibilities are then fixed in terms of profit. Managers enjoy autonomy in their performance.

13.9 Baumols' Model of Sales Revenue Maximisation

Sales revenue maximisation an alternative goal to profit maximisation has been suggested by W.J. Baumol. According to Baumol, the olgopolistic firms aim at maximise their sale revenue. The reasons for this are given as under :

- (i) The health of the firms is judged by the financial institutions largely in terms of the rate of growth of its sales revenue.
- (ii) Slack earnings and salaries of top management are correalated more closely with the firm's sales that with its profits.
- (iii) Profits go to the shareholders, while increasing sales revenue over time provides prestige to the top management of the firm.
- (iv) Growing sales help in keeping a healthy personnel policy with better package of salary and viceversa.
- (v) The managers prefer a steady performance with satisfactory profits than spectacular profit maximisation profits.
- (vi) Large and growing sales by maintaing or increasing the market share of the firm increases to competitive power of the firm.

Assumptions of the model :

The firm while pursuing the goal of sales maximisation cannot completely ignore the stakeholders. The goal of the firm is, thus, the maximisation of sales revenue-subject to a minimum profit constraint.

The profit constraint is determined by the expectation of the shareholders and to enable it to raise new capital at a future date. The basic assumptions of in model are given as follows :

- (i) Sales maximisation subject to minimum profit constraint is the goal of the firm.
- (ii) Production costs are independent of advertising.
- (iii) The price of the roduct is assumed as constant.
- (iv) Advertisement always result in creating favourable conditions for the product.
- (v) Advertisement is a major instrument of the firm as non-price competition is the typical form of competition in oligopolistic markets.
- (vi) Conventional cost and revenue functions are assumed which implies that cost curves are U shaped and the demand curve of the firm has a negative slope.
- (vii) Advertisement will always shift demand curve to the right, which implies that the firm will sell

larger quantity and earn larger revenue (*i.e.* $\frac{\P R}{\P a} > 0$, where R is the sales revenue a is the adver tigement east)

tisement cost)

According to Baumol, it is only after the profit constraint has been satisfied that profits become subordinate to sales in the firms hierarchy of goods in a single period model as shown in the diagram 13.4. This profit constraint is shown by a line p. It is obvious that sales maximiser will keep on selling till the MR

remains positive, so the sale's maximiser level of output would be 0Q, where $MR \overset{æ}{\underset{e}{\mathfrak{g}}} i.e. \frac{\P(TR)}{\P(Q)} \overset{\circ}{\overline{\sigma}}$ equal to

zero as shown in the diagram 13.4:



If the minimum profit constraint (p) is above the level of profits where MR = 0 (at point k), the sales revenue maximiser is constrained to stop at $0Q_1$ level out output, where minimum profit constraint p is met. On the other hand, if minimum profit constraint is p (which is less than the profits where MR = 0) then the sales revenue maximiser will face no profit constraint and would therefore, produce $0Q_1$ output. Thus, if minimum profit constraint is less than the maximum profit the sales maximiser will produce a greater output than the profit maximiser.

13.9.1 Implications of the Baumol's Model

(i) It both the profit maximiser and a constrained sales maximiser face the same demand curve, the

latter will change a lower price to sell the extra output $(Q_3 - Q_1)$

A sales maximiser will spend move on advertising than does a profit maximising firm.

Cause of Baumol's model with advertising cost can be depicted in the diagram 14.5 :



Diagram 13.5

Baumol assumes in this case that advertising does not effect the product's price but it does lead to increased output sold with diminishing return. It is also assumed that advertising will always lead to a rise in TR ; MR will never become negative. This is well depicted in the diagram as above. Since, advertising will always increase TC, the management will increase advertising untill prevented by the profit constraint

(p, O). as shown in the above diagram.

13.9.2 Criticisms of Baumol's sales Revenue Maximising Model :

In Baumol's sales revenue maximisation model, since a firm treats its profit as a constraint rather than as an utilimate objective, an increase in overhead cost leads to a price increase. Baumol has argued that the firm always earns only enough to satisfy its profit constraint. The sales maximisation model is not easy to test because the data required for measuring the demands and cost functions of invidual firms are not generally available to the researches.

Some economists have expressed their doubts about Baumol's sales maximisation theory on incentive grounds :

- 1. According to the hypothesis, it has been assertd that sales maximisation and profit maximisation hypothesis ofer identical solutions in the long run. In the long run firms earn normal profits and the minimum profit constraint is very much likely to coincide with it.
- 2. Baumol's assumption that increased advertising outlay always leads to increased total revenue is not necessarily be correct. Sometimes, excessive advertising is repelling and thus, the possibility of the marginal revenue of advertising being negative cannot be ruled out altogether.
- 3. The prices of product do not remain constant.

Firm's decision making is limited to a single period and it is not realistic assumption. In modern times, production costs are not independent of advertising. The theory does not deal with the relationship between firm and industry. The theory does not expalin how an industry would attain equilibrium if the goal of the firm is sales maximisation. The theory ignores actual competition as well as the threat of potential competition. In an oligopolistic market if a firm attempts to capture the market of the rival firm reactions would definitely set limits to its discretion in expanding sales.

13.10 Summary

The members of the board of directors are agents of shareholders and they monitor the decisions of executive managers. Different agents perform their function in a business organisation.Managerial aspect of a business firm deals with production decisions, exchange decisions and consumption decisions. These decisions require time management and future planning which is uncertain. The various functional areas in an organisation are performed to attain its objectives.Professor Oliver Williamson has propounded the managerial utility function which is a combination of the objectives of profit maximisation and growth maximisation. Modern business firm has separate function of owners and managers. Manager's utility function is dependent on the salary, managerial emoluments and the power of discretionary investment.Consumers are the principal and service provider is agent. In any business organisation owners are the principal while managers are the agents. Managers are hired by owners because they have better knowledge of the market conditions.Modern large corporations are interested in a reasonable profit rather than maximising the profit because this objective prevents entry of competitors, presents a favourable public image, puts restrictions on the trade union demands, maintains customer goodwill etc.

13.11 Key Words

- Executive Managers : Persons implementing policies of the organisation.
- **Consumption Decisions :** Decisions relating to the production of goods and services needed for consumers.
- **Production Decisions :** Producers have to take decision regarding the quality and quantity of output and needed inputs.
- Exchange Decisions : The production of goods and services are to be marketed in various markets.

13.12 Self Assessment Test

- 1. Discuss the managerial aspect of a firm.
- 2. Describe managerial utility function.
- 3. What is principal agent problem?
- 4. What is reasonable profits?
- 5. Write the common deviational tendencies in case of reasonable profits.
- 6. Why is reasonable profits considered in place of maximisation of profit?
- 7. Describe the Marris's Theory of Managerial enterprise.
- 8. Explain with detail the Williamson's theory of Managerial discretion.
- 9. Critically examine the Bollmol's theory of sales revenue maximisations.

13.13 Suggested Books/References

- 1. Mathur N.D.: Managerial Economics, Shivam Book House (P.) Limited, Jaipur
- 2. Varisham payan J.V.: Micro Economics, New Royal Book Co., Lucknow

Unit- 14 Theory of Profit

Unit structure

- 14.0 Objectives
- 14.1 Introduction
- 14.2 Characteristics
- 14.3 Types of Profit
- 14.4 Theories of Profit
- 14.5 Profit Policy
- 14.6 Summary
- 14.7 SelfAssessment Test
- 14.8 Suggested Books / References

14.0 Objectives

After studying this unit, you should be able to understand:

- Concept of Profit
- Different types of Profit
- Different theories given in this regard
- In last Profit Policy

14.1 Introduction

Profit is the life blood of every business. Without profit no organization could survive for a long period. It is regarded as an incentive for undertaking entrepreneurial function. It is regarded as a reward for risk taking. It is the excess of total revenue over total cost. In other words, it is the reward or return accruing to the entrepreneur who is able to keep total revenue below total cost.

Thus, we can say, profit is the reward for entrepreneurial ability and goes to the entrepreneur of the firm. According to Von Thunen, "profit is the residue after deduction of interest, insurance for risk and wages for management." Thus, from economic point of view, profit is residual of income over and above all economic cost, both explicit and implicit, that results from the operation of a business. It is a return to the entrepreneur for risk taking

14.2 Characteristics of Profit

- 1. Profit is the residual income.
- 2. Higher the risk, higher the profit
- 3. Profit is always uncertain and indeterminate.
- 4. Profit always bears dynamic fluctuation.
- 5. Profit may be positive, zero or negative.
- 6 Profit occurs by keeping total cost below total revenue.
- 7 It is the ability of entrepreneur i.e. able entrepreneur will earn more profit.

14.3 Types of Profit

Profit is the life blood of every business. The survival of any firm or organization depends on the amount of profit. So, profit is generally classified under the following heads:

1. Gross Profit

Gross profit or total profit is that residual income which accrues to an entrepreneur when he excludes total explicit cost from total revenue or total sales proceeds of the firm. Explicit cost means visible cost of production, which includes cost of raw material, wages, salary, power, etc. In other words, it is the difference between total revenue and total explicit cost.

But in view point of financial accounting, gross profit is the difference between total revenue and direct cost

Gross Profit =Total revenue - Total cost Or Gross Profit = Total revenue - Total Direct Cost

2. Net Profit \ Economic Profit

It is the reward paid to the entrepreneur for taking risk in the process of production, bearing uncertainty, and reward for new innovations. In other words, it is that residual income which accrues to the entrepreneur when we deduct explicit and implicit cost from total revenue. Implicit cost is also called invisible cost of production, which includes advertising cost, transport cost, etc.

Net Profit = Total Revenue - Explicit Cost - Implicit cost

In terms of accounting sense, when we deduct Direct and Indirect Cost from Total Revenue, we arrive at Net Profit. Symbolically

Net Profit = Total Revenue - Direct cost - Indirect Cost

3. Normal Profit

This concept was propounded by Alfred Marshal. It includes the production cost of the representative firm. According to this concept, the firm Is able to recover cost only. In other words, the firm is able to recover variable cost and not the fixed cost. So it is said to be in normal profit situation or no profit no loss situation. It is the minimum amount which an entrepreneur must get in order to survive in the market.

4. Super Normal Profit

Whatever income accrues over and above normal profit is called Super normal profit. It accrues to the entrepreneur when he succeeds in keeping total cost below total revenue. In other words, when average revenue is greater than average cost, the firm incurs super normal profit or abnormal profit. But it will earn only normal profit in the long run in case of monopolistic or imperfect competition. But in case of monopoly market, the firm may even earn super normal or abnormal profit in the long run. it is the amount which gives the firm motivation for expansion.

14.4 Theories of Profit

1. Rent Theory of Profit

This theory was given by American economist Francis L. Walker, which is based on the concept of

net profit. Prof. Walker has compared his theory with that of Ricardian theory. According to him Profit is the rent of ability. David Ricardo has calculated rent by comparing Marginal and super marginal land, in the same manner profit is calculated by comparing the abilities of marginal and super marginal entrepreneur. Because as rent is the reward for the use of land while profit is the reward for ability.

As pieces of land differ in fertility, entrepreneur also differs in ability. An able entrepreneur is defined as super marginal entrepreneur in the theory and his ability is compared to that of marginal entrepreneur who sells his product on just cost and earns no profit.

Thus, according to Walker, profit is the rent of ability and like rent; profit also does not enter into price.

Criticism

- 1. Profit does not always arises due to ability, other factors (macro variables) are also responsible for getting profit
- 2. Rent is generally positive and in some cases it may be even zero, while Profit may be positive, zero, and even negative.
- 3. Marginal entrepreneur does not exist in real world
- 4. Profit arises in a dynamic economy, where changes take place continuously and not in a static economy.
- 5. This is a short period theory where profit enters into price, which is not possible in the long period

2. Wage Theory of Profit

This theory was given by American Economist Taussig which is well supported by Davenport. According to this theory, profit is similar to wage, which is given to the entrepreneur for the services rendered by him in the business. This theory explains the similarity between labour and entrepreneur. Just as labour get wages for the services rendered in the business, an entrepreneur gets profit in the business for providing services in the business. Thus this theory give emphasis that profit is a type of wage for the entrepreneur.

But this theory has ignored the fact that a labour does not undertake any risk whereas, an entrepreneur always undertakes risk so he is liable to have profit. This theory also ignores that a labour will always get wages under all circumstances i.e. wages are always positive but this is not applicable in case of profit. Because profit may be positive, zero, or negative.

Criticism

- 1. Wages are always positive, but it is not essential that profit is always positive. It may be positive, zero, or even negative in dimension
- 2. Labour and entrepreneur are not similar. Labour is generally performing physical task whereas, entrepreneur is undertaking mental exercise.
- 3. This theory does not explain the profit which is received by the shareholder, who is not rendering any service.
- 4. Labour does not undertakes any risk, but an entrepreneur undertakes risk so there is no similarity between labour and entrepreneur

3. Risk Theory of Profit

This theory was propounded by American economist Hawley in 1907. According to this theory profit is the reward for risk taking. If any entrepreneur in business undertakes risk, he is liable to have profit, and if he is not prepared to take any risk, he is not liable to have profit. Thus, this theory is based on the basic principle that higher the risk, higher the profit and lower the risk, lower the profit.

Criticism

- 1. There is no direct relationship between risk and profit
- 2. Profit does not arises due to risk taking rather accrues due to avoidance of risk
- 3. Profit does not arise due to all types of risk.
- 4. It does not measure the volume of profit.

4. Uncertainty Bearing Theory of Profit

This theory was propounded by American economist F. H. Knight in the year 1927. According to this theory profit is the reward for bearing uncertainty. This theory is also known as Knight's Theory of profit, as he lays down the difference that profit does not arise from all types of risk. So he divided risk under two heads namely - foreseen and unforeseen risk.

Foreseen risk is those which can be predicted and can be provided for through insurance. It includes risk of fire, threat, etc. whereas unforeseen risk refers to those which cannot be predicted and cannot be got covered through insurance. Under this we include government policy, business cycles, competitive risk, technical risk, etc

According to Prof Knight, profit does accrue from all types of risk. It arises due to non - insurable risk. As this risk cannot be foreseen and no insurable company is ready to cover these risks, these are called non-insurable risk or uncertainty bearing risk

Criticism

- 1. Uncertainty bearing is not any factor of production.
- 2. Profit is not the only reward for uncertainty bearing.
- 3. This theory does not measure the volume of profit.
- 4. This theory explains only sudden and causal explanation of profit.

5. Dynamic Theory of Profit

This theory was propounded by American economist J.B. Clark. According to him, profit always arises in a dynamic economy and not in a static economy. The basic reason for arising profit in a dynamic economy is continuous changes in the economy.

In case of a static economy, there is no change in economy. The activities of the previous year will be repeated in current year, as a result price will be equal to its cost and there will be no profit.

According to Clark, there are five changes, which are continuously taking place in the dynamic economy and they are responsible to have profit. They are-

- a) continuous change in population
- b) continuous changes in techniques of production
- c) continuous changes in supply of capital
- d) continuous changes in structure of organization
- e) continuous changes in human wants due to change in taste, preference, and habit of the consumer

In the view of Clark, only those entrepreneurs will survive and develop and get profit who will adopt these changes in order to satisfy consumer needs. Those entrepreneurs who do not accept these changes will not survive and will not get any amount of profit.

Criticism

- 1. Not every change does not bring profit.
- 2. Static economy does not exist in the real world.
- 3. This theory does not give any importance to uncertainty bearing and risk taking
- 4. It does not measure the volume of profit

6. Innovation Theory of Profit

This theory was given by American economist J.A.Schumpeter. This theory is very much similar to Dynamic theory of Profit. But instead of adopting the five changes, which are continuously taking place in the economy, this theory stresses more on innovation. By innovation, Schumpeter means adopting new techniques of production, as a result of which production cost would tend to decline and it will lead to increase in profit.

If a firm wants to increase the level of profit, it can do this by two ways-

- a) it can either increase the price of the product or
- b) try to reduce cost of production

The first strategy is not appropriate, due to increase in competition in the market. If the firm increases the price of the product, the other rival will not increase the price, as a result, the demand will fall, which will further reduce the profit margin.

The second way is much better way to increase the volume of profit. This profit will arise to the firm continuously, until the firm does not accept this innovation. Thus, it can rightly remark that the profit which accrues due to innovation now lapses away.

Thus, this theory explains that profit accrues to the firm only because of innovations and not due to any other reason.

Criticism

- 1. This theory ignores risk factor of the entrepreneur.
- 2. Profit does not accrue due to innovations only.
- 3. This theory fails to measure volume of profit.
- 4. This theory relates to short period only.

7. Marginal Productivity Thepry of Profit

This theory explains that reward for each and every factor of production can be decided by marginal productivity of that factor of production. The theory assumes entrepreneurial ability is also factor of production.

According to this theory, the value of entrepreneurial ability i.e. profit is decided by his marginal productivity. As marginal productivity curve for a factor of production is demand curve for that factor, in the same manner marginal productivity curve is demand curve for entrepreneur.

The supply of entrepreneurial ability is scarce, and it depends on how much they earn in an industry or his income i.e. transfer income and opportunity cost. It cannot be increased or decreased easily and at once. Able entrepreneur's demand is more and earns high profit and vice versa. Supply being scarce, entrepreneurs earn huge profit due to higher marginal productivity.

Under conditions of perfect competition, profits of an entrepreneur tend to equal to his marginal productivity. But when we analysis this theory we find that perfect competition is no where found in the real world. Perfect competition is a myth.

Criticism

- 1. This theory assumes all entrepreneur of same type with equal skill is wrong
- 2. This theory is one sided. It gives much emphasis on demand side and ignores supply side.
- 3. This theory is based on assumption of perfect competition and in real practices Perfect competition does not exist
- 4. This theory does not consider windfall profit
- 5 It is difficult to determine marginal productivity of entrepreneur because in case but in case of a there is only one entrepreneur.

8. Socialist Theory of Profit

This theory was propounded by American economist Karl Marx. According to this theory, the value of a product is determined by labour itself involved in the process of production. Under capitalist economy, major part of total produce is grabbed by capitalist themselves and merely small portion of produce is given away to the labour. Marx called that major portion which is taken away by capitalist as "surplus value".

Thus, according to this theory, the main reason for accruing profit is exploitation of labour by capitalist or is termed as "legalized robbery", as major part of produce is grabbed by capitalist themselves.

This will result into division of economy into two parts - Haves and Have not's. The first category enjoys at the cost of second. But the second category will struggle due to exploitation and will go for strikes and lockouts. They will demand higher wages and other amenities of life. Therefore, in the long run profit will tends to fall.

Criticism

- 1. This theory explains that labour is the sole factor which is responsible for accruing profit, which s wrong. There are several other factors which are engaged in tempo of production, including labour.
- 2. Profit is not the outcome of exploitation of labour, rather it is due to the ability of the entrepreneur.
- 3. This theory ignores the risk taking and uncertainty bearing.
- 4. This theory does not take into consideration the concept of windfall profit.
- 5. This theory does not provide any means to measure the volume of profit.

14.5 Profit Policy

Profit is the necessity for survival, and for growth. Different firms adopt different policy to achieve their organizational goals. Generally the firm adopts two types of policies. The detail description of their policies are given hereunder

1. Profit Maximization Policy

According to this policy, the main aim of every firm is to maximize their profit. Profit is the only reward to measure efficiency of the firm, according to the viewpoint of the policy. In other words, a firm is said ideal, only if they maximize profit.

Firm needs funds for the purpose of expansion, which they can borrow from internal source or from external source, through issue of shares and debentures or through some other source. The lender will get either interest or dividend as profit for the use of capital.

Thus, an enterprise will remain in business because of profit, and can also increases its recourses accordingly so as to earn profit.

Criticism

- 1. This is a vague policy because it does not show the clear picture. This theory does not explain how a firm or organization can maximize its level of profit.
- 2. This theory ignores risk and uncertainty factor, which is a essential for every business organization to take into consideration.
- 3. This theory also ignores time factor. It does not explain in how much time profit can be increased.

2. Fair profit policy

Nowadays, firms are adopting Satisfactory profit policy, which further motivates the firm to remain in a business for a longer period. This policy explains a reasonable level of profit, which will enable the firm to clear all its liabilities and a reasonable amount left will encourage them to stay in business. The firm generally adopts this policy for the following reasons -

- 1. It enables the firm to stay alive in business for a longer period.
- 2. In case if a firm earns supernormal profit, it will attract the firms to enter into market. So in order to reduce level of competition, they may adopt this policy.
- 3. If the firms higher profit, it will encourage the labours to demand for higher wages.
- 4. The firm also fix nominal price and earns fair profit in order to fulfill social obligation.
- 5. The firms may follow fair price policy, if they are satisfied with the current market price and from the volume of profit.

So by keeping these objectives in mind, the firm or organization may pursue the fair profit policy. This policy is also advantageous from the view point of society.

14.6 Summary

We can say that profit is the life blood of every business. It plays a significant role in business. It always encourages the entrepreneur to stay in the business. In other words, it keeps alive the business. Different authors have considered profit in different manner by giving theories of profit- Rent, risk, uncertainty, wage, etc. theories of profit. It depends on the organization that what policies they are following whether they follow profit maximization policy or fair profit policy. But in real practice firms generally adopt fair profit policies in order to reduce the level of competition in the market. Today is the market of competition, so if a firm desires maximum profit, then it is inviting other firms to enter market and increase competition. So it is advisable for the firm to adopt fair profit policy in order to keep rivals away.

14.6 Self Assessment Test

14.8	Suggested Books/References
8	Critically evaluate Innovation theory of profit.
7	Briefly explain the theory given by prof. Clark.
6	Define profit policy. Which is the appropriate policy, explain with reason.
5	Write Short Notes on- (a) Uncertainty bearing theory of profit (b) Socialist theory of profit
4	Critically evaluate Marginal Productivity theory of Profit
3	Critically explain rent theory of Profit.
2	Define Profit. Give its essential features.
1	Discuss the types of Profit

- 1. Marshall A., Principles of Economics, Haemillan, London
- 2. Tarham Paul: Economics for Managers, Pearson Hall, New Jersey

Unit - 15 Circular Flow of Economic Activities

Unit Structure

- 15.0 Objectives
- 15.1 Introduction
- $15.2 \ \ Circular \, Flow \, of \, Economic \, Activities$
- 15.3 Assumptions of Circular Flow of Income Model
- 15.4 Circular Flow of Income and Expenditure in a Two Sector Economy
- 15.5 Circular Flow with Savings and Investments (Three Sector Economy Model)
- 15.6 Circular Flow with Savings, Investments and Foreign trade-Five Sector Model
- 15.7 The National Income Accounts
- 15.8 Effects of Circular Flow of Income
- 15.9 Determinants of Circular Flow of Income
- 15.10 Importance of Circular flow of income
- 15.11 Summary
- 15.12 Key Words
- 15.13 SelfAssessment Test
- 15.14 Suggested Books / References

15.0 Objectives

After studying this unit, you should be able to understand:

- The concept of Circular Flow of Economic Activities
- Assumptions of Circular Flow of income model
- Circular flow of Income and Expenditure in a Two Sector Economy
- Circular flow of Income and Expenditure in a Three Sector Economy
- Circular flow of Income and Expenditure in a Five Sector Economy
- The National Accounts
- Measuring total output by Expenditure, Income and Value Added approaches
- Effects of circular flow of income
- Importance of circular flow of income

15.1 Introduction

National income is one of the most important concepts in all economic systems. Technically, it is called the Gross National Product (GNP). To Kenneth Boulding, "The GNP is one of the greatest inventions of the twentieth century, probably almost as significant as the automobile but not as significant as TV. The effect of physical inventions is obvious, but social inventions like the GNP change the world almost as much". Economic growth is symptomized by an upward movement of all variables in the economy, with national income as the key variable. So GNP measures the economic performance of the whole economy.

15.2 Circular Flow of Economic Activities

Economists use the term national product to describe the total of all wealth produced, distributed and consumed in an economy in a certain period, usually an accounting period. There are various measures of national product. The most commonly used measures are the gross national product (GNP), net national product (NNP) and gross domestic product (GD)). The national product (or the national income) is a flow variable.

Lipsey defined the circular flow of income as "the flow of payments from domestic households to domestic firms and back again." The three economic activities (1) Production, (2) Consumption, and (3) Investment are inter-related. Changes in one lead to changes in the other. The transactions take place between different sectors of the economy due to which income and expenditure move in a circular form called circular flow of income.

In neoclassical economics, the circular flow of income refers to a simple economic model which describes the reciprocal circulation of income between producers and consumers. In the circular flow, the inter-dependent units of producers and consumers are known as 'firms' and 'households' respectively. These units provide each other with factors in order to facilitate the flow of income. Firms provide consumers with goods and services in exchange for consumer expenditure and 'factors of production' from households.

A model indicates how money moves throughout an economy between businesses and individuals. Investors spend their income by consuming goods and services from businesses, paying taxes and investing in the stock market. Businesses use the money spent by individuals while consuming and the money raised from selling stocks to pay for capital to run their business, purchase material to manufacture products and to pay employees. All expenditures from individuals become the income of the businesses, and the expenditures of the businesses become the income of the individuals. All these transactions flow in a circular fashion in the economy, since the income of one sector is the expenditure of another sector and vice versa. Whatever is spent or invested is an injection into the circular flow and whatever is saved or not spent is a leakage from it.

In equilibrium, leakages equal injections and the circular flow stays the same size. If injections exceed leakages, the circular flow growe (i.e. there is economic prosperity), where if they are less than leakages, the circular flow shrinks (i.e. there is a recession).

The circular flow model is a fundamental representation of macroeconomic activity among the major players in the economy—consumers, producers, government, and the rest of the world. Different versions of the model sequentially combined the four sectors—household, business, government, and foreign--and the three markets—product, resource, and financial—into increasingly more comprehensive representations of the economy.

In modern economy, the process of production and exchange generates two kinds of flows:

- 1. Real flow: It is the flow of goods and services from the firms to the households and flow of factor services from the household to the firm.
- 2. Money flow: It is the flow of money from the firm to the households, that is, flow of factor payments from the firm to the households.

15.3 Assumptions of Circular Flow of Income Model

The basic circular flow of income model consists of six assumptions;

- 1. The economy consists of two sectors: households and firms.
- 2. Households spend all of their income (Y) on goods and services ©. There is no saving (S)
- 3. All output (O) produced by firms is purchased by households through their expenditure (E).
- 4. There is no financial sector
- 5. There is no government sector
- 6. There is no foreign sector.
- 7. It is a closed economy with no exports or imports.

15.4 Circular Flow of Income and Expenditure in a Two Sector Economy

The simplest circular flow model contains two sectors (household and business or firms) and two markets (product and factor/resource). This model highlights the core circular flow of production, income, and consumption.

The two sector model of circular flow of income is based on the following assumptions:

- 1. Total income is equal to total expenditure,
- 2. The government interference is zero, and
- 3. The economy has no links with the outside world.

Households

The primary economic function of households is to supply domestic firms with needed factors of production - land, human capital, real capital and enterprise. The factors are supplied by factor owners in return for a reward. *Land* is supplied by landowners, *human capital* by labour, *real capital* by capital owners (capitalists) and *enterprise* is provided by entrepreneurs. Entrepreneurs combine the other three factors, and bear the risks associated with production.

Firms

The function of firms is to supply private goods and services to domestic households and firms, and to households and firms abroad. To do this they use factors and pay for their services.

There are several types of firms, including:

- 1. Sole traders, which are common in retailing and services
- 2. Partnerships, common in legal and financial services
- 3. Private limited companies ('Ltd), common in small to medium sized enterprises
- 4. Public limited companies (Plcs), common with larger enterprises

Factor incomes

Factors of production earn an income which contributes to national income. Land receives rent, human capital receives a wage, real capital receives a rate of return, and enterprise receives a profit.

Members of households pay for goods and services they consume with the income they receive from selling their factor in the relevant market.

Production function

The simple production function states that output (Q) is a function (f) of: (is determined by) the factor inputs, land (L), labour (La), and capital (K), i.e.

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

The circular flow of income and expenditure in such an economy takes place from the business sector to the household sector, as payments to productive factors, in the form of wages, rents, interests and profits and from the household sector to the business sector. There are no leakages and hence no complication.

Consider, for example, an economy that produces a single commodity, bread by using a single input, labor. The economic transactions that take place between households and the firms in the economy is shown in figure 15.1



Diagram 15.1

In Diagram16.2 national income is measured along the X-axis and consumption expenditure c is measured on Y-axis. The straight line OZ makes 45° angle with the X-axis represents the reference income line to measure the difference between consumption and level of income. This is often called *income line*. On a point of this 45° line consumption expenditure will equal the current level of national income. A curve C has also been drawn which represents consumption function, C = a + bY of the community. The inner loop represents the flow of labour and bread between the households and the firms. The firms produce bread by using the labour of the workers. This bread is then sold to the households. Thus, the flow is:

- (a) labor flows from households to firms
- (b) bread flows from firms to households

The outer loop in the figure represents the corresponding flow of rupees between the households and the firm. The households purchase bread from the firms. A part of the revenue from the sales of the bread is used to pay wages to the workers while the rest is retained as profits by the owners of the firm. In the two sector circular flow of income the state of equilibrium is defined as a situation in which there is no tendency for the levels of income (Y), expenditure (E) and output (O) to change, that is:

$$Y = E = O$$

This means that the expenditure of buyers (households) becomes incomes for sellers (firms). The firms then spend income on factors of production transferring their income to the factor owners. The factor owners spend this income on goods which lead to a circular flow of income. Thus, the flow is:

- (a) Expenditure flows from households to firms,
- (b) Income as wages and profits flows from firms to households.

15.4.1 Determination of National Income in Two Sector Economy

Keynesian theory of determination of national income is relevant in the context of the short run only since the stock of capital, techniques of production, efficiency of labour, the size of population, forms of business organization have been assumed to remain constant. Keynes assumed that price level in the

economy remains unchanged. Therefore, in the short run, the level of income of the country will change as a result of changes in the level of labour employment. Capital stock, level of technology, labour efficiency, and the size of population remains unchanged. It is to be noted that national income and national product represent the same thing. In fact, national income and national product represent the value of aggregate output from two different points of view. It is also evident that the level of employment in the economy depends on the level of national income or product. Given the stock of capital and level of technology, as more goods and services are produced, more labour is employed and more incomes are generated.

Aggregate Demand and Expenditure (with a Fixed Price Level)

Aggregate demand is the total expenditure which at given fixed prices all households and firms make on goods and services in a period at various levels of national income. In a two sector economy, aggregate expenditure AE represents aggregate demand which consists of two components: First, there is consumption expenditure by households and secondly, there is a demand for and expenditure on capital goods by business firms, which is called investment expenditure.

Aggregate Expenditure or Aggregate Demand = Consumption expenditure + Investment expenditure

AE or
$$AD = C + I$$

Consumption Expenditure

The consumption demand depends upon the propensity of the community to consume and the level of current national income. Given the propensity to consume, as income increases, consumption expenditure will also increase. The consumption function can be expressed as:

$$C + a + bY$$

Where 'a' the intercept term of the function and represents autonomous consumption expenditure whereas b represents the slope of the function.



Diagram 15.2 Consumption Function

The curve of the consumption function slopes upward from left to right which shows that as income increases, the amount of consumption expenditure also increases. An income line OZ makes 45° angled with the X-axis, the gap between the consumption function C and the income line OZ represents the saving of the community. This is because a part of the income is consumed and a part is saved, i.e.

National Income = Consumption + Saving

 $\mathbf{Y} = \mathbf{C} + \mathbf{S}$

Where Y represents income

C represents consumption, and

S represents saving.

The gap between the consumption function curve C and the income line OZ goes on increasing as income increases. It is to be noted that in the short run consumption function does not change. This is because the propensity to consume, that is, the whole consumption function curve C depends upon the tastes, preferences, the income distribution in the society, the population level etc. which do not change in the short run. However, in addition to current income level, consumption expenditure depends on the rate of interest, stock of wealth, fiscal policy or taxation by the government, the general price level. The impact of changes in these other factors is shown by shift of the consumption function curve upward or downward as the case may be. For example, if the rate of interest rises, people will save more and therefore consume less at each level of current income. As a result, the consumption function curve will shift downward. The consumption function is a slope which measures marginal propensity to consume. Marginal propensity to consume means the increase in consumption resulting from increase in income. Thus,

$$MPC = \frac{\triangle C}{\triangle Y}$$

Investment Demand

Investment is the other component of the aggregate demand. Investment is a crucial factor in the determination of equilibrium level of national income. Investment demand depends upon (1) marginal efficiency of capital and (2) rate of interest. Of these two factors, rate of interest is comparatively stable and does not frequently change in the short run. Therefore, the fluctuations in the level of investment demand mainly depend upon the changes in the marginal efficiency of capital. The marginal efficiency of capital means the expected rate of return or profit which the business community expects to get from the investment in capital assets. Marginal efficiency of capital depends upon the replacement cost of the capital goods on the one hand, and profit expectations of entrepreneurs on the other. Profit expectations are more important because they often change even in the short run and cause fluctuations in investment. In order to raise the level of national income and employment in the economy, steps should be taken to raise the expectation of the entrepreneurs regarding profit earning from investment.

In any particular period there will be a level of investment expenditure which depends on marginal efficiency of capital and the rate of interest but is exogenously determined independent of the level of national income. Thus, investment is not taken to be a function of income. Investment does not change with a change in the level of income. In actual practice when the level of income rises, the demand for goods will also rise and this will affect favorably the expectations of the entrepreneurs regarding making of profits. Rise in the profit expectations will raise the marginal efficiency of capital which in turn will increase the level of investment. Investment demand does not directly depend upon income; it is only affected indirectly by changes in income. Therefore, a given amount of investment demand independent of the kvel of income and added it to consumption function curve to get aggregate expenditure curve C + I. The aggregate expenditure (AE) curve (C+I) is also called aggregate demand (AD) curve with a fixed price level. The distance between the C curve and the C+I curve is the same throughout and therefore C + I curve is parallel to the C curve which indicates that the level of investment is constant and does not change with the change in national income. The aggregate expenditure curve C + I is interpreted as planned or desired expenditure on goods and services by both households and business firms.

Equilibrium Level of National Income

Equilibrium is a situation when there is no tendency to changes in a variable. A level of national income is in equilibrium when aggregate expenditure on consumption and investment equal aggregate output of consumer and capital goods. Thus level of national income is determined by the equilibrium in the goods market. Equilibrium in the goods market is reached at the point at which planned or desired aggregate expenditure (C + I) is equal to aggregate out put (i.e. national product). The national product is the same as national income.

15.5 Circular Flow with Savings and Investments (Three Sector Economy Model)

The three sector model includes the government spending and taxation. Here is a closed economy with three sectors, viz. households, firms and the government. Figure 15.3 exhibits the functioning of an economy by looking at the circular flow of income in a three sector economy. It demonstrates the linkages between household, firms and the government.



Diagram 15.3

Households receive income with which they pay taxes to the government, consume goods and services and also save.

Firms receive income from the sale of goods and services and use such flows to reimburse the various factors of production. Both households and firms borrow from the financial market to purchase investment goods like factories, equipments and houses.

The government gets its revenue from taxes to finance its expenditures. Public Saving is the excess of government revenue over government expenditure. The inclusion of government into the model affects aggregate demand through government expenditure and taxation. Government expenditures are injection to the economy as they add to the aggregate demand. Taxation is a withdrawal from the economy as it reduces the aggregate demand. The government expenditure and taxation affect the national income to the extent of their net multiplier effect.

The three sector model makes following assumptions:

- The government follows a balanced budget policy, i.e., the government expenditure (G) equals the amount of taxes (T).
- Both G and T are exogenously determined.

The aggregate demand (AD) is defined as

$$AD = C + I + G$$

The aggregate supply is expressed as

$$AS = C + S + T$$

The equilibrium of national income in the three sector model is reached where

$$C + S + T = C + I + G$$
(16.1)

At equilibrium, therefore,

Y = C + I + G

Where

$$C = a + bY_d$$

 $T = hump sum tax$

I = 10111p sum tax

By substitution, Eq.(16.1) may be written as Y = a + b (Y-T) + I + G(16.2) Solving for Y, we get equilibrium level of national income as

$$Y = \frac{1}{1-b}(a-bT + IG)$$
(16.3)

For example in an economy

$$C = 100 + 0.75 \text{ Yd}$$

I = 100,,, $G = T = 50$

By substituting these values in equation (16.3), the equilibrium level of Y is reach as

$$Y = \frac{1}{1-0.75} (100-0.75 \times 50 + 100 + 50)$$

= 850

The change in the government's fiscal has an effect on the equilibrium level of income. Fiscal policy refers to the deliberate change government makes in its expenditure (G) and tax revenue (T). The analysis of impact of change in government expenditure assumes that the government makes expenditure only on the purchase of goods and services and that there is no transfer payment. It is also assumed that all other variables in the economy remain constant. The impact of change in government expenditure on the level of national income is similar to the autonomous change in investment.

The impact of a change in lump sum tax on the level of national income is the same as the change in investment or government expenditure. The impact of change in tax however, on the national income is negative and smaller than the impact of government expenditure.

The impact of a simultaneous and equal change in government expenditure and taxation on the level of national income is also analyzed. When additional government expenditure and additional taxation is equal, the government budget is said to be balanced. The effect of balanced budget on the national income

is analyzed by balanced budget theorem which states that the balanced budget multiplier is always equal to one. It implies that if additional government expenditure is equal to additional taxation, national income increases exactly by the amount of increase in government expenditure

15.6 Circular Flow with Savings, Investments and Foreign Trade- Five Sector Model

So far the income determination has focused in a closed economy i.e. without foreign trade. The model of the circular flow of income with introduction of foreign trade is a more comprehensive and more realistic representation of the economy.

Unlike the two sector simple economy model with six assumptions, the five sector circular flow model drops all six assumptions. Three more sectors are introduced, the first being the Financial sector consisting of banks and non-bank intermediaries engaged in the borrowing and lending of money. In terms of the circular flow of income the leakage that financial institutions provide in the economy is the option for households to save their money. This is a leakage because the saved money cannot be spent in the economy and thus is an idle asset that means not all output will be purchased. The injection that the financial sector provides into the economy is investment into the business/firms sector.

Government sector is the next to be introduced to the model that consists of the economic activities of government. The leakage that the government sector provides is through the collection of revenue through Taxes (T) provided by households and firms. It is a leakage out of the current income reducing the expenditure on current goods and services. The injection that government sector provides is Government spending which consists of collective services and welfare payments to the community. For example, the tax government collects as a leakage is income tax and acts as an injection into the economy when the government redistributes this income (government spending) in the form of welfare payments back into the economy.

The introduction of the foreign sector in to the circular flow of income model transforms the model from a closed economy to an open economy. The main leakage from this sector is spending by residents on goods and services purchased from the rest of the world in the form of imports (M). The main injection the foreign sector provides is the exports of goods and services which generate income for the exporters from overseas residents.

In terms of the five sectors circular flow of income model the state of equilibrium occurs where the total leakages balance to the total injections that occur in the economy. This can be expressed in the form of an equation as:

Savings + Taxes + Imports = Investments+ Government Spending + Exports

$$\mathbf{S} + \mathbf{T} + \mathbf{M} = \mathbf{I} + \mathbf{G} + \mathbf{X}$$

Where total leakages are not equal to the total injections in the economy, the economy experiences the state of disequilibrium. This can be expressed as:

$$S + T + M ? I + G + X$$

In a state of disequilibrium, the total leakages are either greater than or lesser than total injections. The effects of disequilibrium vary according to the state of disequilibrium. If the total leakages are greater than the injections, the levels of income, output, expenditure and employment will come down causing a recession or contraction in the overall economic activity. On the other hand, if total leakages are lesser than the total injection, the levels of income, output, expenditure and employment will rise causing a boom or expansion in economic activity. This problem can be tackled by bringing changes in expenditure and output
15.7 The National Income Accounts

All the developed industrial economies today measure the volume of aggregate income, usually defined as Gross Domestic Product, in much the same way. There are always at least two main calculations, one which sums total expenditures on goods and services produced, the other of total income received as a result of producing those same goods and services. Because both are measures of the same thing they must, by definition, yield the same total.

15.7.1 Measuring total output by the expenditure method

Measuring total output by the expenditure method involves breaking down total spending on all goods and services produced into four categories: expenditure by consumers on goods and services (denoted by C); spending by businesses on capital goods (total investment, I); expenditure by governments on goods and services, (G); and net exports (the total value of exports minus the total value of imports, X-M). Because all spending done in the country falls into one or other of these four categories, the *total expenditure is the sum of* C+I+G+(X-M). Each of these four main components of total spending is analyzed below

1. Consumption (C)

Consumption expenditure is the total of all outlays households make on final goods and services. In all countries it is by far the largest component of total spending. It covers spending on an enormous range of items, including durable goods like television sets and cars, non-durable goods like food and clothing, and personal services such as legal advice, hairdressing, and dental care. But it usually excludes spending on houses which is customarily (and arbitrarily) treated as investment expenditure. Consumption expenditure also excludes purchases of second-hand goods that were produced in some earlier accounting period so as not to double count the value of such output. In fact, most consumption expenditures are for non-durable goods or services. These items are used up or consumed in a relatively short time and take a disproportionate share of total private consumption expenditure. Durable goods, such as washing machines and other appliances, motor cars etc. together constitute a small proportion of all consumer purchases.

2. Investment (I)

Investment refers to the construction or manufacture of capital good that provides a flow of future consumption or production service. Like consumption goods, they are not immediately used. A house for example, is an investment good because its services are utilized over a long period. Business plants, equipment and machinery are considered as investment goods because they too, will provide productive services in the future. Changes in business inventories are also classified as investment goods, since they measure goods that will provide future consumer benefits.

The major types of investment goods are the following:

- Inventories;
- Plant and Equipment;
- Residential housing

The total addition to society's stock of capital in an accounting year is called gross investment including the replacement of machinery, equipment and buildings worn out during the year and net addition to the stock of capital assets. The gross investment can be divided into two components: net investment and replacement investment. The replacement investment is called depreciation or capital consumption allowance which is the reduction in the value of capital goods due to their contribution to the production process. It is the amount of investment that just maintains society's existing stock of capital intact. Net investment is gross investment minus an allowance for depreciation and obsolescence of machinery and other physical assets during the year. Substantial net investment denotes that the capital stock of the economy is growing, and thereby enhances the economy's future production - potential.

3. Government Expenditure on Goods and Services (G)

Governments at different levels provide certain useful goods and services usually called public goods or collective consumption goods. For example, roads, highways, airports, bridges, education, medical care and pollution control etc. which are immensely useful to both households and business firms. Normally all types of government expenditures on goods and services are included as part of national income. Government expenditure on investment goods is included as government expenditure rather than investment expenditure.

Much of the spending done by governments in the developed countries today takes the form of simple transfers of income from taxpayers to those eligible for the wide range of income supplements available to assist the elderly, the sick and the unemployed, or as payments of interest to holders of the public debt. Such transfer payments do not represent spending on current production and consequently, like other transfers, are not counted in national income determination.

Government spending *on goods and services*, many of which are bought by the government on behalf of the public and which are ultimately "consumed" by households: education, health care services, national defense, roads, water and sewage systems, postal services are counted as government expenditure. Because so many of these goods and services are provided "free" or in other ways that bypass markets, it is difficult to determine their value in the same way that the value of the other items enteringinto consumption expenditure would be determined. Consequently, national income accountants value government spending on the basis of what the government pays for the goods and services it requires. However, government expenditure on such items as highways that are capable of being used to assist in the production of other goods and services should be considered as investment spending.

4. Net Exports (X-M)

With the great expansion of world trade in recent decades, a significant part of total spending in most countries goes toward the purchase of goods produced abroad. Such outlays represent spending which leaks from the domestic economy to the rest of the world and is consequently treated as a negative entry in measures of total domestic spending. But it is offset to a greater or lesser degree by the spending of non-residents on goods produced and exported to international markets. It is often convenient therefore, to take domestic spending on imports and foreign spending on exports as a combined value, usually called net exports Net exports may be a value positive or negative in any accounting period depending on which component, exports or imports, is larger.

Summing these four expenditure components, C+I+G+(X-M), gives a single figure, the total amount of *spending* done in the economy during the accounting period.

15.7.2 Measuring total output by the income method

The costs of production to the firms producing the national output are the income for the owners of productive factors. Factor costs and factor incomes are consequently the same thing viewed from different perspectives. The income method considers two variants: the income paid out and the income received. In the income paid out variant the units are the factor owners. The other magnitude is the incomes earned by the factor owners. The income paid out variant classifies the production efforts of people into factor groups. The factors of production are broadly classified into labor and capital. However, in many unorganized sectors of the economy, such functional classification of people into factors of production is difficult. The second step is to identify that estimate factor income. Two things must be kept in mind at the outset.

- Illegal incomes are excluded from national income because of the statistical difficulty of accounting for them.
- Transfer incomes are also excluded because only income earned of current production activities figure in national income of the year.

Wages currently paid are an instance of factor incomes while pensions are an instance of transfer income. Similarly, interest on production borrowing is factor income while interest on consumption borrowing is transfer incomes. Labour income include wages and salaries including cash bonuses, commissions, supplements to labour incomes like employers' contributions to provident fund and compensations in kind like food and clothing and medical and educational benefits etc. Non-labour incomes or capital incomes included dividends, undistributed profits of corporations, profit taxes, interest, rent, royalties, profits of unincorporated enterprises and profits or surplus of government enterprises. In self-employed or unorganized production unit functional differentiation and separation of income generated in a production unit into labour incomes are a composite of labour incomes, rent on own property, interest on own capital and, profits. Incomes in kind like farm products consumed on the farm are also included.

The income paid method measures factor incomes from the point of view of the production units situated in the country. Therefore, the total of factor income will add up to net domestic income. To get the national income it will be necessary to add net earned income from abroad. Since national income is being measured in terms of factor remuneration the total will be at factor costs $NNP_{FC} = NI = Wages + Interest + Rent + Profit + Net earned income from abroad.$

In the income received variant, the units are classified into institutional sectors, namely, households, enterprises and government.

Income is measured as the sum of the legal incomes by the households, enterprises and the government.

15.7.3 Measuring total output by the value added method

The net output is also called the value added. The value added method consists of three stages

- Estimating the gross value of domestic output in the various branches of production
- Determining the cost of materials and services used and also the depreciation of physical assets;
- Deducting these costs and depreciation from gross value to obtain the net value of domestic output

The net value of domestic product is often called the value added or income product which is equal to the sum of wages, salaries, supplementary labour incomes, interest profits, and net rent paid or accrued.

For estimating the gross value of domestic product, output is categorized under various heads on the basis of nature of activities from which they originate. The classification of output differs from country to country depending on the nature of domestic activities, their significance in aggregate economic activities and availability of requisite data. In India about fifteen sub-categories of domestic output are used.

Once the classification of output is over, the value of gross output is computed in two alternatives ways:

- By multiplying the output of each category of sector by their respective market price and adding them together.
- By collecting data about the gross sales and changes in inventories from the account of manufacturing enterprises and computing the value of the GDP on that basis

Then the cost of production including depreciation is estimated. The non-availability of adequate and requisite data makes estimating cost of production a relatively more complicated and difficult task. Still more difficult is the task of estimating depreciation since it involves both conceptual and statistical problems. This is the reason that many countries adopt factor-income method for estimating their national income.

The "value added method" sums the net value of the output produced by all the firms in the economy.

15.8 Effects of Circular Flow of Income

(a) Effects of Price Changes

One difficulty with using money values to express national accounting magnitudes is that the value of money may change over time. If there is a general rise or fall in all prices, the monetary unit either decreases or increases in value. Inflation, or deflation are common enough to make it necessary to adjust national income data to remove the effect of changes in the purchasing power of the currency or other monetary unit being used to measure the value of total output. This is done by developing indexes which show how the prices of the goods and services produced in any one year have changed relative to the prices of those goods and services in some other year. Setting up these indexes of prices is not difficult in principle, although it can be an expensive, time-consuming task in practice.

When constructing large price indexes for adjusting national income data, most statistical agencies build up a general index from a large number of specific commodity group indexes, so that changes in expenditure patterns within the component groups will not seriously affect the outcome. This composite index is known as a gross domestic product deflator. It can be used to convert any current currency value of gross domestic product to a constant currency basis using the relation:

(b) Injections and withdrawals

The circular flow will adjust following new injections into it or new withdrawals from it. An injection of new spending will increase the flow. A *net* injection relates to the overall effect of injections in relation to withdrawals following a change in an economic variable.

(C) Savings and investment

The simple circular flow is, therefore, adjusted to take into account withdrawals and injections. Households may choose to **save** (S) some of their income (Y) rather than spend it (C), and this reduces the circular flow of income. Marginal decisions to save reduce the flow of income in the economy because saving is a withdrawal out of the circular flow. However, firms also purchase capital goods, such as machinery, from other firms, and this spending is an injection into the circular flow. This process, called investment (I), occurs because existing machinery wears out and because firms may wish to increase their capacity to produce.

(d) The public sector

In a mixed economy with a government, the simple model must be adjusted to include the public sector. Therefore, as well as save, households are also likely to pay taxes (T) to the government (G), and further income is withdrawn out of the circular flow of income.

Government injects income back into the economy by spending (G) on public and merit goods like defense and policing, education, and healthcare, and also on support for the poor and those unable to work.

(e) International trade

Finally, the model must be adjusted to include international trade. Countries, that trade are called 'open' economies, the households of an open economy will spend some of their income on goods from abroad, called imports (M), and this is withdrawn from the circular flow. Foreign consumers and firms will, however, also wish to buy domestic products, called exports (X), and this is an injection into the circular flow.

(f) Wealth effects

A wealth effect refers to changes in household or corporate spending that can occur as a response to changes in the value of wealth. Wealth effects can be positive and negative. They are most commonly associated with changes in house prices, share and bond prices.

Household spending is affected by changes in household wealth through a process called equity withdrawal, and changes in confidence levels.

(g) Trade, liquidity and wealth effects

The AD curve slopes down because the components of AD are inversely related to the price level. Price changes have a number of important affects on aggregate behavior of households and firms.

There are three main effects to consider.

1. The price level and international trade - the 'trade' effect

The first effect, on overseas trade, is perhaps the most obvious one. A rise in domestic prices makes exports less competitive and imports more competitive; hence exports (X) are likely to fall and imports (M) are likely to rise. Both of these reactions combine to create a trade effect, with lower aggregate demand at the higher price level.

2. The price level and liquidity – the 'liquidity/interest rate' effect

When the price level increases, households and firms need to spend more money to continue to consume the scarce resources they need. This makes them relatively 'short of cash' than they were at the lower price level. The **liquidity** of an asset refers to how easily it is converted to cash, with cash itself being 'perfectly liquid'. The loss of liquidity associated with a rise in the price level forces some households and firms to borrow from banks, which reduces the liquidity of banks. In response, banks are likely to raise interest rates as compensation for this lost liquidity. The banks need to keep a certain amount of their reserves in a highly liquid form to meet any unexpected increase in demand for cash. As a result of the lost liquidity, interest rates are forced to rise, and both household and corporate spending may fall. Hence, aggregate demand is lower at the higher price level.

3. The price level and the value of wealth – the 'wealth' effect

Given that interest rates will rise as **financial markets** readjust to the higher price level, there are likely to be further 'knock on' effects on household (and corporate) wealth. Higher rates may lead to a fall in **house prices**, or at least slow-down house price inflation, and create a negative **wealth effect**. The same may be true for those households and firms that rely on income from shares. Rising interest rates tend to reduce corporate profits and reduce share values - again creating a negative wealth effect. A lower price level will, of course, have the reverse effect, that is to create a positive wealth effect on AD. The combined effect of these wealth effects is to alter consumer and corporate spending, and hence alter the level of AD.

When combined, the above effects explain why aggregate demand responds inversely to changes in the price level.

These effects should not be confused with other *exogenous* affects, which will shift the whole position of the AD curve.

15.9 Determinants of Circular Flow of Income

In the following pages, important determinants of circular flow of income are discussed. The major determinants of circular flow of income are household spending, investment, government spending, exchange rate, saving and saving ratio.

1. Household spending

Household spending is the most important part of **aggregate demand**. It can be broken down into a number of categories, covering major spending items like food, electricity, holidays, and clothing. The pattern of spending changes over time as a result of changes in: household income tastes and preferences, taxes and subsidies and relative prices. The level of spending is determined by a number of factors including the current level of national income, the level of savings, expectations, the level of unemployment the rates of income tax and the interest rates.

(i) The current level of national income

Some extra spending is induced by changes in the current level of national income. As income rise, consumers tend to increase their spending on higher income elastic goods and services, such as luxuries, holidays and leisure goods. When income falls households may postpone spending on these luxuries until incomes rises again.

(ii) The level of savings

Spending and saving are mutually exclusive, which means that if income is fixed, any change in households' savings will inversely affect spending. Many of the determinants of consumption have an inverse effect on saving.

(iii) Expectations

If households are confident, and have *positive expectations* about the future, current spending can rise. This can lead to **economic growth**, and re-enforce the positive expectations.

(iv) Unemployment

Unemployment has two potential effects on household spending. Firstly, the unemployed spend less because of their lower personal income, and secondly, unemployment causes negative expectations, even for those employed, and this can act as a curb on spending and a stimulus to saving.

(v) Rates of income tax

Changes in tax rates can clearly affect disposable, post-tax income, and hence affect household spending.

(vi) Interest rate

Interest rates can have a powerful affect on household spending by altering the *level of savings* – a rise in interest rates will stimulate more savings, and less spending. Interest rates will also alter the *cost of funding existing debts*, such as mortgages and bank loans. For example, a rise in interest rates will divert household funds towards the higher loan payments and away from general spending. A change in interest rate will change the *cost of new credit*, and thus encouraging or discouraging household borrowing. For example, a rise in interest rates will deter new borrowers, who may postpone borrowing until rate fall back. Finally, the interest rate will affect *expectations* and confidence. For example, rising interest rates will subdue confidence and create a 'wait and see' attitude by households, who may postpone certain spending until expectations improve.

2. Investment

Investment spending is an injection into the **circular flow** of income. Firms invest for two primary reasons:

- Firstly, investment may be required to replace worn out, or failing machinery, equipment, or buildings. This is referred to as *capital consumption*, and arises from the continuous depreciation of fixed capital assets.
- Secondly, investment may be undertaken to purchase new machinery, equipment, or buildings in order to increase productive capacity. This will reduce long-term costs, increase competitiveness, and raise profits.

Gross investment includes both types of investment spending, but net investment only measures *new* assets rather than *replacement* assets. This relationship is expressed in the following equation:

Net investment = gross investment - depreciation

For example, if an airline replaces five worn out aircraft with identical new aircraft, and purchases two more aircraft in order to be able to fly to more destinations, then gross investment is seven, replacement investment is five, and net investment is two.

In economic theory, net investment carries more significance, as it provides the basis for economic growth.

The level of investment in an economy tends to vary by a greater extent than other components of aggregate demand. This is because the underlying determinants also have a tendency to change.

The main determinants of investment are:

(i) The expected return on the investment

Investment is a sacrifice, which involves taking risks. This means that businesses, entrepreneurs, and capital owners will require a return on their investment in order to cover this risk, and earn a reward. In terms of the whole economy, the amount of business profits is a good indication of the potential reward for investment.

(ii) Business confidence

Similarly, changes in business confidence can have a considerable influence on investment decisions. Uncertainty about the future can reduce confidence, and means that firms may postpone their investment decisions until confidence returns.

(iii) Changes in national income

Changes in national income create an accelerator effect. Economic theory suggests that, at the macro-economic level, small changes in national income can trigger much larger changes in investment levels.

(iv) Interest rates

Investment is inversely related to interest rates, which are the cost of borrowing and the reward to lending. Investment is inversely related to interest rates for two main reasons.

- Firstly, if interest rates rise, the opportunity cost of investment rises. This means that a rise in interest rates increases the return on funds deposited in an interest-bearing account, or from making a loan, which reduces the attractiveness of investment relative to lending. Hence, investment decisions may be postponed until interest rates return to lower levels.

- Secondly, if interest rates rise, firms may anticipate that consumers will reduce their spending, and the benefit of investing will be lost. Investing to expand requires that consumers at least maintain their current spending. Therefore, a predicted fall is likely to discourage firms from investing and force them to postpone their investment decisions.

(v) General expectations

Because investment is a high-risk activity, general expectations about the future will influence a firm's investment appraisal and eventual decision-making. Any indication of a downturn in the economy, a possible change of government, war or a rise in oil or other commodity prices may reduce the expected benefit or increase the expected cost of investment.

(vi) Corporation Tax

Firms pay **corporation tax** on their profits, so a reduction in tax increases the profits they retain after tax is paid, and this acts as an incentive to invest. In 2009, the rate for small businesses was 21%, and the main rate for profits over £1.5m was 28%.

(vii) The level of savings

Household and corporate savings provides a flow of funds into the financial sector, which means that funds are available for investment. Increased saving may reduce interest rates and stimulate corporate borrowing and investment.

(ix) The accelerator effect

Small changes in household income and spending can trigger much larger changes in investment. This is because firms often expect new sales and orders to be sustained into the long run, and purchase larger quantities of capital goods than they need in the short run. In addition, machinery is generally indivisible which means it cannot be broken into small amounts and bought separately. Even small increases in demand can trigger the need to buy complete new machines or build entirely new factories and premises, even though the increase in demand may be relatively small. The combined effect of these two principles creates what is called the *accelerator effect*.

3. Government spending

New government spending is an injection into an economy, and, like all injections, it will have a multiplier effect on national income.

Governments spend money for three main reasons:

- Most government spending is to compensate for market failures, such as providing public goods like street-lighting, policing and defense. Public goods are usually funded by government because they are not likely to be funded through the private sector. Merit goods, such as education and healthcare are also provided by governments. Merit goods are partly funded by the government because the private sector is unlikely to allocate sufficient resources to establish an effective infrastructure for their supply: a situation referred to as an incomplete market.
- Government also provides welfare benefits, which help ensure a minimum standard of living. The private sector is unlikely to provide a guarantee of work for everyone, or to guarantee that those who cannot work are provided for. Welfare benefits in the UK include unemployment benefit (Job Seeker's Allowance), income guarantees, child allowances and pensions.
- Government may also deliberately manipulate the macro-economy through fiscal policy. Spending is an injection of demand into the economy and governments can spend more to compensate for a decline in the other components of national income. For example, if consumer or investment spending by the private sector falls, then aggregate demand can be boosted by an additional injection of public spending.

4. Government revenue

Central and local government must raise revenue in order to meet its spending commitments. Revenue is raised from a number of sources including:

- Taxation direct taxes are taxes on incomes, including income tax and corporation tax. Indirect taxes are taxes on spending, including Value Added Tax (VAT).
- Charges both central and local government can charge for using resources under their control, such as parking charges, prescription charges and TV licenses.
- Privatization the sale of state-owned assets, such as public utilities like gas, water and electricity.
- **The sale of property rights** government can sell off the right to use a resource owned or controlled by the State. For example, the UK government has raised substantial revenue by selling licenses to broadcasters and to mobile phone companies for the right to use the public 'airwaves'.
- Borrowing if a government does not have enough revenue to fund its spending plans it may borrow from the commercial banks, from the public, or from overseas lenders, such as the International Monetary Fund. Both central and local government may need to borrow from time to time to fund spending commitments.

5. Exchange rates and equilibrium

Changes in exchange rates affect both imports and exports. A rise in the exchange rate will make exports more expensive and imports cheaper, and a fall in the exchange rate will reduce export prices, but increase import prices. Changes in exchange rates will encourage households and firms, at home and abroad, to alter their behavior, as they would whenever price changes.

The Classical view is that if exports and imports become unbalanced, changes in the exchange rate will bring the international sector back into balance. For example, a temporary deficit, involving imports rising above exports, would lead to a fall in the value of the domestic currency. This is because the demand for the currency falls relative to the supply, reducing export prices, and raising imports prices. This should help to stimulate exports in the future and constrain imports, helping the economy to move back towards equilibrium.

6. Saving

Households dispose of their post-tax income by spending or saving. Saving is a withdrawal from the circular flow of income and has a pivotal role in determining changes in national income over time. Decisions to save are affected by income in general. Saving is a positive function of income – the greater the income the greater the likelihood of saving. Expectations about the state of the economy affect household decisions to save and spend. In general, positive expectations would tend to reduce savings and increase spending whereas negative expectations would increase savings and reduce spending. Fear of unemployment will act in the same way as negative expectations, making saving more likely and spending less likely. Given that interest rates provide a reward to saving, a rise in interest rates will provide an incentive to save. However, when mortgage rates rise, homeowners may be forced to increase their monthly repayments, and this leaves less income available for saving.

7. Asset prices

Changes in asset prices, such as houses and shares, can affect confidence and generate wealth effects. In response, households may change their savings. For example, a rise in house prices would tend to encourage spending and discourage saving because higher house prices lead to positive equity for homeowners, and less need to save for the future.

8. The savings ratio

The household savings ratio shows the proportion of household income that is saved. If the savings ratio is too high, there may be insufficient spending in the economy. This will be beneficial if the economy is growing too quickly, but is problematic if the economy is growing slowly, or is in recession.

A low savings ratio means that consumer spending may be too high and there may be insufficient funds for investment. In the short run, low savings will increase standards of living, but in the long run a low savings ratio will mean that fewer funds are available for investment, and economic growth may suffer. Sudden changes in the savings ratio are an indicator of future changes in spending and AD, and can be a

prelude to inflation, or deflation. A rise in the savings ratio indicates a fall in consumer confidence, whereas a fall in the savings ratio indicates a rise in confidence and spending, which can trigger a rise in the price level.

15.10 Importance of Circular Flow of Income

The study of the circular flow of economic activities provides a transparent view of the economy, knowledge of the health of the economy as well as its functioning. It also helps the government in deciding about policy matter. Hence, the study of the circular flow is of immense importance. We explain the importance of the circular flow as under:

- 1. Calculation of National Income
- 2. Formulation of Trade Policies
- 3. Creation of Markets
- 4. Role in Monetary Policy
- 5. Role in Fiscal Policy
- 6. Level of Economic Activity

1. Calculation of National Income

The circular flow helps in calculating national income through the flow of funds accounts. The flow of funds account provides a complete picture of all monetary transactions in the economy and depicts the link between saving and investment and lending and borrowing by the different sectors of the economy.

2. Formulation of Trade policies

A study of the circular flow of income assists the government in working out a strategy for the promotion of exports and for controlling imports, since imports are leakages and exports are injections into the circular flow. The government can introduce changes in its trade policy by adopting measures which may increase exports and decrease imports.

1. Creation of Markets : The circular flow explains the links between the producers and consumers. With the help of money income, producers purchase the factors of production whose owners, in turn, purchase goods and services from them. The producers and consumers can, therefore, conveniently create markets for their goods and services, with the help of the study of circular flow.

4. Role in Monetary Policy

A study of the circular flow explains the importance of the monetary policy in establishing equilibrium between saving and investment. The government controls the capital market through its monetary policy. Excess of saving over investment causes deflation, while excess of investment over saving causes inflation. The government can control these situations by regulating investment through its monetary policy.

5. Role in Fiscal Policy

The study of circular flow also highlights the importance of fiscal policy. The circular flow is in equilibrium when savings plus taxes are equal to investment plus government expenditure. Savings plus taxes represent leakages from the circular flow which must be equal to the injections of investment plus government expenditure into the circular flow. Excess of savings plus taxes over investment plus government expenditure will cause deflation which can be controlled by making changes in the fiscal policy, i.e. by reducing taxes and by increasing government expenditure. Excess of investment plus government expenditure over savings plus taxes will create inflation which can be controlled by promoting savings and increasing taxation.

6. Level of Economic Activity

Leakages from and injections in the circular flow cause disturbances in the functioning of the economy If savings increase, the circular flow is depressed, which means that the level of employment, income and prices would fall and a deflationary process will start. If injections increase in the circular flow then the situation will be reversed and an inflationary tendency will develop in the economy. If leakages are more than the injections, the level of employment, income, output and prices would fall. If injections are more than leakages, then there would be an upward movement in the level of employment, income, output and prices.

15.11 Summary

National income is one of the most important concepts in all economic systems. The most commonly used measures are the gross national product (GNP), and net national product (NNP) and gross domestic product (GD)). The national product (or the national income) is a flow variable. The simplest circular flow model contains two sectors (household and business or firms) and two markets (product and factor/ resource). The households supply domestic firms with needed factors of production while firms supply private goods and services to domestic households and firms, and to households and firms abroad. Factors of production earn an income which contributes to national income. Members of households pay for goods and services they consume with the income they receive from selling their factor in the relevant market.

The three sector model includes the government spending and taxation. The households receive income with which they pay taxes to the government, consume goods and services and also save. The government gets its revenue from taxes to finance its expenditures.

The inclusion of government into the model affects aggregate demand through government expenditure and taxation. Government expenditures are injection to the economy as they add to the aggregate demand. Taxation is a withdrawal from the economy as it reduces the aggregate demand. The government expenditure and taxation affect the national income to the extent of their net multiplier effect. The model of the circular flow of income with introduction of foreign trade is a more comprehensive. There are three methods of measuring total output – expenditure method, income method and value added approach.

15.12 Key Words

- **Economic growth:** Economic growth is symptomized by an upward movement of all variables in the economy, with national income as the key variable.
- **Circular flow of income:** The flow of payments from domestic households to domestic firms and back again
- **Investment (I)** :Investment refers to the construction or manufacture of capital good that provides a 'flow' of future consumption or production service.
- Value Added: The net value of domestic product is often called the value added

15.13 Self Assessment Test

- 1. Explain the circular flow of income in an economy. What does it measure?
- 2. Describe the circular flow of income in a two-sector economy with households and business firms. What determines the magnitude of circular flow of income and expenditure?
- 3. What is meant by saving and investment? How do they influence circular flow of income in a free market economy?
- 4. How does the addition of Government in a two-sector economy influence the circular flow of income? If Government's budget is deficit, how will it affect circular flow of income?
- 5. Show with a circular income flow model of a two sector economy that national product equals national income.
- 6. What is meant by withdrawals and injections? How do they affect the size of circular flow of income and expenditure in an economy?
- 7. In a four-sector open economy, explain with a circular income flow model that the sum of investment, Government expenditure and net exports must equal the sum of savings and taxes.

15.14 Suggested Books/References

- 1. Vahampayan J.V.: Micro Economics, New Royal Book Co., Lucknow
- 2. Vaish M.C.: Micro Economics

Unit - 16 National Income

Unit Structure

- 16.0 Objectives
- 16.1 Introduction
- 16.2 Definition of National Income Defined
- 16.3 National Income Aggregates
- 16.4 National Income: Accounting Relationships
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16.0 Objectives

After studying this unit, you should be able to under stand

- The concept of national income
- National Income Aggregates
- National Income Accounting Relationships
- Measurement of National Income
- How to choose a method?
- Difficulties of computation of National Income
- Measurement of National Income in India
- National Income and General Welfare
- Significance of National Income Statistics

16.1 Introduction

The national income of a country in a year denotes the value, expressed in monetary terms, of the net contribution of the factors of production in the country and abroad. It is thus the current flow of net final goods and services, expressed in monetary terms, resulting from the production activities of the residents of a country during the year.

National income accounting is the study of the methods of measuring the aggregate output and aggregate income of an economy taking the nation's economic pulse. It helps define the relationship between an economy's total output and total income (Simon Kuznets - 1971 Nobel prize). National Income Accounting represents the tools and methods by which economists and policy-makers measure economic activity and economic growth over time.

The national income accounts are based on the idea that the amount of economic activity that occurs during a period of time can be measured in terms of the amount of output produced, excluding output used up in intermediate stages of production, the incomes received by the producers of output and the amount of spending by the ultimate purchasers of output.

National income is the final outcome of all economic activities of a nation valued in terms of money. It is the most important macroeconomic variable and determinant of the business level and environment of a country. The level of national income determines the level of aggregate demand for goods and services. The distribution pattern of national income determines the pattern of demand for goods and services. The trend in national income determines the trends in aggregate demand and also the prospects of business. Therefore, business decision makers need to keep in mind the long term implications of the national income.

In this chapter, we will explain basic concepts of national income used in business analysis and business decisions, methods of measuring national income and the trend and the growth rates in India's national income.

16.2 Definition of National Income

National income is the money value of the final goods and services produced in a given period of a nation. Keynes' concept of national income is somewhere between G.N.P. and N.N.P. From G.N.P. he subtracts only the "User Cost", i.e. the reduction in the value of capital equipment actually used and not full depreciation. According to modern approach, National Income may be defined as the aggregate factor income which arises from the current production of goods and services by the nation's economy. The nation's economy refers to the factors of production supplied by the normal residents of the national territory. Thus, national income is defined as the money value of all final goods and services produced by a country during a period of one year. National income consists of goods and services of different types.

According to Simon Kuznets," It is the net output of commodities and services flowing during the year from the country's productive system in the hands of ultimate consumers"

For Colin Clark, the national income for any period consists of the money value of the goods and services becoming available for consumption during that period, reckoned at their current selling prices, plus additions to capital reckoned at the prices actually paid for the new capital goods, minus depreciation and obsolescence of existing capital goods, and adding the net accretion of, or deducing the net drawings upon stocks, also reckoned at current prices"

Prof.V.K.R.V.Rao defined national income as the money value of the flow of commodities and services, excluding imports becoming available for sale within the period, the value being reckoned at current prices minus the sum of the following items:

- The money value of any diminution in stock that may have taken place during the period;
- The money value of the flow of goods and services used up in the course of production;
- The money value of the flow of goods and services used to maintain intact existing capital equipment (value being reckoned at current prices);
- Receipts of the state from indirect taxation;
- Favorable balance of trade including transactions in treasure;
- Net increase in country's foreign indebtedness or the decrease in the holdings of balances and securities abroad whether by individuals or the government of the country.

Thus, there are three measures of national income of a country:(a) as the sum of all incomes in cash and kind, accruing to factors of production in a given time period i.e. the total of income flows;(b) as the sum of net outputs arising in several sectors of the nation's production; © as the sum of consumers' expenditure, government expenditure on goods and services and net expenditure on capital goods.

16.3 National Income Aggregates

1. GROSS NATIONAL PRODUCT

GNP is the most important and widely used measure of national income. It is the most comprehensive measure of the nation's productive activities. Gross National Product is defined as the total market value of all final goods and services produced by normal residents of a country in a year. plus incomes earned abroad by the nationals minus incomes earned locally by the foreigners. The GNP so defined is identical to the concept of gross national income)GNI. Thus GNP = GNI. The difference between the two is only of procedural nature. While GNP is estimated on the basis of product flows, the GNI is estimated on the basis of money income flows.

Two things must be noted in regard to gross national product:

- 1. It measures the market value of annual ouput. GNP is a monetary measure. There is no other way of adding up the different sorts of goods and services produced in a year except in terms of their money prices. But in order to know accurately the changes in physical output over time, the figure for gross national product is adjusted for price changes.
- 2. For calculating gross national product accurately, all goods and services produced in any given year must be counted once, and not more than once. Most of the goods go through a series of production stages before reaching a market. As a result, parts or components of many goods are bought and sold many times. Hence to avoid double counting the parts of goods that are sold and resold, gross national product includes the market value of only final goods and ignores transactions involving intermediate goods.

Final goods are those goods which are purchased for final use and not for resale or further processing. **In other words, Final goods** are goods that are ultimately consumed rather than used in the production of another good. For example, a car sold to a consumer is a final good; the components such as tires sold to the car manufacturer are not — they are *intermediate goods* used to make the final good. The same tires, if sold to a consumer, would be a final good. Only final goods are included when measuring national income. If intermediate goods were included too, this would lead to double counting - for example, the value of the tires would be counted once when they are sold to the car manufacturer, and again when the car is sold to the consumer. Only newly produced goods are counted. Transactions in existing goods, such as second-hand cars, are not included as these do not involve the production of new goods. Icome is counted as part of GNP according to who owns the factors of production rather than where the production takes place. For example in the case of a German-owned car factory operating in the US, the profits from the factory would be counted as part of German GNP rather than US GNP because the capital used in production (the factory, machinery, etc.) is German owned. The wages of the American workers would be part of US GNP, while the wages of any German workers on the site would be part of German GNP.

GNP can be calculated using the following formula:

GNP=GDP + Net factor income from abroad

where,

Net factor income from abroad is the difference between income earned in foreign countries by residents of a country and income earned by non-residents in that country.

GNP helps to measure the contribution of residents of a country to the flow of goods and services within and outside the national territory. Hence, GNP is the core concept of national income accounting.

Gross national product has the following components:

1. Value of final consumer goods and services produced in a year and consumed by the households which is referred to as consumption [©] by households.

- 2. Value of new capital goods produced and addition to the inventories of goods in a year such as raw materials, unfinished goods and consumer goods produced but not sold during a year. This is called Gross Private Investment (I).
- 3. Value of output of General Government which is taken to be equal to the value of purchases of goods and services by the Government which we denote by G.
- 4. Net Exports (X_n) which is equal to the value of goods exported (X) minus the value of goods imported (M), that $(X_n) = X M$.
- 5. Net Factor Income from Abroad.

Net Factor Income from Abroad

The net factor income from abroad stands for the sum of factor incomes such as wages and salaries, rent, interest and profits generated within the domestic territory of a country is called domestic factor income. It includes factor incomes generated both by residents and non-residents working in the domestic territory of a country. For example, non-residents and non-nationals working in the domestic territory of India earn wages and salaries. Besides, foreign individuals and companies from other countries acquire property such as factories, offices, buildings and have acquired financial assets such as bonds and shares of Indian companies. This generates incomes in the form of rent, interest and dividends. In addition to this, foreign residents have set up industrial plants and factories producing goods and services from which they earn profits. The factor incomes have to be paid to non-residents who work in the domestic territory of a country.

On the other side, some residents of the country go abroad and work in the territories of other countries and earn wages and salaries. Similarly, some resident Indian individuals and companies have acquired different types of assets. They receive factor incomes from abroad

Thus net factor income from abroad is the difference between factor incomes received from abroad by residents of India for rendering factor services in other countries minus such factor incomes paid to the foreign residents for their factor services rendered in the domestic territory of India.

GNP can be measured at:

Current market prices (Nominal GNP):

In this method, the prices of goods and services are measured at prices prevailing in the current year.

Constant prices (Real GNP):

Using this method, GNP is measured at a fixed price of a particular base year.

Real GNP is an effective tool for making yearly comparisons of changes in the physical output of a country, as it is not affected by changing prices. This helps to reflect the economic growth of a country in a better manner.

2. GROSS DOMESTIC PRODUCT (GDP)

The broadest measure of aggregate economic activity, as well as the best-known and most often used, is the gross domestic product, or GDP.GDP measures the value of output produced within the domestic boundaries of a country, say India. It includes the output of the many foreign owned firms that are located in the country, following the high levels of foreign direct investment in the country but excludes incomes earned abroad by the nationals.

Gross domestic product is the money value of all final goods and services produced by all normal residents as well as non-residents working in the domestic territory of a country but do not include net actor income earned from abroad.

The concept of GDP is similar to that of GNP with a significant procedural difference. In case of GNP the income earned by the nationals in foreign countries are added and incomes earned locally by the foreigners are deducted from the market value of domestically produced goods and services. In case of GDP, the process is contrary- incomes earned locally by foreigners are added and incomes earned abroad by the national are deducted from the total value of domestically produced goods and services.

(a) GDP at Current Prices

If the domestic product is estimated on the basis of prevailing prices, it is called gross domestic product at current prices.

(b) GDP at Constant Prices

If GDP is measured on the basis of some fixed price, that is price prevailing at a point of time or in some base year it is known as GDP at constant prices or real gross domestic product.

© GDP at Factor Cost and GDP at market price

Difference between Nominal and Real GDP

When a variable is measured in current prices, it is described in nominal terms. Nominal GDP is GDP measured at current prices. In several applications of macroeconomics, nominal GDP is not a very desirable measure of production. Suppose there is only one good- say bread. In each year 1 and 2, 100 units of bread were produced. Production thus remained the same for year 1 and 2. Suppose the price of bread increased from Rs.10 to Rs.11 per bread. Nominal GDP in the year 1 is Rs.1000 (100 units x Rs.10 per unit), and nominal GDP in the year 2 is Rs.1100 (100 units x Rs.11 per unit). Nominal GDP has increased by Rs.100, even though no more units of bread were produced. If we use nominal GDP to measure growth, we can be misled into thinking production has increased when all that has really happened is an increase in the price level. If there were only one good in the economy, it would be easy to measure production and compare one year's value to another's. We would add up all the bread produced each year. If the number of bread produced is increased from 100 to 110, we would say produced by increased by 10%. But the goods produced in the economy is more than one.

3. NET NATIONAL PRODUCT

The Net National Product is another important concept of national income. The net national product may be measured at market price and at factor cost.

(a) Net National Product at Market Price

In the production of gross national product of a year, some fixed capital like machinery, equipment etc. wears out as a result of its consumption or use in the production process during a year. This consumption of fixed capital is known as depreciation. When charges for depreciation are deducted from the gross national product, the net national product is obtained. Thus net national product at market prices means the market value of all final goods and services after providing for depreciation.

Net National Product at Market Prices = Gross National Product – Depreciation

(b) Net National Product at Factor Cost

Net National Product at factor cost refers to the sum of all incomes earned by suppliers of factors of production for their contribution to the year's net production. NNP at factor cost is also called national income. The National Income (or net national product at factor cost) demonstrates how much it costs society in terms of economic resources to product net output. The difference between the NNP at factor cost and NNP at market prices arises from the fact that indirect taxes and subsidies cause market prices of output to be different from the factor incomes earned from it. The national income at factor cost is equal to net national product minus indirect taxes plus subsidies.

NNP at Factor cost = NNP at Market prices – Indirect taxes + Subsidies

4. PERSONAL INCOME (PI)

Personal Income is the sum of all incomes actually received by all individuals or households during a year. National income, that is, total incomes earned and personal income, that is, total incomes received must be different because some incomes which are earned such as social security contribution, corporate income taxes and undistributed profits are not actually received by households and conversely, some incomes which are received by them like transfer payments are not currently earned such as transfer payment(old age pensions, unemployment compensation, relief payments, interest payment on the public debt etc.). Therefore, for arriving at national income as an indicator of income earned to personal income as an indicator of income those tyree types of income which are earned but not received and add those incomes which are received but currently not earned. Therefore, personal income can be expressed as

Personal Income = National Income – Social Security Contributions – Corporate Income Taxes – Undistributed Corporate Profits + Transfer Payments.

5. DISPOSABLE INCOME

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

DI = PI - TPI = DI = T

Usually, people divide their disposable income between consumption spending and personal saving.

Therefore,

So

$$PI = DI + T$$
$$DI = C + S$$
$$It follows$$
$$PI = C+S+T$$

16.4 National Income: Accounting Relationships

(a) Accounting Identities at Market Price

GNP = GNI GEP = GNP less Net Income from abroad NNP = GNP less depreciation NDP = NNP less net income from abroad

(b) Accounting Identities at Factor Cost

GNP at factor cost = GNP at market price less net indirect taxes

NNP at factor cost = NNP at market price less net indirect taxes

16.5 Measurement of National Income

There are three methods of measuring National Income

1. NET OUTPUT THREE METHODS OF MEASURING NATIONAL INCOME

The product approach of net output or value added approach uses the amount of output produced, excluding output used up in intermediate stages of production. It measures economic activity by adding the market value of goods and services produced, excluding any goods and services used up in intermediate stages of production. This approach makes use of the value-added concept. The value added of any producer is the value of its output minus the value of the inputs it purchases from other producers.

This method measures the contribution of each enterprise to the generation of flow of goods and services. This method divides the economy 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 by each productive enterprise as well as by each industry or sector is estimated. Measuring net value added at factor cost by each industry requires first to find out the value of output. Value of output of an enterprise is found out by multiplying the physical output with market prices of the goods produced.

In its standard form, this approach consists of three stages: "(i) estimating the gross value of domestic output in the various branches of production; (ii) determining the cost of material and services used and also the depreciation of physical assets; and (iii) deducting these costs and depreciation from gross value to obtain the net value of domestic output". The net value of domestic product so obtained is often called the value added or income product that is equal to the sum of wages, salaries, supplementary labor incomes, interest, profits, and net rent paid or accrued.

Adding the net values added at factor cost by all productive enterprises of an industry or sector gives us the net value added at factor cost of each industry or sector. Then net values added at factor cost by all industries or sectors are added to arrive at net domestic product at factor cost. Finally, to the net domestic product, the net factor income from abroad is added to get net national product at factor cost, which is also called national income.

NI or $NNP_{FC} = NDP_{FC} + Net factor income from abroad$

The value added method of calculating national income can be applied where exists a census of production for the year. In several countries, the data of production of only important industries are available. Hence this method is employed along with other methods to arrive at the national income. One great advantage of this method is that it brings out the relative importance of the different sectors of the economy by showing their respective contributions to the national income.

Measurement of national income of a country through value added method requires the following precautions to be taken:

- Imputed rent values of self-occupied house should be included in the value of output. Though these payments are not made to others, their values can be easily estimated from prevailing values in the market.

- Values of production for self-consumption are to be counted while measuring national income. In this method, the production for self-consumption should be valued at the prevailing market prices.
- -Values of services of houses-wives are not included because it is not easy to find out correctly the value of their services.
- -Sale and purchase of second-hand goods should not be included in measuring value of output of a year because their values were counted in the year of output of the year of their production. Of course, commission or brokerage earned in their sale and purchase has to be included because this is a new service rendered in the current year.
- -Value of intermediate goods must not be counted while measuring value added because this will amount to double counting.

2. FACTOR INCOME METHOD

The income approach uses the incomes received by the producers of output. It measures economic activity by adding all income received by producers of output, including wages received by workers and profits received by owners of firms.

Factor payments

In arriving at an estimate of national income the following four main factor incomes are calculated:

Wages: Wages and salaries are the most important component of GNI in a modern mixed economy. Wages include take-home pay, provident and pension fund contributions, and various fringe benefits. These represent that part of the value of society's output which is attributable to labor.

Rent: Rent is usually treated as the payment for the services of land and other factors (such as buildings and machines) that are rented. However, while calculating GNI we include payments for rented houses as also imputed rent for the use of owner-occupied houses. Thus, GNP reflects the value of all housing services used, whether or not a house is owned by its user.

Interest: Interest is the payment made for using the services of capital. It is a broad term and includes interest that is earned on bank deposits, interest earned on fixed deposits kept in firms (including housing finance companies) and various other investment incomes.

Profits: A certain portion of profits made by firms is paid out to their owners as dividends. This portion is called distributed profits. The remaining portion is retained for use by firms and is called undistributed profits or retained earning. Both are to be included in GNI. In national income accounts profits are reported under two broad headings: corporate profits (i.e., profits of joint stock companies) and incomes from unincorporated businesses (mainly small-scale units, farmers, partnerships and professional firms).

Corporate profit includes the amounts that corporations pay in the form of the corporate income tax, the amounts they pay stockholders in the form of dividends, and the amounts they "save" or retain within the business.

- 1. compensation of employees 71% of national income
- 2. rental income, rent payment for the use of property, e.g. land, housing, office space
- 3. corporate profit return to owners of incorporated firms
 - 1. dividends
 - 2. retained earnings
 - 3. corporate taxes
 - 4. proprietor's income own business
 - 5. net interest, how capital enters the process

The category proprietors' income captures a class of income that falls between wages or salaries and profits. It is the amount that those who are in business for themselves, but who have not incorporated their businesses, earn. The amount that the owner of a cafe or a farm earns in a year is often considered by the owner of the business as a "profit," yet most of that "profit" is a payment to the owner for his labor. Because it is difficult or impossible to separate the part of this income that is truly a wage to the owner from that which is actually a profit, the folks at the Commerce Department who collect the numbers keep it in the separate account of proprietors' income.

GNP = Wages and salaries + rent + interest + Dividend + Undistributed Corporate Profits + Mixed Incomes + Direct Taxes + Indirect Taxes = Depreciation + Net income from abroad

While estimating national income through income method the following precautions should be taken:

- Transfer payments are not included in estimating national income through this method. This is because these payments are not received for any services provided in the current year.
- Imputed rent of self-occupied houses are included in national income as these houses provide services to those who occupy them and its value can be easily estimated from the market value data.
- Corporate profit tax should not be separately included as it has already been included as a part of profits.
- Illegal money such as hawala money, money earned through smuggling etc. is not included as they cannot be easily estimated.
- Windfall gains such as prizes won, lotteries are also not included while estimating national income as they do not represent receipts for any contributions to any current productive activity.
- Death duties, gift tax, wealth tax, tax on lotteries, etc. are paid from past savings or wealth and not from current income. Therefore, they should not be treated as a part of national income of a year.
- Income equal to the value of production used for self-consumption used by farmers and other should be estimated and included in the measure of national income.
- The receipts from the sale of second-hand goods should not be treated a part of national income. This is because the sale of second-hand goods do not create new flows of goods and services in the current year.

3. EXPENDITURE METHOD

Prof. Samuelson calls this as "Flow of Product Approach". In India, it is known as outlay method. GNP is the sum of expenditure incurred on goods and services during one year in a country.

There are four main groups in the economy: households, firms, the government, and the rest of the world. There are also four main categories of expenditure:

- Personal consumption expenditure © household spending on consumer goods.
- Gross private domestic investment (I) spending by firms and households on new capital plant, equipment, investors, and new residential structures.
- Government consumption and gross investment (G)
- Net exports (EX-IM)- net spending by the rest of the world, or exports(EX) minus imports (IM)

The expenditure approach measures economic activity by adding the amount spent by all ultimate users of output. The expenditure approach uses the amount of spending by the ultimate purchasers of output. The expenditure approach sums the monetary value of all final goods and services.



1. Consumption expenditure ©

Personal consumption purchases constitute the largest component of GNP. In broad sense consumption expenditure includes 'expenditure on all goods and services produced and sold to their final users during the year. In fact, most consumption expenditure is for non-durable good or services such as food, clothing, recreation, medical and legal services, education, and fuel. These items are used up or consumed in a relatively short time and take a disproportionate share of total private consumption expenditure. Durable goods, such as washing machines and other appliances, motor cars, etc., together constitute a small proportion of all consumer purchases. These products dole out their services over an extended period of time even though they are fully counted at the time they are purchased. A large part of GDP consists of personal consumption expenditures ©. These are expenditures by consumers on goods and services.

2. Investment expenditure (I)

Investment refers to the construction or manufacture of capital goods that provide a 'flow 'of future consumption or production service. Unlike food, clothing or legal services, they are not immediately used. A house for example, is an investment good because its services are enjoyed over a long period. A house is purchased at a high cost because it will provide a stream of services long into the future. Business plants, equipment and machinery are counted as investment goods because they, too, will provide productive services in the future. Finally, changes in business inventories are also classified as investment goods, since they measure goods that will provide future consumer benefits. Investment is not an intermediate good because it is not completely used up

Two main categories of investment are:

- 1. Inventory investment increase or decrease (disinvestment) in the value of the stocks of inventories that businesses have on hand.
- 2. Fixed investment addition of new plants, equipment, commercial buildings, and residential structures

Government

- G = local, state, federal purchases of final goods and services.
- final goods and services by convention
- valued at the cost of supply because they are not sold to final consumer therefore government expenditures
- does not include: transfer payments recipients who have not supplied current goods or services in exchange for these payments (do not represent current output), produce no income or output

Net exports = Exports minus imports

X = exports (produced domestically but sold to foreigners) — dollars in, goods out

M = imports (produced by foreigners but purchased by domestic consumers) --- dollars out, goods in

16.6 Choice of Methods

As described above, there are three standard methods of computing the national income, viz. net product (or value added or output) method, factor-income or factor cost method and expenditure method. All the three approaches would give the same measure of national income, provided requisite data for each method is adequately available. Therefore, any of the three methods may be used to measure the national income. But all the three methods are not equally suitable for all the economies simply for non-availability of necessary data and for all purposes. Hence, we need to choose a method.

We may choose a particular method on the basis of two considerations: (i) the purpose of national income analysis, and (ii) availability of necessary data. If the objective is to analyze the net output or value added, the net output method is more suitable. In case the objective is to analyze the factor –income distribution, the suitable method for measuring national income is the income method. If the objective is to find out the expenditure pattern of the national income, the expenditure or final product method should be adopted. However, availability of adequate and appropriate data is a relatively more important consideration is selecting a method of estimating national income.

Nevertheless, the most common method is the net product method because this method requires classification of the economic activities and output thereof which is much easier than to classify income or expenditure; and the most common practice is to collect and organize the national income data by the division of economic activities. In brief, the easy availability of data on economic activities is the main reason for the popularity of the output method.

It should be however, kept in mind that no single method can give an accurate measure of national income since the statistical system of no country provides the total data requirements for a particular method. The usual practice is, therefore, to combine two or more methods to measure the national income. The combination of methods again depends on the nature of data required and sector break-up of the available data.

16.7 Difficulties in Computation of National Income

- 1. Simon Kuznets national income is not limited to territorial boundaries of a country. We must include the incomes of all the residents of a country even if they are abroad.
- 2. Another difficulty in estimating the national income of the UDC is the prevalence of non-monetized sector.

3. Conceptual Difficulties

In India non-monetized sector and barter system creates a problem leading to guesswork and approximations of the estimators. In the calculation of National Income, the term Nation has to be defined exactly, whether it is the geographical entity to be taken up for computing National Income, or the income earned by the national including those residing abroad.

4. Overlapping of Occupation

Besides there is an overlapping of occupation in rural India which makes it difficult to know the income, a worker during the peak season works in his farm, drives a cart during off – seasons, another e.g. is money lending and cultivating his own farm in the village.

5. Unfair idea of expenses

In backward areas, particularly in the rural sector, the cultivator, artisans, etc do not have a fair idea of the expenses of their occupation and net value of their products cannot be estimated precisely.

6. Non-availability of data

Non-availability of data is another difficulty of computing National Income. Village officials and block officials are not trained to keep current data. In agricultural sector cost of production, price data's are totally incomplete.

Only in big units output and cost data are available small units do not maintain the data correctly. Village moneylenders and indigenous bankers maintain absolute secrecy of their transactions.

7. Insufficient Machinery

The machinery for collecting statistical data may not be efficient. The investigators may be ill-equipped.

8. Double-counting

The error of double counting is an obstacle in computation of national income. Steel an industrial production should not be included while calculating the value of machines, motor cars etc.

9. Illegal Activities

Incomes earned through illegal activities is not included in national income

10. Transfer Payments

Transfer payments are not included in the national income as they do not contribute to the national product.

11. Capital Gains and Losses

Capital gains and losses are not included in GNP as they are not the result of current economic activities.

16.8 Measurement of National Income in India

In India, a systematic measurement of national income was first tried in 1949. Earlier attempts were made either by some individuals or institutions. The earliest estimate of India's national income was attempted by Dadabhai Naroji in 1867-68. Since then several attempts were made, mostly by economists and the government authorities, to estimate India's national income. These estimates differ in coverage, concepts and methodology and not comparable. They were mostly for one year, only some estimates covered a period of 3 to 4 year. It was therefore, not possible to construct a consistent series of national income and assess the performance of the economy over a period of time.

In 1949, ANational Income Committee (NIC) was appointed with P.C.Mahalanobis as its Chairman, and D.R.Gadgil and V.K.R.V.Rao as members. The NIC not only highlighted the limitations of the statistical system of that time but also suggested ways and means to improve data collection systems. On the recommendation of NIC, the Directorate of National Sample Survey was set up to collect additional data required for estimating national income. Besides, the NIC estimated the country's national income for the period from 1948-49 to 1950-52. In its estimates, the NIC also provided the methodology for estimating national income, which was followed till 1967.

In 1967, the task of estimating national income was given to the Central Statistical Organization (CSO). Till 1967, the CSO had followed the methodology laid down by the NIC. Thereafter, the CSO adopted a relatively improved methodology and procedure which had become possible due to increased availability of data. The improvements pertain mainly to the industrial classification of the activities. The CSO publishes its estimates in the publication, Estimates of National Income.

Methodology

For valuation of the products, both the output and the income method have been applied. The output method has been used largely in the commodity producing sectors like agriculture and manufacturing. The income method has been used in the tertiary or service sector like trade, public administration etc. This method has also been applied to some segments of commodity sectors where there is absence of output data. The third expenditure method has been used, but in a very limited way in respect of, for example, kacha construction.

In using the output method, the "value added" approach has been adopted. The "value added" is equal to the value of goods minus the cost of production. In other words, this method measures the net contribution of a producing unit to national income. The sum total of value added by all the producing units in the commodity sector gives the value of this sector's contribution to national income. The estimation is done by evaluating the value of goods at ex-factory prices and deducting from the value or the cost of inputs supplied by other enterprises, and the estimated value of depreciation (or capital consumption). In the income method, the procedure is to find out the number of people working or the workforce in a profession, and per head/average earnings. The two are then multiplied to get the value of income contributed by the profession. The expenditure method involves estimation of spending (or disposition of income) on final goods and services.

NEW SERIES OF NATIONAL ACCOUNTS STATISTICS: BASE: 1993-94)

The Central Statistical Organization (CSO) has revised its national accounting statistics in February 1999 by changing the base year from 1980-81 to 1993-94:

Three considerations mainly guide the revision:

- Meaningful analysis of the structural changes in the economy,
- Complete review of the existing database and methodology, and
- Implementation of the recommendations of the system of National Accounts 1993, United Nations (SNA, 1993)

The new series embodies a number of conceptual and methodological improvements. Deviating from the past practice, the income estimation of unregistered manufacturing as well as unorganized services is based on workforce estimates revealed by the HSSO, quinquennial survey of employment, instead of decennial population census. The quick estimates of income from registered manufacturing would be now compiled on the basis of Annual Survey of Industries (ASI) in place of the Index of Industrial Production (IIP). Services sector, apart from the public sector, shows separate estimates for private organized and private unorganized segments. "Value added" from RBI has been included in the new series. Savings of quasi-government, quasi-corporate bodies, pension fund of Dock labor boards and port trusts have been added respectively to the public, private corporate and household sector. The new GDP series shows higher level of output than that according to the old series.

GDP of India

The Indian economy is the 12th largest in US Dollar exchange rate terms. India is the second fastest growing economy in the world. India's GDP has touched US\$1.25 trillion. The crossing of Indian GDP over a trillion dollar mark in 2007 puts India in the elite group of 12 countries with trillion dollar economy. The tremendous growth rate has coincided with better macroeconomic stability. India has made remarkable progress in information technology, high end services and knowledge process services.

However cause for concern would be this rapid growth has not been an inclusive in nature, in the sense it has not been accompanied by a just and equitable distribution of wealth among all sections of the population. This economic growth has been location specific and sector specific. It has not percolated to sectors where labor is intensive (agriculture) and in states were poverty is acute (Bihar, Orissa, Madhya Pradesh and Uttar Pradesh).

Indian GDP-Trend of Growth Rate

The following has been the trends of India's GDP growth:

1960-198	3.5%
1980-1990	5.4%
1990-2000	4.4%
2000-2009	6.4%

Contribution of Various Sectors in GDP

The contributions of various sectors in the Indian GDP for 1990-1991 are as follows:

Agriculture: -	32%
Industry: -	27%
Service Sector: -	41%

The contributions of various sectors in the Indian GDP for 2005-2006 are as follows:

Agriculture: -	20%
Industry: -	26%
Service Sector: -	54%

The contributions of various sectors in the Indian GDP for 2007-2008 are as follows:

Agriculture: -	17%
Industry: -	29%
Service Sector: -	54%

It is great news that today the service sector is contributing more than half of the Indian GDP. It takes India one step closer to the developed economies of the world. Earlier it was agriculture which mainly contributed to the Indian GDP.

The Indian government is still looking up to improve the GDP of the country and so several steps have been taken to boost the economy. Policies of FDI, SEZs and NRI investment have been framed to give a push to the economy and hence the GDP.

16.9 National Income and Economic Welfare

Increase in national income is not satisfactory index of Economic welfare for the following reasons:

- 1. If the population rises faster than the national income, then there will be fewer goods for each person in the population. Real national income per head is a better measure of the welfare of a country than the total national income figures.
- 2. A rise is national income may make just a few people better off, without helping the majority of the population. This means that national income is not fairly distributed.
- 3. The national income is measured in money terms, if prices are rising, the national income will rise even if the country is not producing any more goods and services.
- 4. The national income will raise as a result of the production of goods and services which do not directly make us feel better off, for example, investment goods for industry or weapons for the armed forces. Standard of living depends mainly on the output and consumption of consumer goods and services.

Two countries may have the same income per head, but their standard of living will not be the same if people in one country have to work much longer hours than those in the other country thus sacrificing their leisure time.

- 5. An increase in national income would not result in an improvement in standard of living if it increases social costs like pollution, more traffic congestion, more noise etc.
- 6. The national income is very difficult to measure accurately, so a small change in the national income may simply be due to inaccurate measurement. Also the figures exclude production of the black money, which is not officially recorded, for example, cash payment for services, which are not recorded, to evade taxes

16.10 Significance of National Income Statistics

There are several important uses of national income statistics and, therefore, there is great need for their regular preparation. National income estimates provide not only a single figure showing the national income, but also supply the detailed figures in regard to the various components of the national income. It is both the figure of national income and the details regarding its various components that throw light on the functioning and performance of the economy.

The following are some of the important uses of national income estimates:

- 1. National income estimate reveals the overall production performance of the economy, as it seeks to measure the level of production in a year. Per capita income, which is found by dividing the total national income by the population, gives us an idea about the average standard of living of the people. Economic welfare depends to a considerable degree on the level of national income and the average standard of living of the people. Thus, the figures of national income and per capital income indicate the level of economic welfare of the people of a country.
- 2. By comparing national income estimates over a period of time, we can know whether the economy is growing, stagnant or declining. If the national income increases over years, it means that the economy is growing. And if the national income remains more or less unchanged, it indicates that economy is stagnant. But if the national income is declining over a period of time, it shows that the economy is deteriorating. In case, the economy is growing, the rate of economic growth or development by measuring the rate of increase in national income can be judged. Further, by comparing the per capita income over years, the changes in the standards of living and economic welfare of the people can be known.
- 3. The national income estimates show the contribution various sectors of the economy make, such as agriculture, manufacturing industry, etrace, etc., to the national income. Thus, the national income estimates of India reveal that about the contribution of agriculture to national income is continuously declining.
- 4. National income estimates reveal the distribution of national income among different categories of income such as wages, profits, rents and interest. The distribution of national income between wages on the one hand and profits, interest, rent on the other, is of special significance, since inequality in personal incomes depends to a large extent on the share of the working classes and the share of property owners.
- 5. The national income estimates also present the figures of consumption, saving and investment in the economy. Information about consumption, saving and investment is indispensable for any economic study relating to economic growth and planning. The rate of saving and investment in the economy determines the rate of economic growth. Further, consumption and investment constitutes the level of aggregate demand on which depend the level of income and employment in a country.

- 6. The standards of living and the levels of economic welfare of the people living in various parts of the world can be compared with the help of national income estimates.
- 7. National income estimates are a valuable guide to economic policy particularly for development planning and active government intervention in the economy. By analyzing the national income statistics, the government can determine if the economy or its various sectors need any stimulus or regulation. The national income estimates also exhibit the part played by the government in the national economy.

16.11 Summary

National income is the final outcome of all economic activities of a nation valued in terms of money. National Income may be defined as the aggregate factor income which arises from the current production of goods and services by the nation's economy. There are certain aggregates of national income like GNP, GDP, NNP, Personal income and Disposable income etc.

Gross National Product is the total market value of all final goods and services produced by normal residents of a country in a year. plus incomes earned abroad by the nationals minus incomes earned locally by the foreigners.

Gross domestic product is the money value of all final goods and services produced by all normal residents as well as non-residents working in the domestic territory of a country but do not include net actor income earned from abroad. The net national product may be measured at market price and at factor cost.

Personal Income is the sum of all incomes actually received by all individuals or households during a year. Disposable income is the total income that actually remains with individuals to dispose off as they wish. There are three methods of measuring National Income i.e. Net Output or Value Added Method and Expenditure Method.

All the three approaches would give the same measure of national income, provided requisite data for each method is adequately available. Therefore, any of the three methods may be used to measure the national income. But all the three methods are not equally suitable for all the economies simply for non-availability of necessary data and for all purposes. Hence, we need to choose a method.

A particular method may be chosen on the basis of the purpose of national income analysis, and the availability of necessary data. The measurement of national income faces some difficulties like conceptual difficulties, overlapping of occupation, unfair idea of expenses, non-availability of data, insufficient machinery and double-counting

16.12 Key Words

- **National Income:** Accounting represents the tools and methods by which economists and policymakers measure economic activity and economicgrowth over time.
- **National income:** National Income is the money value of the final goods and services produced in a given period of a nation.
- **Gross National Product:** GNP is the total market value of all final goods and services produced by normal residents of a country in a year. plus incomes earned abroad by the nationals minus incomes earned locally by the foreigners.
- **Final goods :** Final goods are goods that are ultimately consumed rather than used in the production of another good.
- Net Factor Income from Abroad: The net factor income from abroad stands for the sum of factor incomes such as wages and salaries, rent, interest and profits generated within the domestic territory of a country is called domestic factor income.

- **Gross Domestic Product (GDP):** Gross domestic product is the money value of all final goods and services produced by all normal residents as well as non-residents working in the domestic territory of a country but do not include net actor income earned from abroad.
- Net National Product: Net National Product is gross national production less depreciation
- **Personal Income (PI):** Personal Income is the sum of all incomes actually received by all individuals or households during a year. Personal Income = National Income Social Security Contributions Corporate Income Taxes Undistributed Corporate Profits + Transfer Payments.
- **Disposable Income:** 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

16.13 Self Assessment Test

- 1. What are the different methods of measuring national income? Which of these are followed in India?
- 2. Explain the concept of national income.
- 3. Define NNP, GNP, GDP and disposable income. Discuss the relation between them.
- 4. What is value added? What is its importance in estimating national income?
- 5. Explain the New Series of National Accounts Statistics.
- 6. What are National Income Aggregates? Explain the National Income: Accounting Relationships.
- 7. What are different methods of measurement of national income? How an appropriate method can be chosen?
- 8. Discuss the difficulties of computation of national income?
- 9. Explain the measurement of National Income in India. Is there a relationship between national income and general welfare?
- 10. Discuss the significance of National Income Statistics.

16.14 Suggested Books/References

- 1. Varisham payan J.V.: Micro Economics, New Royal Book Co. Lucknow
- 2. Ma hushwan yogesh: Management economics, PHL Learning (P.) Limited, New Delhi

Unit - 17 Economic Growth and Development

Unit Structure

- 17.0 Objectives
- 17.1 Concept of Economic Growth and Development
- 17.2 Stages of Economic Development
- 17.3 Determinants of Economic Growth
- 17.4 Harrod Domar Growth Models
- 17.5 Financing of Economic Development
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- 17.7 Role of the State in Economic Development
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17.0 Objectives

After studying this unit, you should be able to understand:

- The concept of economic growth and development
- The stages of economic development
- The determinants of economic growth
- Harrod-Domar Growth Models
- The financing of economic development
- The obstacles of economic growth
- The role of state in economic development

17.1 Concept of Economic Growth and Development

The world-wide depression of 1929 and the Second World War (1939-1944) were the two important events, which compelled the states all over the world to think seriously about the problems of economic stability and growth. Since then the governments started analyzing factors that would impede growth and development.

Generally, economic development refers to the problems of underdeveloped countries and economic growth to those of developed countries. According to Mrs. U. Hicks "The problems of underdeveloped countries are concerned with the development of unused resources, even though their use are well known, while those of the advanced countries are related to growth, most of their resources being already known and developed to a considerable extent." In fact, the terms 'development' and 'growth' have nothing to do with the types of economy. The distinction between the two relates to the nature and causes of change. The view of J.A. Schumpeter about the growth and development is, "Development in a discontinuous and spontaneous change in the stationary State, which forever alters and displaces the equilibrium state existing, while growth is a gradual and steady change in the long run, which comes about by a general increase in the rate of savings and population."

Thus, economic growth is related to a quantitative sustained increase in the country's per capita output or income accompanied by expansion in its labour force, consumption, capital and volume of trade. On the other hand, economic development is a wider concept than economic growth, it is growth plus change. It is related to qualitative changes in economic wants, goods, incentives, institutions, productivity and knowledge.

The essence of economic development consists in the growth of output or real income per head of the population. Economic growth means the transformation of an economy from the state of underdevelopment to a state of development, from an agrarian to a highly industrial society, from a low saver to high saver and from a predominantly rural to a predominantly urbanised society. This transformation is mainly reflected in a sustained and steady rise in national income and per capita income.

17.2 Stages of Economic Development

Prof. Rostow, an eminent economic historian has divided the historical process of economic growth into three stages:

Preparatory stage covers a long period of a century or more during which the precondition for take-off are established. These conditions mainly comprise fundamental changes in the social, political and economic fields. For example, (a) a change in society's attitudes towards science, risk-taking and profit-earning (b) the adaptability of the labour force, (c) political sovereignty, (d) development of a centralized tax system and financial institutions, and (e) the construction of certain economic and social overheads like rail-roads and educational institutions.

The "Take-Off" period: This is the crucial stage which covers a relatively brief period of two or three decades in which the economy transforms itself in such a way that economic growth subsequently takes place more or less automatically. The term 'take-off' implies three things: firstly, the proportion of investment to national income must rise from 12 to 15 per cent definitely outstripping the likely population increase, secondly, the period must be relatively short so that it should show the characteristics of an economic revolution; and thirdly, it must culminate in self-sustaining and self-generating economic growth.

Period of Self-sustained Growth: This is, of course, a long period of self-generating and self-propelling economic growth. The rates of savings and investment are of such magnitude that economic development becomes automatic. The structure of the economic changes increasingly. The average rate of growth is maintained by a succession of new rapidly-growing sectors with a new set of pioneering leaders, the proportion of the population engaged in rural pursuits declines, and the structures of the country's foreign trade undergoes a radical change.

17.3 Determinants of Economic Growth

The process of economic development is a highly complex phenomenon and is influenced by numerous and varied factors, such as political, social and cultural factors. Prof. Ragnar Nurkse remarks, "Economic Development has much to do with human endowments, social attitudes, political conditions and historical accident. Capital is a necessary but not a sufficient condition of progress." The supply of natural resources, the growth of scientific and technical knowledge – all these too have a strong bearing on the process of economic growth. From the standpoint of economic analysis, the most important factors determining the rate of economic development are:

• Availability of Natural Resources

The quantity and quality of natural resources vitally affect the economic growth of a country. Among the natural resources, we generally include the land area and the quality of the soil, forest wealth, good river system, minerals and oil resources, good and bracing climate, etc. A country's productive capacity largely depends on the natural resources available, but availability of natural resources by itself cannot bring economic development, ability to utilise them is also required. The supply of natural resources can be increased by research and technological progress.

Capital Formation

Capital formation is the very core of economic development. In the view of economist, capital occupies the central and strategic position in the process of economic development. Capital formation

indeed plays a decisive role in determining the level and growth of national income. There is no doubt that productive capacity of an economy can be increased only by increasing the quantity and improving the quality of its capital equipment.

The process of building up the necessary stock of capital equipment requires huge resources for financing it. Either a part of national income must be saved for the production of capital goods or the necessary funds for the purpose must be borrowed from abroad.

Capital Output Ratio

Apart from the ratio of capital formation to the aggregate national income, the growth of output depends upon the capital – output ratio. "The capital output ratio may be defined as the relationship of investment in a given economy or industry for a given time period to the output of that economy or industry for a similar time period." The capital-output ratio thus determines the rate at which output grows as a result of a given volume of capital investment than a higher capital-output ratio. For example, a capital-output ratio of 3:1 would mean, in Indian rupees that a capital investment of Rs. 3 results in the addition of output worth Re 1. This ratio in under-developed countries is generally higher, i.e the capital is less productive in them than in developed countries. This is so because there is a relative inefficiency of the industries which produce capital goods.

Capital-output ratio plays a vital role in accelerating economic growth. The lower the capital-output ratio, more accelerated is the economic growth. The capital-output ratio can be reduced by means of technological progress and administrative improvements.

• Technological Progress

Adam Smith, the father of political economy, pointed out the great importance of technological progress in economic development. There is no doubt that technological progress is a very important factor in determining the rate of economic growth. Technological progress has something to do with the research into the use of new and better methods of production or the improvement of the old methods. It increases the ability to make a more effective and fruitful use of natural and other resources for increasing production. By the use of improved technology it is possible to have greater output from the use of given resources or a given output can be obtained by the use of a smaller quantity of resources.

Technological progress has very close connection with capital formation. Without capital formation technical progress is not possible because heavy investment is required for making use of better and more efficient methods of production. In fact, under-developed country can hope to march ahead on the road of economic development by adopting newer and newer techniques of production.

• Dynamic Entrepreneurship

According to Schumpeter, "the entrepreneur played a key role in economic development." Karl Marx had also emphasised the fact that in trying to widen the profit margin by adopting new technology and improved methods of production, the entrepreneur makes an important contribution to economic growth.

The entrepreneur earns profit by ensuring that the value of the final product exceeds the sum of the remuneration of the factors of production. This surplus constitutes his profit. Obviously, the greater the surplus, the greater is the entrepreneurial activity and greater the entrepreneurial activity, the faster is the rate at which the economy grows. In other words we can say that cumulative effect of the individual activities of the daring and dynamic entrepreneurs is to accelerate the process of economic growth.

Population Growth

The size and the rate of population growth has an important bearing on the economic development

of a country. If the population is too small, it does not afford full scope for specialisation or division of labour nor a sufficient market for the goods produced in the country. If, on the other hand, population is too large, then also it is a great impediment to economic growth. It is a serious hindrance to capital formation. Hence, population should be of a proper or optimum size.

Apart from the proper size of the population it is also essential that the rate of population growth should not be too rapid, otherwise efforts at development will be simply a writing on the sand. A rapid rate of population growth acts like a drag on economic development and creates the many problems, i.e. food problem, unemployment, low per-capital income.

Social Overheads

Another important determinant of economic growth is the provision of social overheads like, schools, colleges, technical institutions medical institutions, hospitals and public health facilities. Such facilities make the working population healthy, efficient and responsible. Such population can well take their country economically forward.

Conclusion

The factors that go into the process of economic growth are numerous, since this process involves the transformation of the entire economy. All facets of the economy have to be affected.

17.4 Harrod – Domar Growth Models

The classical economist laid stress on savings and accumulation of capital and the role of investment and technology in economic growth. They thus concentrated on the supply side of the problem of economic growth. The demand for capital was taken for granted. The problem of demand for capital or investment received Keynes' attention. In his 'General Theory', Keynes analysed the aggregate problems like the levels of output, income and employment, savings, investment, etc. The Keynes' was a short-run analysis and excepting his emphasis on savings and role of expectations, it was mainly static, whereas analysis of economic growth has to be dynamic since it involves changes of some fundamental variables in the economy.

Harrod and Domar analysed the dynamic nature of investment and demand and showed how variations in capital and in demand were responsible for instability in economic growth.

The determinants, viz., natural resources, rate of savings and capital formation, technological progress, population growth, etc. of economic growth influence the rate of growth by affecting two important factors: (a) The Rate of Investment and (b) Capital-Output Ratio. Hence, the rate of economic growth in a country, i.e., growth of G.N.P. depends on the rate of investment and capital-output ratio.

Harrod – Domar growth equations are:

If Gy is taken to represent proportionate increase in income, I is investment and $\frac{\Delta Y}{\Delta K}$ extra capital stock and resultant output, i.e., capital-output ration, then the following equation will give the growth rate:

$$Gy = \frac{I}{Y} \times \frac{\Delta Y}{\Delta K} - \dots - (1)$$

In a balanced growth economy, savings (s) is equal to I (Investment), therefore, can write $\frac{1}{v}$ as $\frac{s}{v}$

and $\frac{S}{Y}$ is written as 'S' representing savings ratio – the fraction of income saved. Then equation (1) can

be written as

$$Gy = S \times \frac{\Delta Y}{\Delta K}$$
 (2)

The concept of capital-output ratio is very important among the determinants of economic growth. If each unit of a given capital stock yields larger output, the rate of economic growth will be higher. For example, if a machine worth Rs. 5,000 produces output worth Rs. 1,000, the capital-output ratio is

 $\frac{\text{Rs. 5,000}}{\text{Rs. 1,000}}$ i.e. 5 and if capital worth Rs. 10,000 produces goods with Rs. 2,500 the capital-output ratio

is $\frac{\text{Rs. }10,000}{\text{Rs. }2,500}$ or 4, and so on. Thus capital-output ratio is simply the inverse of the annual return on

(productivity of) capital. If the capital-output ratio is 5, the return is 20 percent and if it is 4 the return is 25 percent. The capital-output ratio is represented by the symbol V. 'V' represents the actual marginal capital-output ratio. That is, it shows the extra amount of capital invested divided by the extra output, obtained.

Hence,
$$\frac{\Delta Y}{\Delta K}$$
 in equation (1) is the inverse of the marginal capital-output ratio. It shows the marginal

increment of output (income) produced by a marginal increment of nation's capital stock. hence, $\frac{\Delta Y}{\Delta K}$ in

equaiton (1) can be written as $\frac{I}{V}$ and equation (2) can be written as

$$Gy = S \times \frac{I}{V}$$

$$Gy = \frac{S}{V} - (3)$$

This equation (3) means that increase in output during any period is equal to extra unit of capital invested multiplied by the output obtained from each unit of capital invested.

Harrod – Domar Model. The fundamental equation (3) given above, i.e. $Gy = \frac{S}{V}$ has been called

the "Harrod-Domar Equation." In view of basic character and of being widely known and accepted model of growth, it is explained by a numerical illustration to make it easily understandable as under:-

$$Gy = \frac{S}{V} = S \times \frac{I}{V}$$

here 'S' is investment and 'V' is the capital-output ratio.

Growth Rate = Investment $\times \frac{I}{Capital-Output Ratio}$

suppose investment ratio is 10 percent of the national income and capital output ratio is 4, then

Growth Rate
$$=\frac{10}{4}=2.5$$

This hypothetical country has achieved a growth rate of 2.5 per cent in its national income or output.

17.5 Financing of Economic Development

For accelerating capital formation and promoting other development activities huge resources are needed. There are several methods of financing economic development. The principal methods are as below:

• Savings

The total investible resources available at any time in a country are made up of domestic savings and external resources which are obtained from abroad in the form of foreign capital. The aggregate savings of an economy consist of government savings, savings by the business sector and savings by the households.

In order to promote economic development, savings have not only to be generated by but they have also to be mobilised to the maximum extent possible and then canalise them into productive investment.

• Taxation

Taxation is an important method of increasing the volume of savings by restricting domestic consumption. Both direct and indirect taxes can play a part in augmenting the resources of the governments to be spent on developmental activities.

Tax policy of the government can exert a powerful influence both on savings and investment. The primary objective of the tax policy in the under-developed countries is to transfer from the community to the State as large a volume of resources as possible with minimum of adverse effects on incentive for production and investment. A sound tax policy can provide incentive to private enterprise. Taxation can be used as means for controlling economic fluctuations, for containing inflationary pressures and to achieve social justice by reducing inequalities in income and wealth.

Government Borrowing

Borrowing by the government is another method by which the saving of the community may be mobilized. In under-developed economies, there are no organized money and capital markets. The resources of the capital market are inadequate to fulfill the needs both of the private and public sector. Further, in the capital market the competition for funds between the government and the private sector will raise the rate of interest and this will have a highly disincentive effect on the increase of investment in the private sector.

For the success of government's borrowing policy, it is necessary that financial institutions be developed and extended into the rural sector of the economy. For the mobilisation of savings, it will be necessary to check and regulate the diversion of savings into unproductive investment such as real estate and inventory accumulation. Bonds of large denomination and long maturity may be offered to the institutional investors, whereas those of small denomination and short maturity may be reserved for the non-institutional investors.

• Foreign Capital

From the point of view of the country receiving foreign capital, it can take three forms : (a) Loans, (b) Direct investment and (c) Grants and Aid. These three forms of foreign capital differ in respect of impact, the benefits they confer on the receiving country and the strains they produce in its economy. For instance, loans involve regular servicing costs in the form of interest payments, Direct investment involves the transfer of resources in the form of dividends and profits. In portfolio investment, capital is transferred from one country to another through the purchase of bonds and debentures of a firm or company in the borrowing country.

The inflow of foreign capital has accelerated the economic growth of the under-developed countries in a number of ways:

- (a) Foreign capital supplements domestic savings and harnesses them to secure a rapid rate of growth.
- (b) Foreign capital generally brings along with it technical know-how. By providing technological expertise it helps in building modern industrial structure in the receiving countries.
- (c) Foreign capital provides valuable foreign exchange which is the desperate need of the developing economies in the solution of balance of payment difficulties.
- (d) Foreign capital helps in building up economic infrastructure in the form of means of transport and communications, railways, roads, irrigation and power projects, it results in acceleration of the rate of growth.

But there is the other side, the receiving countries suffer a loss in independence in action or policy and even their sovereignty is threatened.

• Profits of Public Undertakings

In a developing economy, where the scope of the public sector has been progressively expanding in the industrial, financial and commercial spheres, it is desirable that a large amount of resources should be generated and mobilized in this sector also.

In advanced countries, public undertakings contribute a sizeable proportion of resources for economic development. In India, there is a large number of public undertakings operating at present. After the initial period of pioneering losses some of them are now yielding good revenue. This is an expanding source of revenue available for economic development.

• Deficit Financing

Deficit financing, newly crated money, is another source of capital formation in a developing country. The danger, inherent in this source of development finance, is that it may lead to inflationary pressures in the economy. But a certain measures of deficit financing can be had without creating such pressures. In a developing economy, the demand for money increases as the monetized sector of the economy expands at the expense of the non-monetary and subsistence sectors. New money has to be created to satisfy this increased demand for money.

• Disguised Unemployment

Another source of development finance and capital formation is to mobilize the saving potential that exists in the form of disguised unemployment. Surplus agricultural workers can be transferred

from the agricultural sector to the non-agricultural sectors without diminishing agricultural output. The objective is to mobilize these unproductive workers and employ them on various capital-creating projects such as roads, canals, buildings, schools and health centres, etc.

17.6 Obstacles of Economic Growth

There are several causes, economic, social and political which have hindered the growth of underdeveloped countries. These obstacles are as below:

• Vicious Circles of Poverty

There are circular relationships known as the 'vicious circles of poverty' that tend to perpetuate the low level of development in under-developed countries.

The basic vicious circle stems from the fact that in these countries total productivity is low due to deficiency of capital market uniperfections, economic backwardness and under-development. However,
the vicious circles operate both on the demand side and the supply side. The demand side of the vicious circle is that the low level of real income leads to a low level of demand which, in turn, leads to a low rate of investment and hence back to deficiency of capital, low productivity low income. This is shown in Diagram 1.1. Low productivity is reflected in low real income. The low level of real income means low saving it leads to a low investment and to deficiency of capital. The deficiency of capital, in turn, leads to a low level of productivity and back to low income. Thus, the vicious circle is completed from the supply side. It is depicted in Diagram 1.2. The low level of real income, reflecting low investment and capital deficiency is a common feature of both the vicious circles.



Diagram 1.1

Diagram 1.2

A third vicious circle envelops underdeveloped human and natural resources. Development of natural resources is dependent upon the productive capacity of the people in the country. If the people are backward and illiterate, lack in technical skill, knowledge and entrepreneurial activity, the natural resources will tend to remain unutilized, underutilized or even misutilized. On the other hand, people are economically backward in a country due to underdeveloped natural resources. Underdeveloped natural resources, are therefore, both a consequence and cause of the backward people. It is explained in Diagram 1.3.



Figure – 1.3

"Poverty and underdevelopment of the country are thus synonymous. Poverty is a curse, but a greater curse is that it is self-perpetuating."

• Low Rate of Capital Formation

The most pertinent obstacle to economic development is the shortage of capital. Poverty is both a cause and a consequences of country's low rate of capital formation. In developing countries, only 5-8 percent of the national income goes into savings, when the rate of saving in a country is low, the rate of investment is bound to be low and the rate of capital formation is low too.

• Rapidly Growing Population

In fact, rapid population growth is the greatest obstacle to economic growth. The major part of increase in national income that has accrued in the developing countries during their development has been nullified by the rapid population growth. As a result, though there has been substantial increase in national income, but the per capita income has not increased much.

According to the eminent development economist Colin Clark, if there is 1 percent increase in population, it becomes necessary to increase national income by 4 percent. Just to keep the per capita income constant. Besides, a rapidly growing population creates several problems on account of which it becomes difficult to accelerate economic growth.

• Social and Political Obstacles to Growth

There are several other factors which have hindered the economic growth of underdeveloped countries, these are as follows:

(i) Inefficient Agararian System.

Lack of adequate irrigation facilities and fertilizers, primitive agricultural practices, poverty of the peasant, out-moded systems of tenure, uneconomic holdings are some of the reasons for the backwardness of agriculture of underdeveloped countries.

(ii) Shortage of Entrepreneurial Ability

The under-developed countries are generally wanting in dynamic entrepreneurship.

(iii) Scarcity of Skills

Economic development requires an army of trained and skilled personnel who serve as instruments of economic progress. These the under-developed countries lack and remain backward.

(iv) Lack of Technical know-how

The use of modern techniques is indispensable for economic progress. But in these countries old techniques are used.

(v) Inadequacy of Infrastructure

A country must have sound infrastructure in the form of transport and communication to facilitate trade and industry. Lack of these series have also contributed to the sluggish economic growth of underdeveloped countries.

(vi) Social Structure Constraints

Cast system, joint family system, laws of inheritance, out-moded religious beliefs and unprogressive social attitudes are also obstructing economic growth in the poor countries.

Political Constraints

In addition to the economic and social factors, there are the political obstacles which have retarded economic growth. For example, the development of Indian industry was deliberately discouraged in British regime. The masses were kept in a state of illiteracy and poverty without any economic uplift. After independence, some dishonest and corrupt leaders came to the fore. Favouritism and corruption period were rampant all over the country. After a long period owing to certain government measures and corruptions of the people putting in greater effort, there was a welcome change on the economic front.

Thus, various factors, economic, social and political, have conspired to retard economic growth of the underdeveloped countries.

17.7 Role of the State in Economic Development

State action is indispensable for the economic development of underdeveloped countries. The problems of these countries are of such a magnitude that they cannot be left to the free working of the economic forces.

There is then the need for speedy socio-economic reforms to move these countries off the dead centre of stagnation. In the early phase of development, investments will have to be made in those directions which promote external economies, that is, towards creating economic and social overheads like power, transport, education, health, etc. Private enterprise is not forthcoming to undertake these activities as the risk are large and profits are low. There is the need for balancing the growth of the different sectors of the economy so that the supply is adjusted to the demand. State regulation and control is, therefore, essential in order to attain such a balance. It necessitates control over production, distribution and consumption of commodities. For this purpose, the government has to devise physical controls, and monetary and fiscal measures.

"Breaking social chasms and creating a psychological, ideological, social and political situation propitious to economic development becomes the paramount duty of the state in such countries." The sphere of state action is, therefore, very vast and all pervading. It includes maintaining public services influencing attitudes, shaping economic institutions, influencing the use of resources, influencing the distribution of income, controlling the quantity of money, controlling fluctuations and ensuring full employment." Some of these areas are:

Changes in Institutional Framework

One of the important measures of economic development is to bring about changes in the socio-cultural attitudes of the people in the underdeveloped countries. Such societies possess religious and cultural traditions which are not conducive to economic development. Lot of reforms and reorganisation is essential to initiate and accelerate the process of growth.

These institutional changes include land reforms like the abolition of the feudal system, tenancy reforms to give receiving to the tenants and fix fair rent payable by them, ceiling on land holdings, community development projects in the rural areas to promote self-reliance. In the sphere of trade and industry, government encourages small industries and regulates and controls the big corporations to prevent their monopolies. To improve labour efficiency, technical institutions are setup, social security schemes are introduced and welfare activities are undertaken. These measure accelerate economic growth of the economy.

• Economic and Social Overheads

The provisions of economic and social overheads in underdeveloped countries falls mostly under the state activities. Economic infrastructure includes transport facilities, means of communication, electric and atomic energy and irrigation facilities, etc. The social overheads consists of educational institutions both for general education and technical training, public health and medical aid facilities, housing, water supply and other welfare schemes. "The availability of adequate overhead facilities brings about external economies to other industries, lowers their capital coefficient general investment, makes possible a more rapid rate of economic growth." Only the government can have the ability and willingness to make investments in these directions, where the private sector cannot hope to get any tangible return.

• Provision of Financial Facilities

Finance is the crux of the problem of development. The underdeveloped countries suffer from scarcity of capital which is the greatest handicap in their economic growth. A sound banking system is essential and other financial institutions are required to canalise the savings into investments and supply the credit needs of trade and industry. The government is to see that appropriate financial institutions are setup to meet the requirements of the entrepreneurs. The organisation and development of financial institutions by the state can help the growth of agriculture and industries. Such financial institutions can be cooperative banks, land mortgage banks, industrial banks, financial and development corporations, etc.

• Monetary and Fiscal Policies

The government also helps in economic development by adopting various monetary and fiscal policies. Monetary policies plays an important role in accelerating development by influencing the cost and availability of credit, by controlling inflation and by maintaining balance of payment equilibrium.

It is through the fiscal policy that the government tries to correct inequalities of income and wealth that increase with development. It expands internal markets, reduces unessential imports, increase the volume of savings and investments. For all these, the government adopts appropriate taxation, budgetary expenditure and public borrowing policies.

• Increase in Foreign Trade

Underdeveloped countries are foreign trade oriented but the size of trade in terms of value and quantity is very small. They primarily export primary products and in exchange import manufactured consumer goods and capital goods. This leads to problems of balance of payments. The government can solve these problems by adopting export promotion policy, import substitution schemes and export import policy.

Thus, the government in an underdeveloped country has a vital role to play in stepping up its rate of growth directly by participation in economic activity.

17.8 Summary

Economic growth and development are the more commonly used terms. 'Economic Development' refers to the problems of under-developed countries and 'Economic Growth' to those of the advanced countries. Development is a discontinuous and spontaneous change in the stationary state, while growth is a gradual and steady change in the long run.

The historical process of economic growth has been divided into three stages, i.e., 'preparatory stage' in which the fundamental changes in the economic, social and political areas have taken place, the 'take-off period' in which the economy transforms itself in two or three decades. The period of 'self-sustained growth' is a long period of self-generating and self-propelling economic growth.

The process of economic growth is a complex phenomenon and is influenced by economic and non-economic factors. Economic growth is dependent upon its natural resources, human resources, capital, enterprise, technology and among the non-economic factors as social institutions, political conditions, etc.

Harrod and Domar analysed the dynamic nature of investment and demand and showed the variation in capital and demand for instability in economic growth. In this model the concept of capital-output ratio has been determined for the economic growth. Harrod Domar equation has been widely known and accepted model of growth.

All the countries have the need of huge resources for the development of the economy. Savings, taxation, government borrowings, foreign capital, profit of public undertakings and deficit financing are some sources of financing for the economic development.

There are several factors which have retarded the economic growth of underdeveloped countries. The 'vicious circles of poverty' that tend to perpetuate the low level of development in these countries. Rapid population growth is the greatest obstacle to economic growth because their development has been nullified by this heavy increase in population. Some social and political obstacles are also there in the process of development.

The government in underdeveloped counteries plays a vital role by providing economic and social overheads institutional changes, creating financial institutions by pursuing monetary and fiscal policies and by adapting suitable foreign trade policy.

17.9 Key Words

- **Depression:** The stage in which shortage of money supply in comparison to demand it declines the prices.
- **Spontaneous:** Natural change and development in the economy.
- Self-Sustained: Which can maintain itself.
- Radical: Fundamental
- Accelerating: To speed up the process.
- **Cumulative:** Accumulated effect of the facts.
- **Inflationary:** The stage in which excess of money supply over business demand pushes up the price level.
- **Disguised unemployment:** The situation wherein a person does not get full employment according to his ability.
- **Obstacles:** Hindrances.
- Self-Perpetuating: Which preserves itself from being finished.

17.10 Self Assessment Test

- 1 What do you understand by economic development and economic growth?
- 2 What are the pre-conditions for take-off period in the process of economic growth?
- 3 Discuss the economic factors influencing the economic growth.
- 4 Elucidate Harrod Domar Growth Model with an example.
- 5 What do you understand by deficit financing, explain the dangers of this method in the underdeveloped countries?
- 6 Why are the vicious circles of poverty very common in the underdeveloped countries?

17.11 Suggested Books/References

- 1. Varisham Payan J.V.: Micro Economics, New Royal Book Co. Lucknow
- 2. Jhingam M.L., Economics Growth and Development Planning

Unit - 18 Theory of Inflation and Employment

Unit Structure

- 18.0 Objectives
- 18.1 Introduction
- 18.2 Types of Inflation
- 18.3 Causes of Inflation
- 18.4 Effects of Inflation
- 18.5 Measures to Check Inflation
- 18.6 Theory of Employment
- 18.7 Classical Theory of Employment
- 18.8 Criticisms
- 18.9 Keynes's Theory of Employment
- 18.10 Features of the Theory
- 18.11 SelfAssessment Test
- 18.12 Suggested Books / References

18.0 Objectives

After studying this unit, you should be able to understand:

- Concept of Inflation
- Different types of inflation
- Causes of inflation
- Effects of inflation on different sectors of economy
- Measures to check Inflationary pressures
- Classical theory of employment
- Keynes theory of employment

18.1 Introduction

Inflation is a phase of rapid rise in prices arising under conditions of full employment. It can lead to no further rise in incomes and employment in the economy. In other words, inflation is generally associated with rapidly rising prices which causes a decline in the purchasing power of money.

Changes in the value of money have far reaching social and economic effect on different sections of the community. Since everyone is a consumer and producer, debtor and creditor, wage earner or employer, at one and the same time, the individuals affected differently in different capacities by the same change in the price level. The misery of wage earner and the renter class and the prosperity of business class may be accounted for the same phenomenon. The distribution of wealth, production, investment etc. is all affected by the changes in the value of money.

A state in which value of money is falling and prices are rising is termed as inflation. If all prices change in the same direction at the same time and in the same degree, the problems presented by fluctuation in their value of money would be minor. Even then, certain maladjustments would arise, for the burden of outstanding indebtedness would grow lighter with a rise in the general price level and heavier with a fall.

18.2 Types of Inflation

- 1. Creeping Inflation: when prices rises by about 1-3 percent per annum, it is called Creeping Inflation. Economists do not consider it harmful as it has very little adverse effect on economic activities. So it is not considered so harmful.
- 2. Walking Inflation: When the price rise is about 3-5 percent per annum, it is called Walking Inflation. Even this is not considered so dangerous as it also has a little adverse effect on economic activities.
- 3. Running Inflation: When prices rise by about 10 percent per annum, it is called Running Inflation. This type of inflation is not considered favorable for the economy as it brings fall in the living standard in the real terms.
- 4. Galloping Inflation: When price rise is more than 10 percent per annum and prices rise every day and every month, it is called Galloping Inflation. It is also called Hyper- Inflation. It is considered as an extreme stage of inflationary condition which prevails in the economy.
- 5. Other Inflation: under this we include the following types of inflation

a) Cost Push Inflation: This is caused by an increase in production cost. It is caused by two factors due to the increase in the wages or due to an increase in the profit margins of the industrialist. An increase in wages and the prices of raw material leads to emergence of cost push inflation

b) Demand Pull Inflation: The aggregate demand of goods increases as a result of increase in population and due to other factors but the production does not increase at the desired level. This results in increase in the price and is called demand pull inflation.

19.3 Causes of Inflation

(A) Factors responsible for increase in Money Income

Inflation emerges on account of the increase in money incomes of certain sections of the community without any corresponding increase in their productivity giving rise to an increase in the aggregate demand for goods and services which cannot be at current prices by the total available supply of goods and services in the economy. Increase in money income take place because of the following reasons:

- 1. Monetary and Credit policy of the Government: When the government of the under-developed and developing countries fall short of financial resources for the implementation of their development programme, then the government of these countries float new currency into circulation. The circulation of new currency is the result of monetary policy. The circulation of new currency increases monetary income but no increase is noticed in the increase of real income. This creates inflationary situation in the economy.
- 2. Increase in the Velocity of Money: Increase in the propensity to consume in the society and the fall in liquidity preference of the people increases velocity of money. Increase in the velocity increases monetary income of the people, which creates inflationary situation in the economy.
- 3. Credit Policy of Commercial Bank: Commercial banks with the help of their credit policy create inflationary situation in the economy. When the demand of or credit increases, commercial banks by reducing their cash reserve ratio can create the credit. This credit creation policy of the bank increases quantity of money which further results in inflation.

- 4. Deficit Financing: It refers to the financing of the excess expenditure over total revenue receipts of the government. The financing of this excess expenditure is covered with the help of issue of new currency in circulation. This issue of new currency increases monetary income, which results in inflationary situation in the economy.
- 5. Increase in unproductive expenditure: Supply may suddenly decrease on account of some natural calamities or some similar things. Flood, draught, diseases of crops, etc. can reduce supply of essential goods and feed inflationary forces.
- 6. Import of Foreign Capital: When a country continuously imports foreign capital, or borrows heavy loans from outside, the inflationary forces start emerging in the economy. This results in increase in monetary income.
- 7. Financial Disorder: When the government fails to collect the full amount of levied taxes, the quantity of unaccounted money increases. In the absence of any control on this created unaccounted money, undue pressure is built on demand of goods and services. This increases price level in the country and situation of inflation starts emerging.
- 8. Favorable Balance of Payments: As a result of favorable Balance of Payment (exports>Imports), the supply of Foreign Exchange in surplus in country increases. The increase in Foreign Exchange reserve creates inflationary situation in the economy.
- 9. Rise in Import Price: If prices of importable commodities rise, it leads to what is called Imported Inflation. If the imported commodities are inputs or raw materials in domestic production, cost of production would rise in general resulting in higher domestic prices and inflation.

(B) Factors Responsible for Fall in Production

- 1. Natural Factors: Floods, Draughts, Famine, Earthquake, and similar happenings reduce supply of essential goods in the market. Due to these natural factors, production goes down but the monetary income remains constant. This feeds inflationary forces in the economy.
- 2. Increase in population: When population of the country increases at a faster rate and production of the goods and services remain constant, the scarcity of such goods is realized. This scarcity results in increase of prices, and thus inflation.
- 3. Black Marketing and Hoarding: sometimes inflation is caused by socio-economic reason viz. Black marketing and hoarding. The commodities which are in demand are hoarded by the traders and businessmen, with the result that their prices rise which in turn would lead to general rise in prices.
- 4. Shortage of Raw Material: Sometimes due to shortage of raw material, production and supplies of goods is adversely affected. This results in increase in prices of such goods and the occurrence of Inflation.
- 5. Industrial Unrest: Many a time production in the country is adversely affected by industrial unrest like strikes and lockouts. This reduces supply of essential goods and feeds inflationary forces.
- 6. Trade and Fiscal Policy of the government: To boost country's export and reduce the imports, the government makes necessary changes in its trade policy. As a result of such changes exports start increasing at the cost of domestic economy. This creates shortage of essential goods in the economy and domestic price level starts rising.
- 7. Shortage and Bottlenecks in Productive process: In underdeveloped countries, Structural inadequacies lead to shortage of inputs and resources, which in turn would result in inflation.

18.4 Effects of Inflation

Inflation affects all the sections of the society. While for some it brings good fortune, for others, it may prove to be disastrous. Inflation initially activates the economy. However, continuous inflation shakes the foundation of the economic system. This system makes the rich richer and the poor poorer. Effects of inflation could be discussed under four heads:

(A) Effect of inflation on different sections of society:

Inflation does not hit all sections of the society alike. While a section of society may tend to gain, another section would invariably lose. The effect of inflation on different sections of society can be discussed as follows:

- 1. Producers: In this category of people industrialist, traders, farmers, and employers are included. Inflation is a boon to the producers because it serves as a tonic for business enterprise. During inflation, corporate and non-corporate profits rise sharply and businessmen react to this rising prices by building up inventories.
- 2. Investors: Investors could be classified in two categories:

a) Investors dealing in Speculative activities (Equity Shares)

b) Investors in fixed interest yielding securities (Bonds, Debentures)

The former category of investors gains during inflation because dividend on equities increases with increase in prices and corporate earnings. Investors in fixed interest yielding securities have to be content with the fixed income and they cannot share the fruits of prosperity in the economy arising as a result of inflation. Thus, investors in fixed interest yielding securities tend to lose during inflation.

- 3. Consumers: Every individual in the society is consumer. Fixed income group consumer is the worst sufferers during inflation because their purchasing power goes down with the increase in price leveling the economy. Consumers, whose income increases during inflation are not affected so much.
- 4. Wage and Salary Earners: People getting fixed income, i.e. wages and salaries, pensioners, suffer most from inflation. Although, with increase in price level, wages and salaries rise, but they do not rise in the same proportion in which the cost of living rises. This results in fall in real wages and as a result, the living standard of fixed income class declines.
- 5. Debtors and Creditors: During inflation, debtors are the gainers and the creditors are the losers. The debtor when borrowed money before inflation had set in it commanded more purchasing power than what it commands now. So when it is returned creditor receives less in real terms, hence he is the loser.

(B) Other effect of inflation

- 1. Redistribution of wealth: During inflation, inequality in society arises. Wage and salary earners and consumers had to suffer a lot during inflationary situations, because of tremendous rise in prices. Thus, during inflation the rich become richer and the poor become poorer.
- 2. Increase in Government expenditure: During inflation, government expenditure rises tremendously. On the one hand, the government has to pay higher wages to its employees and on the other hand, the cost of various projects under construction also increases.

- **3.** Increasing tax revenue to the Government: In a progressive tax system, the government is able to add to its tax revenue simply on account of increasing money incomes. Since, tax liabilities are based on money incomes, therefore, tax payers keep moving into higher income brackets, for tax purpose without any addition of their real incomes. In such situation, government collects more of revenue without reason of tax rates on imposition of new taxes. Hence, tax-payers are worst affected during inflationary situation.
- 4. Increase in Public Debts: During inflationary period, the government generally find that their tax receipts are lagging behind their requirements of expenditure. As a result, the government has to resort to borrowing. But it is found that with the progress of inflation, it becomes increasingly difficult to borrow from the market.
- 5. Distortion of Financial Institutions: Inflation has the effect of distorting financial institution. Inflation is a monetary phenomenon. Interest is an integral part of monetary and credit structure. During inflation, when interest rate start moving upwards, financial institution are put to great difficulties as they had to pay the increased interest rates on the matured liabilities immediately. The revision of their receipts from interest takes time, while their interest expenses start increasing more rapidly. This disrupts the smooth functioning of financial institutions.
- 6. Hoarding of Goods: In anticipation of rise in prices, during inflationary situation, both traders and consumers start hoarding essential goods. The traders hoard of stocks of essential commodities with a view to making higher profits or with a view to selling scare items in the black market.
- 7. Stimulation to Speculative activities: On account of the uncertainty generated by a continuous rising price level inflation gives stimulus to speculative activities. Producer during this period try to maximize their profit with the help of speculative activities.
- 8. Fall in Saving Rate: Inflation is a great damper on saving activity. The savers find that the value of their saving is getting eroded on account of inflation. Though rate of interest also goes up, yet it is not able to keep pace with the fall in the value of money and the savers suffer a net loser.
- **9.** Adverse Balance of Payments: Inflation leads to balance of payment difficulties. Because of increased prices, exports of the countries do not remain competitive in the world market and the exports start declining. The rate of exchange also moves against the home currency and increasing trade deficit. However, inflationary conditions can impose severe balance of payment problems upon an underdeveloped country.
- **10. Employment effect:** During inflation, more employment is generated because the producers in anticipation of larger profits expand the size of output.

(C) Moral Effect:

Moral effect of inflation is very bad. Inflation when wipes out savings, the effected persons oppose the government and the society. They try to adopt illegal and immoral ways of collecting money. Inflation is said to be the powerful agent of evil. It is a paradise for speculators and profiteers who are enriched through no effects of their own, partly at the expense of wage earners because prices go up by the lift but wages by the stairs, but still at the expense of those who have a fixed earning.

(D) Social and Political Effect:

Inflation has not only economic and moral effect but it has certain social and political effect .During inflation because of inequality, society divides into categres viz. rich and poor. The rich becomes more richer and poor becomes poorer. This creates class conflict. There are many examples in history, when the governments are also shaken as a result of inflation. The German hyperinflation was an important factor in the fall of Dr. Cuno's liberal government and in Hitler's coming to power after the first world war.

18.5 Measures to Check Inflation

We have seen that the effects of inflation are economically unsound, politically dangerous, socially disastrous and morally indefensible. It generates inequalities of wealth; it paralyses the machinery of wealth production and even as a source of revenue it soon gets dried up. It is therefore, obvious that inflation is a serious disease which needs to be effectively controlled before it is too late. The subject of controlled inflation can be viewed from two angles: the general controls and the specific controls. The general control is concerned principally with currency and credit fixing. Various measures can be adopted to control inflation. These measures can be grouped into three categories:

(A) Monetary Measures: These are adopted by the central bank (RBI) of the country. Following are the monetary measures which help in controlling inflationary situation.

1.Making Note Issue Policy Strict: The central bank should adopt strict note issue policies so that it may not issue additional money. For making note issue more stringent, the gold or foreign exchange reserve should be enhanced. If there is no provision of keeping reserve, it should be started. Adoption of such measures makes note issue system a difficult one. These measures also check inflationary situation.

2. Issue of New Currency: When the inflation reaches to a uncontrollable situation, the government issues new currency and squeeze out old currency out of circulation. These measures are also called demonetization. It is an unusual method of controlling inflation.

3. Control on Credit Money: To controll inflation, it is essential to control credit money also. For this purpose the central bank of the country adopts the following measures:

i) Increase in Bank Rate: Bank rate is the rate of which the central bank rediscounts the bills of commercial bank or at which it extends financial accommodation to the commercial banks. If there is much expansion of credit in the banking system, in such cases to control credit central bank increases bank rate. Increase in bank rate will check rising inflationary situation

ii) **Open Market Operations:** Another method to check inflation is that the central bank of the country resorts to selling government securities to the public and the banks. When the public and the banks purchase the securities, they have to make payments for these securities to the central bank. The result is that the cash moves from the commercial banks to the central bank. This reduces commercial bank ability to create credit

iii) High Reserve Requirement: The central bank in order to reduce the money supply in the economy increases the limit of the reserve requirement of commercial banks. This method prevents the commercial bank from forming a basis for further credit expansion

(B) Fiscal Measures: The following fiscal measures could be adopted by the government for combating inflation:

(i) Taxation: During inflation, efforts should be made to reduce the size of disposable income in the hands of public. This can be done either by imposing new taxes on by increasing the existing rates of taxation. This will leave less money supply with the public

- (ii) Government Expenditure: To control inflation, government should reduce its expenditure especially unproductive expenditure. Any drastic cut in the government expenditure to curb inflationary situation may land the economy in the slump.
- (iii)Balanced Budget: To control inflationary situation, government should adopt the policy of Balanced Budget because deficit budget further increases inflation in the economy. In case of inflationary boon, government should also try to prepare surplus budget
- (iv)Increase in Savings: To provide a positive incentive to promote saving which will reduce outlays and curb inflation, the government should have in its budgetary policy incentives for savings also.
- (v) Increase in Public Debts: To check inflation, the government should also issue debentures and bonds and encourage the public for its purchase. By issue of debentures and bonds, the government can take back additional purchasing power. The amount collected by the government through these sources, should be utilized in productive channels.
- (vi)Control on Investment: During inflation, in anticipation of future rise in prices, traders and industrialists increase their investment activity. Such investment increases money supply in the market and this increase in money supply further increases inflation. Hence, to check inflation, the government should control unusual investments in the economy.
- (vii) Overvaluation of Currency: An overvaluation of domestic currency in terms of foreign currencies also serves as anti-inflationary measure. This will discourage exports and encourage imports, resulting g in increase in domestic supply of goods in the economy. This will check rise in prices.
- (viii) Income and Prices Policy: Another method to control inflation is to purchase a policy of incomes and prices. The tendency for wages to rise beyond the marginal product of labor has to be curbed by relating wages to productivity. Similarly, the factorial incomes in general are to be related to their marginal product and an excessive rise in factorial incomes has to be curbed. Close scrutiny on prices should also be pursued. Thus, by controlling factor incomes and unwarranted price rise, inflation can be cured.
- (ix)Other Fiscal Controls: Other fiscal measures for the control of inflation are introduction of rationing system, reducing exports, fixing of price of essential commodities by the government and shifting of productive resource to the production of more sensitive goods, etc.
- (c) Other measures: In addition to above fiscal and monetary measures, following mea sures can be adopted for controlling inflation:
- (i) Increase in Production: By increasing production the inflationary pressure can be reduced. Increase in production increases the supply of goods, which helps in establishing prices.
- (ii) **Price control and Rationing System:** The government can control the rise in prices by prohibiting any unwarranted price rises or by putting a ceiling on prices of selected commodities. The government can also impose price control along with rationing of the commodities.
- (iii) Export-Import Control: By restricting exports and promoting imports, government can increase the supply of goods in the country. This helps in controlling the rise in prices.
- (iv) Improvement of Distribution System: The public distribution system in the country should be strengthened. So that the commodities are made available at reasonable prices.

From the economic point of view inflation is less harmful for the economy up to certain extent. Inflation is referred to a state in which value of money is falling that is prices are rising. These increased prices will increase national income and per capita income. This will signifies improvement in living standard. But it will have positive result only when it will remain in a controlled stage. But as soon as we reaches the galloping or running inflation stage, it will show us the real picture. It will have the negative consequences of increase in inequality, artificial prosperity, invisible robbery, degrades moral values, and overall support corruption in the economy. So we can say that inflation is unjust.

18.6 Theory of Employment

In order to understand the meaning of the term employment, we should first try to know the various types of un employment that prevail in an advanced economy because full employment, may co-exist with any or all of them. The different types of unemployment that afflict an advanced economy may be classified under the following heads:

- 1. Frictional Unemployment: It is the type of unemployment which is caused by industrial friction, such as, immobility of labor, ignorance of job opportunities, shortage of raw material, and breakdown of machinery.
- 2. Seasonal Unemployment: It is the type of unemployment which is due to seasonal variation in the activities of particular industries caused by climatic changes or changes in fashion or by the inherent nature of such industries.
- 3. Structural Unemployment: It is the type of unemployment which arises due to structural change in the economy of the country. Example- If there is a long-term decline in the export trade of a country; this may be considered a structural change in the economy of that country.
- 4. Technological Unemployment: It is the type of unemployment which is caused by changes in the technique of production. Example- Innovations, Inventions etc.

18.7 Classical Theory of Employment

The classical theory of employment assumes that there is always full employment of labour and other resources. In fact, full employment is considered to be the normal situation and any lapses from full employment are considered to be abnormal. Even if at any time, there is not actual full employment, the classical theory asserts that there is always a tendency towards full employment. The free play of economic forces itself brings about the fuller utilization of economic resources including labor.

The assumption that there is always full employment of resources is justified in classical economics by Say's Law of Market. This law is, in fact the core of classical Economic Theory.

According to Say's Law, general overproduction and, hence, general unemployment are logical impossibilities. J.B.Say believes in the fact that "supply always creates its own demand "Say explains that the main source of demand is the flow of factor income generated from the process of production itself. Whenever any new productive process is initiated and a certain output results, the demand for the output is also simultaneously generated on account of the payment of remuneration to the factors of production. In other words, every output brought into existence injects an equivalent amount of purchasing power in circulation which ultimately leads to its sale so that there is no surplus output or overproduction.

The process of manufacture, thus, also brings into being an equivalent amount of purchasing power in the form of wages, profits, etc. which would ultimately lead to purchases. Hence, there can be no overproduction of any commodity at any time. This is the essence of Say's Law. General overproduction, according to Say, is impossible. As a result, there is no possibility of unemployment.

Implication of Say's Law:

- 1. The first implication of the law is that there is Automatic adjustment of every element with the working of the economy. For example: If the supply increases, the demand shall also increase and there shall be adjustment between the two.
- 2. The second implication of the law is that general overproduction is impossible. As production increases, the income of the concerned factor also increases. As a consequence, new demand is created and increased stock sold off in the market.
- 3. The third implication of the law is that since general over production is impossible, there shall be no general unemployment. Even if there is some unemployment somewhere, it shall be purely temporary and shall automatically disappear in course of time.
- 4. The fourth implication of the law is that the employment of unemployed resources shall pay its own way.
- 5. Finally, Say's law has important policy implication. The economic system, according to Say, is automatic and works itself without any external stimulus.

18.8 Criticism

- 1. The theory has been criticized on the ground that economy is self adjusting, because there are two principal classes of rich and poor, and wealth is unequally distributed between them.
- 2. The law is based on the assumption that 'supply creates its own demand', this law assumes that people spend their entire income on the purchases. But in reality they save a part of income for future use.
- 3. This theory is based on unrealistic approach to the problems of contemporary capitalist world.
- 4. The equilibrium between savings and investment is brought, according to this theory, through flexible exchange rate. But in reality, it is brought through changes in income rather than through changes in interest rate.
- 5. J.B.Say argued that since general over-production was impossible, general unemployment was out of question. The critics point out that this thesis cannot be accepted because unemployment is found in all the capitalist countries. Even a reduction in the money-wages does not remedy the situation.

18.9 Keynes's Theory of Employment

The first theory of employment is that put forward by Keynes. It is also known as Demand Deficiency Theory. It attributes unemployment to a 'lack of effective demand, to a deficiency of outlay on consumption and on investment'.

Keynes measured the total output of an economy in terms of employment for want of any better unit of measurement. The greater the output, the greater shall be the employment resulting there from and vice versa. The national output, on the other hand, depends upon the effective demand. Effective demand, in its turn, comprises i) consumption demand, and ii) investment demand. The former comprises the demand for consumption goods, while the latter is the demand for capital goods. It is the effective demand upon which the volume of employment depends. Since employment is governed by the effective demand, it is clear that unemployment is due to lack of sufficient effective demand and if unemployment is to be cured, the remedy is an increase in effective demand.

Effective demand is determined by two factors which Keynes called it as Aggregate Demand Function and Aggregate Supply Function. Aggregate demand function is a schedule of the various amounts of money which the entrepreneurs in an economy expect from the sale of their output at varying levels of employments. It refers to the receipt which the entrepreneurs taken together expect from the sale of the output.

Aggregate Supply Function, on the other hand, is a schedule of the various amounts of money which the entrepreneur in an economy must receive from the sale of output at varying levels of employment. Aggregate Supply Function, thus, represents the costs while Aggregate demand Function represents the receipt of the entrepreneur in an economy. It is ordinary common sense that the costs must in no case be more than the receipts. If, at any particular level of employment, entrepreneur finds that the receipts are les than the cost, they shall stop production and refuse to offer employment to that particular number of workers. It goes without saying that so long as the costs remain less than the receipts, the employment in an economy shall go on increasing till both of them are equalized. In no case would the employers offer employment to workers if the costs are greater than the receipts

So long as A.D.F. is greater than A.S.F., entrepreneaur shall go on employing more and more workers till A.D.F. and A.S.F. are exactly equal. The movement A.S.F. exceeds A.D.F. further expansion of business activity and employment shall come to an end.

Assumptions of the Theory

- 1. There exists perfect competition in the society
- 2. There exist underemployment in the society
- 3. There exists a closed economy in the country

18.10 Features of Keynes Theory of Employment

- 1. Short-term Analysis: This theory deals with the short period alone. It ignores the long period altogether. He assumes that the quality and quantity of labor, capital, equipment, existence techniques, consumer's taste, the extent of competition and the social structure remain unchanged. Now these elements are never remain constant in real life. They do change, but change very little in the short period. Since Keynesian economics is of a short term Character, he regards them as given.
- 2. Macro Economic Theory: The Keynesian economics deals with the economic system as a whole. As it is Keynesian Economics it deals with the aggregates of consumption, production, income, demand, saving and investment. As such, it is also reffered to as aggregating economics.
- **3.** Theory of Monetary Economics: Money occupies a central position in Keynes theory of income, output and employment. To Keynes, money was, no doubt, a medium of exchange and a unit of account, but it was more important as a store of value. Money was the simplest form in which wealth could be stored. Moreover, money was the most secured type of asset. It is on account of this reason that money comes to occupy a pivotal position in the economy of the country. It is money which provides the driving force to the economy.

- 4. Economics is a Comprehensive System of Thought: It is a comprehensive system of thought in the sense that it deals with all sorts of situations and provides remedies for all sorts of problems. It deals as effectively with inflation as it goes with deflation. Keynesian economics is a comprehensive system of thought in another sense as well. It deals with all levels of employments as against the classical economics which concerns itself only with the special case of full employment.
- **5.** Economics is investment oriented: Other important characteristics of Keynes economics is the important role that it assigns to investments as a determinant of employment. According to Keynes consumption is more or less stable in the short run. As such, it plays no important role in the determination of employment. Investment, thus, assumes greater importance as a determinant of the volume of employment.
- **6.** Economics is built on Strong Empirical Foundation Keynesian Economics is not merely theoretical; it is based on facts. It has practical implication. In a more positive sense, it stands up well before the facts of life.

18.11 Self Assessment Test

- 1 What do you understand by Inflation? Give the causes of Inflation.
- 2 Discuss in brief the impact of inflation on different sectors of the economy.
- 3 Give the remedial measures of controlling inflationary situation in the economy.
- 4 What are the different types of inflation?
- 5 "Supply creates its own demand." Critically examine this statement.
- 6 Write a brief note on Keynes theory of employment.
- 7 Explain the difference in the Classical and Keynesian Approaches to the equality between Saving and Investment.

18.12 Suggested Books/References

- 1. Mathur N.D.: Managerial Economics, Shivam Book House (P.) Limited, Jaipur
- 2. Varisham Payan J.V.: Micro Economics, New Royal Book Co. Lucknow

Unit - 19 Balance of Payments

Unit Structure

- 19.0 Objectives
- 19.1 Introduction
- 19.2 Concepts
- 19.3 Structure
- 19.4 Balance of Trade and Balance of Payments
- 19.5 Equilibrium in BOP
- 19.6 Disequilibrium in Balance of Payments
- 19.7 Types of Disequilibrium
- 19.8 Causes of Disequilibrium
- 19.9 Measures to Correct Disequilibrium in BOP
- 19.10 Self Assessment Test
- 19.11 Suggested Books / References

19.0 Objectives

After studying this unit, you should be able to understand :

- The concept of Balance of Payments
- Causes of disequilibrium
- Measures to correct disequilibrium
- Structure of Balance of Payments

19.1 Intrduction

The international transaction and financial flows summarized in the balance of payments accounts generate a demand for a supply of foreign exchange. The balance of payments and the foreign exchange rate are so closely related that in fact the two are alternate ways of looking at the same thing viz. International receipts and payment position of a country. The foreign exchange rate is mirror reflection so to speak of the balance of payment position of a country. No country is self. sufficient and the interdependence of countries is reflected in international economic and commercial transactions. An economic transaction is an exchange of value or transfer of a good or an asset. A commercial transaction is an exchange of goods or service for money which will result in payment in country or monetary assets leading to financial flows. The resource flows from one country to another due to purchase and sale of financial claims are referred to as financial transaction. The international exchange of goods and service for money are all referred to as international economic and commercial transaction.

19.2 Concept of Balance of Payments

The international balance of payments of a country is a statistical record in the form of a balance sheet comprising all its transaction with rest-of the world or with another country during any given period of time. It presents a summary account of all international transaction of a country during any given period of time, normally one year.

C.P. Kindleberger defines balance of payments as "a systematic record of all economic transaction between the resident of the reporting country and residents of foreign countries during a given period of time". It follows that:-

- 1. Balance of payments is a statement of systematic record of all economic transactions between one country and the rest of the world.
- 2. It is a record pertaining to a period of time. Usually, it is an annual statement.
- 3. It includes all transaction, currency as well as capital.

Since the balance of payments in a systematic record of a country's total money receipts received from and payments made to abroad, the difference between receipts and payments is the surplus or deficit a country's total money receipts are the receipts or payments that accrue to its resident from abroad while the total payments refer to the payments made by the resident of a country. Dividing resident total receipt, R and their total payment, P into their domestic and foreign components and if the domestic receipt an domestic payments are identical the balance of payments B of a country can be expressed as :

$\mathbf{B} = \mathbf{R} - \mathbf{P} = \mathbf{R}\mathbf{f} - \mathbf{P}\mathbf{f}$

Where Rf= total foreign receipts, and Pf=total foreign payment. The positive difference is termed as a "Surplus" while negative difference is termed as "deficit" in the international balance of payment of a country.

19.3 Structure

The balance of payments accounts data are collected by the Director General Department of Commercial intelligence and Statistics (DGCIS) Government of India. The Reserve Bank of India collected data from authorized dealers (Ads.) and other licensed agencies on a trimonthly basis to compile the quarterly and annual BOP position. The balance of payment (BOP) comprises two main segments - the current account balance and the balance on capital accounts.

(A) Current Accounts : The current accounts balance consists of several components of which the major component relates to "merchandise trade" other components pertain to the trade in service (or "invisible" trade) investment income, private and official transfer and other miscellaneous receipt and payments.

In the current account merchandise exports and imports is the most important item. The difference between export and imports of a country is its "Balance of trade". If visible exports exceed visible imports, the balance of trade is favorable. In the opposite case its is unfavorable. It is however services of invisible items of currents account that reflects the true picture of the balance of payments account. They along with the visible items determine the actual current account position. It is interesting to note that the international Monetary Fund (IMF) includes the following items as invisible transaction.

- (i) International transportation of goods, including warehousing while in transit and other transit ex penses.
- (ii) Travel for reasons of business education, health, international conventions or pleasure.
- (iii) Insurance premium and payments of claims.
- (iv) Investment income, including interest, rents, dividends and profit. Film rental, pension, patent fee, royalties, subscriptions to periodicals and membership fee.
- (v) Donations, migrant remittances, legacies.
- (vi) Repayment of commercial credits.
- (vii) Contractual amortization a depreciation of direct investment.

(B) Capital Account : The capital accounts transactions are short term and long term capital inflows and outflows for private purposes, official purposes or banking purpose. The capital account reflects the changes in foreign assets and liabilities of the country and affects its creditors/debtor position. An excess of foreign assets over foreign liabilities indicates a net creditor position and vice-versa. Net changes in current account are reflected by a corresponding and opposite change in the capital account, changing the foreign assets and liabilities position of the country.

Items of balance of payment account may, thus be, summarized in Table-1 Table 1

Capital Accounts
1, Private (non-banking) Loans:
a. Long-term
b. Short-term
2. Banking
(including Central Bank)
3.Official
(including Central Bank)
(a) Loans
(b) Amortisation
(c) Miscellaneous
(d) Reserves (including changes in the
foreign exchange assets of the
Central Bank)
Total Capital & Monetary Gold

Errors and omissions is a balancing item so the total credits and debts of the two accounts must be equal in accordance with the principles of double-entry book-keeping so that balance of payment of country always balances in the accounting sense.

19.4 Balance of Trade and Balance of Payments

The balance of trade of a country shows its trade transactions with the rest of the world during the course of a year. It indicates the relationship between the value of exports and the value of imports of the country in questions. But the balance of trade taken into account only "visible "export and imports. The visible exports and imports are those which are actually recorded at the part. The balance of trade of a country is, thus the relationship between the aggregate value of export and the aggregate value of imports during the course of a year. If the money value of exports is greater than the money value of imports, then the balance of trade is said to be favorable to the country. On the contrary, if the money value of imports is greater than the money value of export, the balance of trade is said to be unfavorable for the country. BT=X-M (X, Exports, M-Imports

- (i) X>M (Balance of trade favorable)
- (ii) X<M (Balance of trade unfavorable)

There can be several other items known as "invisible item" which can give rise to international receipt and payment. The invisible items are those which are not recorded at the post. These items are the services rendered by shipping, insurance companies, debt, repayment and payments of interest expenditure by tourist, payment of dividends on capital invested by foreigners. The balance of payment includes both these visible and invisible transaction of international payments. The balance of payments is a wider and a more comprehensive concept than the balance of trade. The balance of trade is a part of the balance of payment account of a country.

Balance of Payments Always Balances.

The balance of trade may or may not balance, but balance of payment accounts always remains balanced. The balance of trade is an account of total foreign imports and exports of a particular year. The exports and imports of the country may remain equal or not be equal. Exports can exceed the important or vice-versa but balance of payment accounts remains always balanced, because the "errors and omissions" is a balancing item so that total credits and debits of the two accounts must equal in accordance with the principles of double entry book keeping so that the balance of payment of a country always balance in the accounting sense.

The illustrate the point a simple accounts of a country's balance of payment is represented in

Foreign Receipts		Foreign Payment	
1. Export	200	1. Imports	150
2. Services	100	2. Services	150
3. In com e from	300	3. Foreign Income from	200
Foreign Investment		Investment at home.	
4. Long term borrowing	100	4. Long-term Lending	
5. Short term borrowing		5. Short term Lending	300
	100		100
6. Error & Omissions	100		
Short-Term Loans)			
Total	900		900

Country's Balance of Payment Account

Table-2 shows the country's visible and invisible transaction item 6 refers to the act of errors omission as a balancing factor. Thus, total value of both credit and debit sides is the same (RS. 900 crores) in our example. It should be noted that the two accounts- current and capital in balance of payment should necessarily balance. The surplus of the trade or current account must be equal to the deficit in the capital accounts or deficit in the current must be equal to be surplus in the capital accounts.

Thus, the balance of payment is always in equilibrium or balance in the accounting sense but there exists deficit or surplus. In the table-2, the items from 1 to 5 are also called the "autonomous transaction" because these transaction entered in the credit and debit side of the balance sheet in real sense. There are called real transaction. But the item No. 6 (Error-Omission) is a "induced transaction" which entered in the accounting sense. This is a balancing item so called "Induced Transaction".

19.5 Equilibrium in the Balance of Payment

The balance of payments in the accounting scence must always balance. Thus, there can be no disequilibrium in the balance of payment because debits must always equal credits, if the entries are made correct.

Now we are going to discuss the actual balance of payments, at the place of accounting balance. A nation's international balance of payment is in equilibrium when the "autonomous" supply of and the "autonomous" demand for foreign exchange are equal. This is an equilibrium situation in real sense, where the monetary authority committed to maintain the exchange rate stability without having to interfere as a residuary buyer or seller of gold and/or foreign currencies in the foreign exchange market to achieve this or whether exchanges rates are flexible and their movement assures the equality.

Hence the usual analytical approach to be balance of payments is to consider it as the difference between receipts and payments of foreign exchange by the residents of the country, Symobilically, thus, the balance of payments may be defined as -

B=Rf-Pf

Where, B-stands for balance of payment Rf denotes receipts from foreigners and Pf stands for payment made to foreigners.

Clearly, thus when B is zero, the balance of payments can be regarded as equilibrium balance. That is to say, a country's balance of payments may be said to be in equilibrium when its receipts are equal to payments on account of its transactions with other countries of the world. Such a country with equilibrium balance of payments is often called a country in "external balance" However a country balance of payment is said to "favorable" or in surplus" when the total receipt from the rest of the world exceeds the total payments to the rest of the world. Symbolically, when B is positive, it is called a favourable balance of payment. On the other hand, if a country's receipt from foreigners fall short of its payments to foreigners, its balance of payments is said to be unfavorable or it deficit. Symbolically when B is negative it is called an unfavorable or adverse balance of payment.

19.6 Disequilibrium in Balance of Payment

A disequilibrium in a country's external balance of payment appears either as a surplus when the difference between the autonomous supply of and the autonomous demand for foreign exchange is positive. When this difference is negative, the disequilibrium in unfavorable (deficit), while a disequilibrium in the balance of payments of a country is a cause for worry from the point of view of stable international economic relations and balanced growth of world trade. Thus the phenomenon of disequilibrium (deficit or surpluses) in the balance of payment in viewed from the balance of transaction on current accounts as such. A disequilibrium surplus or deficit in this sense shows strengthening or weakening by the balance of its external assets to liabilities.

19.7 Types of Disequilibrium

(1) **Cyclical Disequilibrium -** This type occurs due to effect of "Business cycles. A typical or standard business cycle is characterized by different phases or stages of depression, recovery prosperity and recession. Cyclical fluctuations causes disequilibrium in the balance of payment because of cyclical changes in income and income elasticity. For example if there occurs a business recession in foreign countries it may easily cause a fall in the exports and exchange earning of the country concerned, resulting in a disequilibrium in the balance of payment.

- (2) Secular Disequilibrium :- The country's balance of payments also depends on its stage of economic development : when a country moves from one stage to another of development, a deep rooted, long-seated disequilibrium takes place, It is due to the excessive investment and technological changes. Population growth is also a major factor which creates such type of disequilibrium.
- (3) **Structural Disequilibrium:** There are several structural changes occurring in the domestic economy or abroad which may alter the the demand or supply relation of export or imports or both. The changes in the tastes, habits, fashions of the people, the discovery of new substitutes for exports the development of alternative sources of supply etc; may also produce disequilibrium in the country's balance of payments. For example, the invention of synthetic rubber led to a serious decline in the export of natural rubber from countries like Malaysia, Burma etc. during and after the second world war. This type of disequilibrium in the balance of payments is called 'structural disequilibrium.' Structural changes are also produced by variation in the rate of international capital movements. A rise in the inflow of international capital tends to have a direct impact on a country's balance of payments.

Structural disequilibrium at the factor level takes place when a country's factor price deviates disproportionately to its factor endowment. As Kindleberger observes "Structural disequilibrium at the goods level occurs when a change in demand or supply of exports or imports alters a previously existing equilibrium or when a change occurs in the basic circumstances under which income is earned or spent abroad, in both cases without the requisite parallel changes elsewhere in the economy" Similarly strikes, political disturbances etc. which affect supply of exports also create a structural disequilibrium.

- (4) **Temporary Disequilibrium**: There may be temporary diseqilibrium caused by random variations in trade, seasonal fluctuations, the effects of weather on agricultural production etc. War between the countries also creates temporary disequilibrium in the balance of payments. Deficit or surplus arising from such temporary causes are expected to correct themselves within a short time.
- (5) Fundamental disequilibrium: I.M.F. uses the term "Fundamental disequilibrium" to describe a persistent long-term disequilibrium, especially deficit which exists continuously for long period of time in a country's balance of payments. Unchecked series of short-run disequilibrium in a country's balance of payments ultimately lead to the 'fundamental disequilibrium in long-run. Fundamental disequilibrium which persists unbated and plagues the economy for its removal. There are deep-rooted causes and factors in the country's economy which are Balance of Payments.

Responsible for the emergence of a fundamental disequilibrium in its balance of payments. They may arise due to changes in consumer's tastes within the country or abroad thereby affecting the country's or exports.

19.8 Causes of Disequilibrium

There are many factors that may bring a deficit or surplus in its balance of payments.

- (1) Natural calamities, such as, the failure of rains or the coming of floods may easily cause disequilibrium in the balance of payments by adversely affecting agricultural and industrial production in the country. The exports may decline while the imports may go up. Causing a discrepancy in the country's balance of payments.
- (2) Business fluctuation induced by the operation of the trade cycle may also cause disequilibrium in a country's balance of payments. For example, if there occurs a business recession in foreign

countries it may easily cause fall in exports and exchange earning of the county concerned, resulting in a disequilibrium in the balance of payments. When prices rise during prosperity and fall during depression, a country which has a highly elastic demand for imports experiences a decline in the value of imports and if it continues its exports further, it will show a surplus in the balance of payments.

- (3) Country's balance of payments also depends on its stage of economic development. Huge development and investments programmers in the developing economies are the root cause of the disequilibrium in the balance of payment. If the country is developing, it will have a deficit in its balance of payments because it imports raw materials, machinery, capital equipment, and services associated with the development process and exports primary products, the country has to pay more for costly imports and gets less for its cheap exports. This leads to disequilibrium in its balance of payments.
- (4) An inflationary rise in prices within the country may also produce disequilibrium in the balance of payments. The prices of exports items may go-up, causing a decline in the volume of exports from the country concerned. The inflationary spiral within the country may also result in an increase in the volume of exports.
- (5) Technological changes in methods of production or products in the domestic industries or in the industries of other countries may affect the country's ability to complete in the home or foreign markets. This may be due to changes in costs and prices and the qulity of products following technological improvements.
- (6) If there is a vast increase in the home production of food materials, raw materials, substitute goods etc. in advanced countries, it decreases their need for imports form the developing countries. Thus, export demand has considerably changed, resulting in structural disequilibrium in these countries. Similarly, developed countries also will suffer in their exports as a result of loss of their colonial markets, the tendency of the backward or poor countries for self-reliance and their ways and means of curtailing their imports. But disequilibrium (deficit) in balance of payments seems to he more persistent in the under-developed or developing countries than in the advanced rich countries.
- (7) The capital movements (if they happen to be on a large scale) can also cause disequilibrium in the balance of payments of a country. A massive inflow of foreign capital into a country is followed by an unfavorable balance of payments. A large outflow of capital, on the other hand, is accompanied by favorable balance of payments.
- (8) High population growth in under-developed countries also has adversely affected their balance of payments position. It is easy to see that increase in population increases the needs of these countries for imports and decreases the capacity to export.
- (9) Another cause in the change is the country's national income. If the national income of a country increases, it will lead to an increase in imports thereby creating a deficit in its balance of payments, other things remaining the same. If the country is already at the full-employment level, an increase in income will lead to inflationary rise in prices which may increase its imports and thus bring disequilibrium in the balance of payments

- (10) Moreover, a shift in demand occurs with the changes in tastes, fashions, habits income, economic progress may also produce disequilibrium in the country's balance of payments. Propensity to imports may change as a result, demand for some imported good may increase, while that for certain goods may decline leading to structural change.
- (11) International borrowing and investments by countries also result in disequilibrium in the balance of payments. A country which gives loans and grants on a large scale to other countries has a deficit in its balance of payments on capital account. If it is also importing more, as is the case of with the U.S.A., it will have chronic deficit. On the other hand, a developing country borrowing large funds form other countries and international institutions may have a favorable balance of payments. But such a possibility is remote because these countries usually import huge quantities of food, raw materials, capital goods, etc, and export primary products. Such borrowings simply reducie balance of payments deficit.
- (12) The existence of political instability may result in disrupting the productive apparatus within the country, causing a decline in exports and an increase in imports. Likewise the payment of war preparations or indemnities may also cause serious disequilibrium in the country's balance of payments. The imposition of heavy war preparations on Germany after the first world war produced a serious disequilibrium in the balance of payments.

19.9 Measures to Correct Disequilibriun in BPO

Disequilibrium in a country's international balance of payments indicates imbalances between autonomous international payments (demand for foreign exchange) and receipts (supply of foreign exchange). Removal of this imbalance means a change in the relationship between the payments and receipts sides of the ledger such that the two sides become equal. To remove a deficit in the balance of payments of a country, a autonomous receipts must expand relatively. To payments of a country, a autonomous receipts while to eliminate a surplus, payments must expand relatively to receipts. In short, adjustment between receipts and payments in the balance of payments requires necessary changes in those variables to which the payments requires necessary changes in those variables to which the payments and receipts are functionally related.

The main problem is to check deficit or adverse balance of payments. There are various measures to correct disequilibrium in the balance of payments. The important are:

(1) Automatic Measures:

The disequilibrium in the balance of payments may automatically disappear after sometime when certain forces come into operation in the economy. For example, the disequilibrium in the balance of payments of a country under the gold standard was automatically corrected through the inflow and outflow of gold. Similarly, the equilibrium in the balance of payments of a country on the paper standard was automatically corrected through fluctuations in its rate of exchange. For example, if the currency went down, the fall in its exchange value encouraged exports while it discouraged imports. The equilibrium in the balance of payments of sometime. The opposite process worked when the balance of payment of the country turned favorable.

The automatic measures did not produce the desired results in the short period.

(2) Monetary Measures :-

Monetary measures usually have two-edged effects in improving the balance of payments position. They boost up exports as well as check or curtail imports. Monetary measures, however, function indirectly. The following monetary measures are usually employed for boosting up exports and checking or curtailing import so as to correct the deficit or adverse balance of payments. (I) **Deflation :** Monetary policy may be devised to correct a deficit in the balance of payments of a country. The deficit occurs because of high imports and low exports. This is to be reversed. In this regard, the country may adopt deflationary or dear money policy by raising the bank rate and restricting credit. Under deflation, prices fall which makes exports attractive and imports relatively costlier. This eventually leads to rise in export and fall in imports.

Deflation keeps exchange rates-unaffected and tries to correct the balance of payments through domestic changes. However, deflation being inexpedient, its side effects are dangerous to a poor country. It creates more unemployment and poverty. Again a developing economy has to adopt an expansionary rather than a contractionary monetary policy to cater to development needs.

- (II) Exchange Depreciation :- Under flexible exchange rates, the disequilibrium in the balance of payments is automatically solved by the forces of demand and supply of foreign exchange. An exchange rate is the price of a currency which is determined like any other commodity, by demand and supply. The exchange rate varies with varying supply and demand conditions but it is always possible to find an equilibrium exchange rate which clears the foreign exchange market and creates external rate which clears the foreign exchange market and creates external equilibrium. This is automatically achived by a depreciation of a country's currency is case of deficit in its balance of payments. Depreciation of a currency means that its relative value decreases. Depriciation has the effect of encouraging export and discouraging imports. When exchange depreciation takes place. foreign prices are transaled into domestic prices. Suppose, the dollar depreciates in relation to the pound, it means that the price of dollar falls in relation to the pound in the foreign exchange market. This leads to the lowering of the prices of U.S. export in Britian and raising of the prices of British imports in the U.S. When import prices are higher in the US, the Americans will purchase less goods from the Brthisers. On the other hand, lower prices of US exports will increase their sale to Britain. Thus US exports will increase and imports diminish thereby bringing equilibrium in the balance of payments.
- (III) Devaluation : It is an alternative to exchange depreciation. It is suitable under the present system. Devaluation implies a deliberate reduction in the external value of the currency of the country. Devaluation always encourages exports by them in foreign countries. On the coutrary, devaluation has the effect of discouraging imports by making them more expensive within the country.
- (IV) Exchange Control : Another most commonly adhered to method of correcting a disequilibrium of the balance of payments is exchange control. It is surer method usually adopted by the government of a country to correct disequilibrium. Under this system, the exporters have to surrender their earning of foreign exchange to the government in exchange for domestic currency. Likewise, the government allocates foreign exchange to the importers to enable them to make payments for imported goods. Thus, the government comes to have full control over foreign exchange. It utilizes, the exchange control system to effect a cut in the value of imports. Unnecessary imports are altogether stopped by the government by denying foreign exchange to importers, Many developing countries like India, Kenya, Sudan, Nigeria and other have been retracting imports by not releasing foreign exchange for non-essential goods.

- (V) Encouragement to Foreign Investment : A country can use capital inflow or investment to correct a difficult phase in its balance of payment. The government induces the foreigners to make investment in the country offering them all sorts of incentives and concessions. This provides the government with extra foreign exchange which is utilized to reduce the deficit in the balance of payment.
- (Vi) Foreign Loans :- A country which borrows large funds from other countries and international financial institutions may have a favorable balance of payments. Since the repayments of these loans is spread over a long period, it helps the government to remove the deficit in the balance of payments.
- (vii) Incentives to Foreign Tourists :- The government may also encourage the foreign tourists to visit the country in increasing number by offering them various facilities and concessional travel. This will be helpful to earn foreign currencies, with the help of which the deficit in the balance of payment can be reduced.

Non-Monetary Measures :

A non-monetary measures are directly effective. But they work one way only. Tariffs and quotas, for instance, tend to restrict only imports. Export promotion measures, on the other hand, enhance export only.

(I) Export promotion :- To correct disequilibrium in the balance of payment it is necessary that export should be increased. Government may adopt export promotion programmers for this purpose. Export promotion programme includes subsidies, tax concessions to exporters, marketing facilities, incentives for exports etc.

(II) Import-Restrictions :- To correct disequilibrium in the balance of payment, government also adopt direct controls which aim at limiting the volume of imports. The government restricted the imports of undesirable unimportant items by levying heavy import duties, fixation of import quotas etc. At the same time, it may allow import of essential goods duty free or at lower import duties, or fix liberal import quotas for them. For instance, the government may allow free entry of capital goods, but improve heavy import duties on luxuries. Import quotas are also fixed and the importers re required to take licenses from the authorities in order to import certain essential commodities in fixed quantities. In these ways import is reduced in order to correct an adverse balance of payments.

(III) Fiscal Policy :- Fiscal policy is also a method of correcting unfavorable balance of payment. Under budgetary provisions, tariff or import duties may be imposed so that import becomes dearer and the propensity to import is checked. As a result imports are reduced and the balance of payment become favorable.

To sum-up, the deficit in the balance of payment is not a desirable phenomenon for a country. The method discussed above aims at reducing import and stimulating exports. What is basically needed for correcting the long-term deficits in the balance of payment of under developed countries is large scale direct export promotion measures, properly planned and executed and ever increasing efforts to mould all structure of their exports with the diversification of supply of exportable as per the changing pattern of world's demand.

19.10 Self Assessment Test

- 1 Describe the structure of balance of payment of a country.
- 2 Distinguish between balance of trade and balance of payments.
- 3 Write short notes on
 - (i) Current account of B/P
 - (ii) Capital account of B/P
 - (iii) Equilibrium in the B/P
 - (iv) Dis-equilibrium in the B/P
- 4 What are the causes of disequilibrium?
- 5 What is fundamental disequilibrium in the balance of
- 6 Explain in brief :
 - (i) Cyclical disequilibrium
 - (ii) Secular disequilibrium
 - (iii) Structural disequilibrium
 - (iv) Temporary disequilibrium
 - (v) Fundamental disequilibrium
- 7 What are the causes of disequilibrium?
- 6 What is fundamental disequilibrium in the balance of payments.

19.11 Suggested Books/References

- 1. Varisham payan J.V.: Micro Economics, New Royal Book Co. Lucknw
- 2. Ma hushwan Yogesh: Management economics, PHL Learning (P.) Limited, New Delhi