Lecture Notes

On

Managerial Economics

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Managerial Economics

Unit 1-INTRODUCATION

Meaning and Significance of Managerial Economics, Nature and scope of Managerial Economics.

Unit 2 DEMAND ANALYSIS

Meaning of Demand, Demand Determinants, Law of demand, Elasticity of Demand, Demand Forecasting.

Unit 3 PRODUCTION ANALYSIS

Concept of Production, Production Function ,Law of Variable Proportions, Returns to Scale.

Unit 4 PRICING DECISIONS

Factors affecting Pricing Decision, Pricing under different Market Structure – Perfect, Imperfect Monopoly, Pricing Strategies.

Unit 5 PROFIT

Concept , Factors affecting Profit, Brief Study of Profit Theories**.**

Reference Book:

1.Joel Dean- Managerial Economics.

2.Varshnney & Maheshwari

3.Mote paul & Gupta – Managerial Economics

4.Ahuja H.L – Advanced Economic Theory (Micro Economics) S Chand

UNIT-1

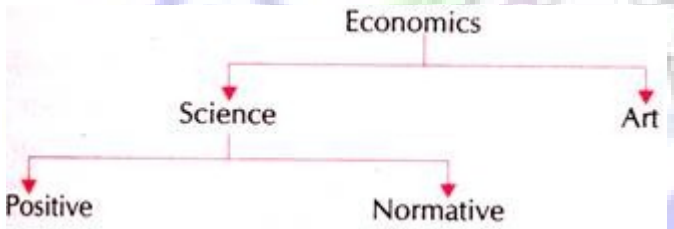
Definition and Nature of Economics

Economics is that branch of social science which is concerned with the study of how individuals, households, firms, industries and government take decision relating to the allocation of limited resources to productive uses, so as to derive maximum gain or satisfaction.

Simply put, it is all about the choices we make concerning the use of scarce resources that have alternative uses, with the aim of satisfying our most pressing infinite wants and distribute it among ourselves.

Nature of Economics

There is a great controversy among the economists regarding the nature of economics, whether the subject 'economics' is considered as science or an art.



If it is a science, then either positive science or normative science.

1. **Economics as a Science**

Before we start discussing whether economics is science or not, it becomes necessary to have a clear idea about science. Science is a systematic study of knowledge and fact which develops the correlation-ship between cause and effect. Science is not only the collection of facts, according to Prof. Poincare, in reality, all the facts must be systematically collected, classified and analyzed.

There are following characteristics of any science subject, such as;

(i) It is based on systematic study of knowledge or facts;

(ii) It develops correlation-ship between cause and effect;

(iii) All the laws are universally accepted

(iv) All the laws are tested and based on experiments;

(v) It can make future predictions;

(vi) It has a scale of measurement.

A. Economics and Positive Science

The following statements can ensure economics as a positive science, such as;

(i) Logically based

The ideas of economics are based on absolute logical clarifications and moreover, it develops relationship between cause and effect.

(ii) Labour Specialization

Labour law is an important topic of economics. It is based on the law of specialisation of labour Economists must concern with the causes and effects of labour-division.

(iii) Not Neutral

Economics is not a neutral between positive and normative sciences. According to most economists, economics is merely positive science rather than normative science.

B. Economics and Normative Science

The following statements can ensure economics as a normative science, such as,

(i) Emotional View

A rational human being has not only logical view but also has sentimental attachments and emotional views regarding any activity. These emotional attachments are all coming under normative statements. Hence, economics is a normative science.

(ii) Welfare Activity

Economics is a science of human welfare, All the economic forwarded their theories for the development of human standard of living Hence, all the economic statements have their respective normative views.

(iii) Economic Planning

Economic planning is one of the main instruments of economic development. Several economists have given their personal views for the successful implementation of economic plan. Hence, economics is coming under normative science.

All these lead us to the conclusion that 'Economics' is both positive and normative science. It does not only tell us why certain things happen however, it also gives idea whether it is right thing to happen.

2. **Economics as an Art**

According to T.K. Mehta, 'Knowledge is science, action is art.' According to Pigou, Marshall etc., economics is also considered as an art. In other way, art is the practical application of knowledge for achieving particular goals. Science gives us principles of any discipline however, art turns all these principles into reality. Therefore, considering the activities in economics, it can claimed as an art also, because it gives guidance to the solutions of all the economic problems.

Therefore, from all the above discussions we can conclude that economics is neither a science nor an art only. However, it is a golden combination of both. According to Cossa, science and art are complementary to each other. Hence, economics is considered as both a science as well as an art.

Scope of Economics

Economists differ in their views regarding the scope of economics. The scope of economics' is a broad subject and encompasses not only its subject matter but also various other things, such as its scientific nature, its ability to pass value judgments, and to suggest solutions to practical problems.

By making economics a human science, Robbins has unnecessarily widened the scope of the subject. Thus, in accordance with the view of Robbins, economics would also study the problem faced by Robinson Crusoe, who lives in an isolated island with no contact with the rest of the world.

He has to face the problem of choice between work and leisure. He has to spend some time for his survival — for collecting fruits and roots. He utilises the rest of his time in sleeping or enjoying leisure. Thus, he has also to face the problem of distributing his time between various ends. Thus, Robinson Crusoe has also to face the problem of choice and would surely come within the purview of Robbins' definition.

However, most modern economists, like R. G. Lipsey, Paul Samuelson Milton Friedman, etc., held the view that, economics is not a human but a social science. Thus, economics should not study the problem of choice faced by a single individual like Robinson Crusoe.

It should instead study the choice problem where it has a social impact, because man lives in society and an individual often interacts with other members of society.

For example, price controls on Kerosine oil have the desired effect of reducing cooking expenditures for some consumers, but they also reduce both conservation of Kerosene by those consumers and the incentive of producers to bring more Kerosene to the market.

Other consumers will therefore be forced to rely more heavily on other more expensive sources of energy pushing the prices of these energy sources upward. Thus, the controls also generate an unintended result an increase in the energy costs for some consumers.

1. **Subject Matter**

If we take a broad view of the subject matter of economics we may say that, Economics is the study of all phenomena relating to wealth and value. It is one of the social sciences that deal with economic goods, the creation of wealth through the satisfaction of human wants, the explanation of wealth, value and price, the distribution of income and the mechanism of exchange and markets of an economy.

According to Robbins, economics is the study of the problem of using available factors of production as efficiently as possible so as to attain the maximum fulfillment of society's demands for goods and services. The ultimate purpose of economic endeavour is to satisfy human wants for goods and services.

The problem is that, whereas wants are virtually without limit, the resources—land, labour, capital and organisation—available at any one time to produce goods and services, are limited in supply, i.e., resources are scarce relative to the demands for them.

The fact of scarcity means that we must always be making choices. If, to take a simple example, more resources are devoted to producing motor cars fewer resources are then available for constructing roads or bridges or setting up schools and hospitals. Thus, economics is a science of scarcity or is a study of the problems of scarcity.

However, economics does not study the behaviour of human beings in the way other subjects like Physiology or Psychology study it. Economics is no doubt a Science, but it is not a pure (exact) science like Physics, Chemistry.

2. **Science or Art**

For quite a long time there was controversy among economists as to whether it is a science or an art. The members of the English classical school, such as Adam Smith, T. R. Mathus and David Ricardo, held the view that it was a pure science whose task was just to explain the cause of economic phenomena such as unemployment, inflation, slow growth or even trade deficit.

According to classical writers, economics is simply the study of cause and effect relationship.

However, neo-classical and modern economists have pointed out that economics is both a science and an art. Just to treat economics as a science is to rob it of its practical value. As Keynes has commented, "Practical men……. are usually the slaves of some defunct economist." So, economics has both a theoretical side and a practical or applied side. In other words, economics is no doubt a science, but it is both 'light-bearing and fruit bearing'.

Inflation, unemployment, monopoly, economic growth, pollution, free markets versus central planning, poverty, productivity and other current issues are all covered in the study of economics. Economics is a problem- based social science, and the problems with which it is especially concerned are among the central issues of our times.

Economics is relevant not only to the big problems of society, but also to the personal problems, such as one's job, wages, unemployment, the cost of living, taxes and voting.

3. **Positive or Normative**

Another controversial aspect of economics is whether it should be neutral or pass value judgments. The members of the English classical school were of the opinion that economists were not supposed to make any normative statement or pass any value judgment on the desirability or otherwise of the economic decisions.

Some later members of the classical school even went to the extent of suggesting that economists should not give any advice on any issue.

This means that economics should stand neutral as regards ends. However, the same view has been reaffirmed by Robbins, who commented that the function of the economist is to explore and explain, not to uphold or to condemn. This simply means that economists should take ends as given. Their task is just to discover ways and means of achieving these ends (i.e., to find out ways of accomplishing objectives).

No doubt, by restricting himself to positive aspect of economic science (with its focus on resource allocation and valuation of commodities and factors) Robbins has narrowed (restricted) the scope of economics. He denied economics the right to study welfare.

As he has commented, "Whatever economics is concerned with it is not concerned with the causes of material welfare as such." He has also ignored macroeconomics altogether as also the problems of developing countries like India.

So, Robbins' view of economic science is not only one-sided but misleading, too. The task of economists is not just to explain why certain things happen (i.e., why there is so much of unemployment in India in spite of her planned economic development or why there is so inequality in the distribution of income and wealth notwithstanding the prevalence of the progressive income tax system).

It is equally vital to pass judgment as to whether certain things are good or bad from society's welfare point of view. For example, it is not enough for an economist to explain the present problem of unequal distribution of income and wealth in India.

4. **Problem-solving Nature**

The classical economists believed that economics could not solve practical problems, because there were non-economic (social, political, ethical, religious and other) aspects of people's lives.

As J.M. Keynes commented in 1923

"The theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking which helps its possessor to draw correct conclusions."

Micro vs. Macro Economics

Micro Economics

Microeconomics is the social science that studies the implications of human action, specifically about how those decisions affect the utilization and distribution of scarce resources. Microeconomics shows how and why different goods have different values, how individuals make more efficient or more productive decisions, and how individuals best coordinate and cooperate with one another. Generally speaking, microeconomics is considered a more complete, advanced, and settled science than macroeconomics.

Microeconomics is the study of economic tendencies, or what is likely to happen when individuals make certain choices or when the factors of production change. Individual actors are often grouped into microeconomic subgroups, such as buyers, sellers, and business owners. These groups create the supply and demand for resources, using money and interest rates as a pricing mechanism for coordination.

The Uses of Microeconomics

As a purely normative science, microeconomics does not try to explain what should happen in a market. Instead, microeconomics only explains what to expect if certain conditions change. If a manufacturer raises the prices of cars, microeconomics says consumers will tend to buy fewer than before. If a major copper mine collapses in South America, the price of copper will tend to increase, because supply is restricted. Microeconomics could help an investor see why Apple Inc. stock prices might fall if consumers buy fewer iPhones. Microeconomics could also explain why a higher minimum wage might force The Wendy's Company to hire fewer workers. Microeconomics can address questions like these that might have very broad implications for the economy; however, questions about aggregate economic numbers remain the purview of macroeconomics, such as what might happen to the gross domestic product (GDP) of China in 2020.

Method of Microeconomics

Most modern microeconomic study is performed according to general equilibrium theory, developed by Léon Walras in Elements of Pure Economics (1874) and partial equilibrium theory, introduced by Alfred Marshall in Principles of Economics (1890). The Marshallian and Walrasian methods fall under the larger umbrella of neoclassical microeconomics. Neoclassical economics focuses on how consumers and producers make rational choices to maximize their economic well being, subject to the constraints of how much income and resources they have available. Neoclassical economists make simplifying assumptions about markets – such as perfect knowledge, infinite numbers of buyers and sellers, homogeneous goods, or static variable relationships – in order to construct mathematical models of economic behavior.

These methods attempt to represent human behavior in functional mathematical language, which allows economists to develop mathematically testable models of individual markets. As logical positivists, neoclassicals believe in constructing measurable hypotheses about economic events, then using empirical evidence to see which hypotheses work best. Unlike

physicists or biologists, economists cannot run repeatable tests, so their empirical research depends on the collection and observation of economic data from real world markets. The economic efficiency of markets is then determined by how well real markets adhere to the rules of the model.

Basic Concepts of Microeconomics

The study of microeconomics involves several key concepts, including (but not limited to):

(i) Production theory

This is the study of production — or the process of converting inputs into outputs. Producers seek to choose the combination of inputs and method of combining them that will minimize cost in order to maximize their profits.

(ii) Utility theory

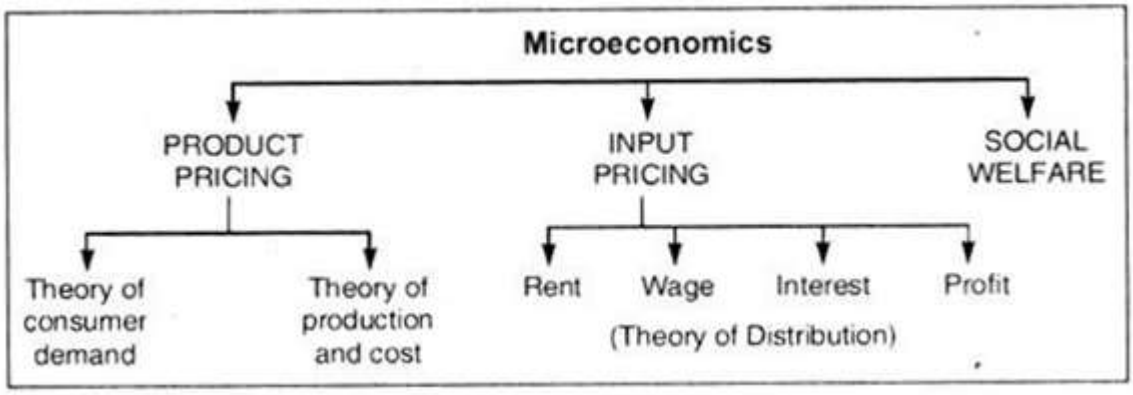
Analogous to production theory, consumers will choose to purchase and consume a combination of goods that will maximize their happiness or "utility", subject to the constraint of how much income they have available to spend.

(iii) Price theory

Production theory and utility theory interact to produce the theory of supply and demand, which determine prices in a competitive market. In a perfectly competitive market, it concludes that the price demanded by consumers is the same supplied by producers. That results in economic equilibrium.

(iv) Industrial organization and market structure

Microeconomists study the many ways that markets can be structured, from perfect competition to monopolies, and the ways that production and prices will develop in these different types of markets.



KEY TAKEAWAYS

- Microeconomics studies the decisions of individuals and firms to allocate resources of production, exchange, and consumption.
- Microeconomics deals with prices and production in single markets and the interaction between different markets, but leaves the study of economy-wide aggregates to macroeconomics.
- Microeconomists use mathematics as a language to formulate theories and observational studies to test their theories against the real world performance of market.

Macro Economics

Macroeconomics is a branch of economics that studies how the aggregate economy behaves. In macroeconomics, economy-wide phenomena are examined such as inflation, price levels, rate of economic growth, national income, gross domestic product (GDP), and changes in unemployment.

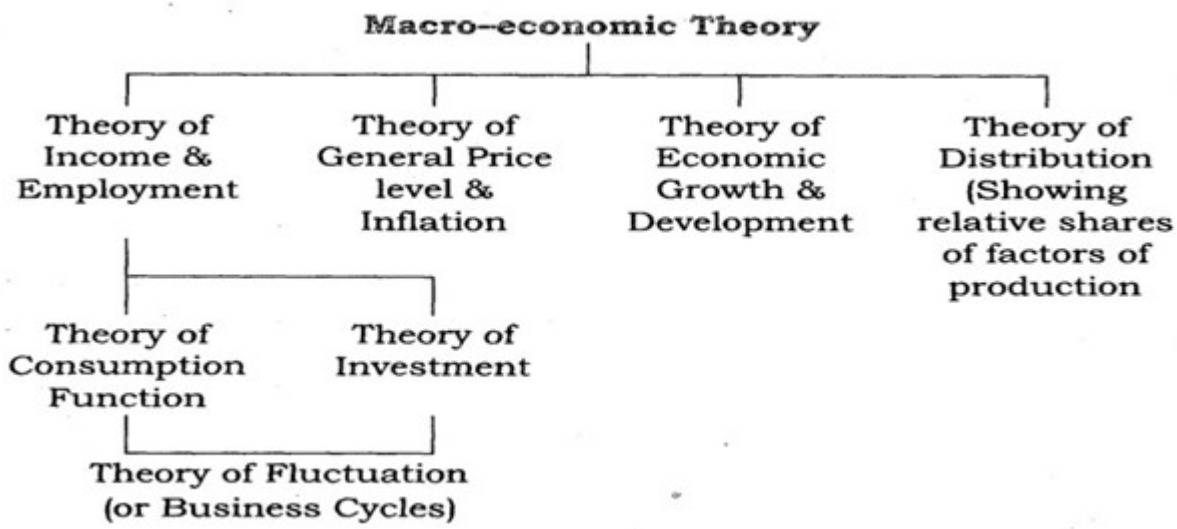
Understanding Macroeconomics

There are two sides to the study of economics: macroeconomics and microeconomics. As the term implies, macroeconomics looks at the overall, big picture scenario of the economy. Put simply, it focuses on the way the economy performs as a whole, and then analyzes how different sectors of the economy relate to one another to understand how the economy functions. This includes looking at variables like unemployment, GDP, and inflation. Macroeconomists develop models explaining relationships between these factors. Such macroeconomic models, and the forecasts they produce, are used by government entities to aid in the construction and evaluation of economic policy, by businesses to set strategy in domestic and global markets, and by investors to predict and plan for movements in various asset markets.

Given the enormous scale of government budgets and the impact of economic policy on consumers and businesses, macroeconomics clearly concerns itself with significant issues. Properly applied, economic theories can offer illuminating insights on how economies function and the long-term consequences of particular policies and decisions. Macroeconomic theory can also help individual businesses and investors make better decisions through a more thorough understanding of what motivates other parties and how to best maximize utility and scarce resources.

It is also important to understand the limitations of economic theory. Theories are often created in a vacuum and lack certain real-world details like taxation, regulation and transaction costs. The real world is also decidedly complicated and their matters of social preference and conscience that do not lend themselves to mathematical analysis.

Even with the limits of economic theory, it is important and worthwhile to follow the major macroeconomic indicators like GDP, inflation and unemployment. The performance of companies, and by extension their stocks, is significantly influenced by the economic conditions in which the companies operate and the study of macroeconomic statistics can help an investor make better decisions and spot turning points.



- Macroeconomics is the branch of economics that deals with the structure, performance, behavior, and decision-making of the whole, or aggregate, economy, instead of focusing on individual markets.
- The two main areas of macroeconomic study are long term economic growth and shorter term business cycles.
- Macroeconomics first came to be distinguished from microeconomics with the work of John Maynard Keynes and his arguments that macroeconomic aggregates can behave in ways quite different from analogous microeconomic phenomena.

Nature and Scope of Managerial Economics

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

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

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

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

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

Milton H. Spencer and Lonis Siegelman define Managerial Economics as "the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning by management."

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

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

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

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

The above definitions emphasise the interrelationship of economic theory with business decision making and forward planning.

The Nature of Managerial Economics

1. It analyses towards solving business problems, constitutes the subject-matter of Managerial Economics.
2. It helps in decision making and forward planning.
3. The problem of choice arises because resources are limited and the firm has to make the most profitable use of these resources.
4. As future is unpredictable, a business manager's task is to prepare the best possible plans for the future depending on past experience and future outlook .
5. It assists the managers of a firm in a rational solution of obstacles faced in the firm's activities.
6. It helps in formulating logical managerial decisions.
7. It lessens the gap between economics in theory and economics in practice.
8. It guides the managers in taking decisions relating to the firm's customers, competitors, suppliers as well as relating to the internal functioning of a firm.
9. It makes use of statistical and analytical tools to assess economic theories in solving practical business problems.
10. It helps in enhancement of analytical skills, assists in rational configuration as well as solution of problems.
11. It can also be used to help in decision-making process of non-profit organizations (hospitals, educational institutions, etc).
12. It enables optimum utilization of scarce resources in such organizations as well as helps in achieving the goals in most efficient manner.

Scopes of Managerial Economics

1. **Demand Analysis**

A business firm is an economic organization which is engaged in transforming productive resources into goods that are to be sold in the market.

A major part of managerial decision-making depends on accurate estimates of demand. A forecast of future sales serves as a guide to management for preparing production schedules and employing resources.

It will help management to maintain or strengthen its market position and profit-base. Demand analysis also identifies a number of other factors influencing the demand for a product. Demand analysis and forecasting occupies a strategic place in Managerial Economics.

2. **Cost Analysis**

Cost estimates arc most useful for management decisions. The different factors that cause variations in cost estimates should be given due consideration for planning purposes.

There is the clement of uncertainty of cost as other factors influencing cost arc either uncontrollable or not always known.

If one is able to measure cost it is very important for more sound profit planning, cost control and often for sound pricing practices.

3. **Pricing practices and policies**

As price gives income to the firm, it constitutes as the most important field of Managerial Economics.

The success of a business firm depends very much on the correctness of the price decisions taken by it.

The various aspects that are dealt under it cover the price determination in various market forms, pricing policies, pricing method, differential pricing, productive pricing and price forecasting.

4. **Profit Management**

The chief purpose of a business firm is to earn the maximum profit. There is always an element of uncertainty about profits because of variation in costs and revenues.

If knowledge about the future were perfect, profit analysis would have been very easy task. But in this world of uncertainty expectations are not always realized.

Hence profit planning and its measurement constitute the most difficult area of Managerial Economics.

Under profit management we study nature and management of profit, profit policies and techniques of profit planning like Break Even Analysis.

5. **Capital Management**

The problems relating to firm's capital investments are perhaps the most complex and troublesome.

Capital management implies planning and control of capital expenditure because it involves a large sum and moreover the problems in disposing the capital assets of arc so complex that they require considerable time and labour.

6. **Analysis of business environment**

The environmental factors influence the working and performance of a business undertaking. Therefore, the managers will have to consider the environmental factors in the process of decision-making.

Decisions taken in isolation of environmental factors would prove harmful to the firm. Therefore, the management must be fully aware of economic environment, particularly those economic factors which constitute the business climate.

Nevertheless, the management must have an idea of social and political trends. Also the main factors that affect the business climate are : general trend in national income and consumption expenditure, general price trends, trading relations with other countries, trends in world market, economic and business policies of the government, industrial relations etc.

Certain macro-economic theories such as income and employment theory, monetary theory etc. help in analyzing business climate.

Analysis of monetary policy, fiscal policy, industrial policy, foreign trade policy and other direct controls also help in forecasting business climate.

Therefore, macro- economic theory and government policies arc also included in the scope of managerial economics.

7. **Allied Disciplines**

The concepts that help the management in taking business decision are quantitative in nature. Therefore, mathematical tools are widely used in determining relationships between economic variables.

The linear programming techniques, which is mathematical, is used by firms to maximize or minimize their objective function.

Similarly statistical and accounting principles are used in taking business decision. Therefore, mathematical tools, statistical technique and accounting principles that are used in analyzing business problems also come under the scope of Managerial Economics.

Significance of the Managerial Economics

This section elaborates on the significance of the study of managerial economics. Managerial economics does not give importance to the study of theoretical economic concepts. Its main concern is to apply theories to find solutions to day-to-day practical problems faced by a firm. The following points indicate the significance of the study of this subject in its right perspective:

1. It gives guidance for identification of key variables in decision-making process.
2. . It helps the business executives to understand the various intricacies of business and managerial problems and to take right decisions at the right time.
3. It provides the necessary conceptual, technical skills, toolbox of analysis and techniques of thinking and other such modern tools and instruments like elasticity of demand and supply, cost and revenue, income and expenditure, profit and volume of production, etc to solve various business problems.
4. It is both a science and an art. In the context of globalisation, privatisation, liberalisation and marketisation and a highly competitive dynamic economy, it helps in identifying various business and managerial problems, their causes and consequence, and suggests various policies and programmes to overcome them.
5. It helps the business executives to become much more responsive, realistic and competent to face the dynamic challenges in the modern business world.
6. It helps in the optimum use of scarce resources of a firm to maximise its profits.
7. It also helps in achieving other objectives a firm likes attaining industry leadership, market share expansion and social responsibilities, etc.
8. It helps a firm in forecasting the most important economic variables like demand, supply, cost, revenue, price, sales and profit, etc and formulates sound business policies.
9. It also helps in understanding the various external factors and forces which affect the decision-making of a firm. Thus, it has become a highly useful and practical discipline in recent years to analyse and find solutions to various kinds of problems in a systematic and rational manner.

UNIT-2

Demand Analysis Concept and importance of Demand

Demand is the quantity of a good that consumers are willing and able to purchase at various prices during a given period of time. The relationship between price and quantity demanded is also known as the demand curve. Preferences which underlie demand are influenced by cost, benefit, odds and other variables.

Theoretically, demand can be defined as a quantity of a product an individual is willing to purchase at a specific point of time.

Some of the management experts have defined demand in the following ways:

According to Prof. Benham, "The demand for anything, at a given price is the amount of it which will be bought per unit of time at the price."

In the words of Prof Hanson, "By demand is meant, demand at a price, for it is impossible to conceive of demand not related to price."

As per Prof Hibdon, "Demand means the various quantities of goods that would be purchased per time period at different prices in a given market."

According to Prof Mayers, "The demand for goods is schedule of the amounts that buyers would be willing to purchase at all possible prices at any one instant of time."

From the aforementioned definitions, it can be concluded that demand implies a desire supported by an ability and willingness of an individual to pay for a particular product. If an individual does not have sufficient resources or purchasing power to buy a particular product, then his/her desire alone would not be regarded as demand.

For instance, if an individual desires to purchase a resort and does not have adequate amount of money to purchase the resort, his/her desire is not considered as demand for the resort Apart from It, if an affluent individual desires to purchase a resort, but does not have willingness to spend money for purchasing the resort then his/her desire is also not considered as demand.

Therefore, we can say that effective demand is the desire backed by the purchasing power and willingness of an individual to pay for a particular product. An effective demand has three characteristics namely, desire, willingness, and ability of an individual to pay for a product.

The demand for a product is always defined in reference to three key factors, price, point of time, and market place. These three factors contribute a major part in understanding the concept of demand. The omission of any of these factors would make the concept of demand meaningless and vague.

For example, the statement, "the demand for an ABC product is 200" neither conveys any meaning, nor does have any use for economic analysis or business decision making. On the

other hand, the statement, "the demand for milk is 100 liters per day at a price of Rs. 15 per liter in City A." provides a clear understanding of demand.

The importance of demand analysis in business decisions can be explained under following headings:

1. **Sales Forecasting**

The demand is a basis the sales of the production of a firm. Hence, sales forecasting can be made on the basis of demand. For example, if demand is high, sales will be high and if demand is low, sales will be low. The firms can make different arrangements to increase or reduce production or push up sales on the basis of sales forecast.

2. **Pricing Decisions**

The analysis of demand is the basis of pricing decisions of a firm. If the demand for the product is high, the firm can charge high price, other things remaining the same. On the contrary .If the demand is low, the firm cannot high price. The demand analysis also helps the firm in profit budgeting.

3. **Marketing Decisions**

The analysis of demand helps a firm to formulate marketing decisions. The demand analysis analyses and measure the forces that determine demand. The demand can be influenced by manipulating the factors on which consumers base their demand on attractive packaging.

4. **Production decisions**

How much a firm can produce depends on its capacity. But how much it should produce depends on demand. Production is not necessary if their no demand. But continuous production schedule is necessary if the demand for the production is relatively stable. If the demand is less than the quantity of production, new demand should be created by means of promotional activities such a advertising.

5. **Financial decisions**

The demand condition in the marker for firm's product's affects the financial decisions as well. If the demand for firm's product is strong and growing, the needs for additional finance will be greater. Hence, the financial manager should make necessary financial arrangement to finance the growing need of the capital.

Kinds of Demand:

There are three kinds of demand:

1. Price demand,

2. Income demand, and

3. Cross demand.

1. Price Demand:

Price demand is that demand which refers to the various quantities of a commodity or service that a consumer would purchase at a given time in a market at various hypothetical prices. In this it is always assumed that other things such as consumer's income, his tastes and prices of related goods remain unchanged.

This type of demand has been classified under three heads:

(a) Individual Demand:

Individual demand is the demand of an individual consumer.

(b) Industry Demand:

It is the aggregate demand of all the consumers combined for the commodity.

(c) Firm's Demand or Individual Seller's Demand:

This is the total demand for the product of an individual firm at various prices.

2. Income Demand:

This demand refers to the various quantities of goods which will be purchased by the consumer at various levels of income. In this, we start with this assumption that the price of the commodity as well as the price of related goods and the tastes and desire of the consumers do not change. The demand brings out the relationship between income and quantities demanded. This is helpful in preparing demand schedule.

3. Cross Demand:

In this demand the quantities of goods which will be purchased with reference to changes in the price not of this goods but of other related goods. These goods are either substitutes or complementary goods. For example—A change in the price of tea will affect demands for coffee. Similarly, if the price of horses will become cheap demand for carriages may increase.

Determinants of Demand

Demand is fluctuating time to time. There are majorly six factors which affect the demand for a commodity (Product).

Determinants of Demand

1. **Consumer preferences:** personality characteristics, occupation, age, advertising, and product quality, all are key factors affecting consumer behavior and, therefore, demand.

2. **Prices of related products:** an increase in the price of one product will cause a decrease in the quantity demanded of a complementary product. In contrast, an increase in the price of one product will cause an increase in the demand for a substitute product.

3. **Consumer income:** the higher the consumer income, the higher the demand and vice versa.

4. **Consumer expectations:** expectations for a higher income or higher prices increase the quantity demanded. Expectations for a lower income or lower prices decrease the quantity demanded.

5. **The number of buyers:** the higher the number of buyers, the higher the quantity demanded, and vice versa.

6. **Other factors:** the weather and governmental policies that may expand or contract the economy affect the demand for particular products or services.

Law of Demand

The **law of demand** is one of the most fundamental concepts in economics. It works with the law of supply to explain how market economies allocate resources and determine the prices of goods and services that we observe in everyday transactions. The law of demand states that quantity purchased varies inversely with price. In other words, the higher the price, the lower the quantity demanded. This occurs because of diminishing marginal utility. That is, consumers use the first units of an economic good they purchase to serve their most urgent needs first, and use each additional unit of the good to serve successively lower valued ends.

- The law of demand is a fundamental principle of economics which states that at higher price consumers will demand a lower quantity of a good.

- Demand is derived from the law of diminishing marginal utility, the fact that consumers use economic goods to satisfy their most urgent needs first.
- A market demand curve expresses the sum of quantity demanded at each price across all consumers in the market.
- Changes in price can be reflected in movement along a demand curve, but do not by themselves increase or decrease demand.
- The shape and magnitude of demand shifts in response to changes in consumer preferences, incomes, or related economic goods, NOT to changes in price.

Understanding the Law of Demand

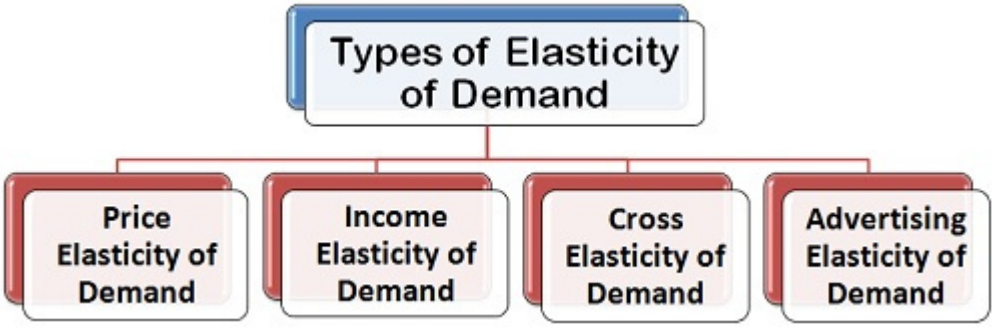
Economics involves the study of how people use limited means to satisfy unlimited wants. The law of demand focuses on those unlimited wants. Naturally, people prioritize more urgent wants and needs over less urgent ones in their economic behavior, and this carries over into how people choose among the limited means available to them. For any economic good, the first unit of that good that a consumer gets their hands on will tend to be put to use to satisfy the most urgent need the consumer has that that good can satisfy.

For example, consider a castaway on a desert island who obtains a six pack of bottled, fresh water washed up on shore. The first bottle will be used to satisfy the castaway's most urgently felt need, most likely drinking water to avoid dying of thirst. The second bottle might be used for bathing to stave off disease, an urgent but less immediate need. The third bottle could be used for a less urgent need such as boiling some fish to have a hot meal, and on down to the last bottle, which the castaway uses for a relatively low priority like watering a small potted plant to keep him company on the island.

In our example, because each additional bottle of water is used for a successively less highly valued want or need by our castaway, we can say that the castaway values each additional bottle less than the one before. Similarly, when consumers purchase goods on the market each additional unit of any given good or service that they buy will be put to a less valued use than the one before, so we can say that they value each additional unit less and less. Because they value each additional unit of the good less, they are willing to pay less for it. So the more units of a good consumers buy, the less they are willing to pay in terms of the price.

By adding up all the units of a good that consumers are willing to buy at any given price we can describe a market demand curve, which is always downward-sloping, like the one shown in the chart below. Each point on the curve (A, B, C) reflects the quantity demanded (Q) at a given price (P). At point A, for example, the quantity demanded is low (Q1) and the price is high (P1). At higher prices, consumers demand less of the good, and at lower prices, they demand more.

The Elasticity of Demand measures the percentage change in quantity demanded for a percentage change in the price. Simply, the relative change in demand for a commodity as a result of a relative change in its price is called as the elasticity of demand.



Price Elasticity of Demand

The price elasticity of demand, commonly known as the elasticity of demand refers to the responsiveness and sensitiveness of demand for a product to the changes in its price. In other words, the price elasticity of demand is equal to

$$E_p = \frac{\text{Proportionate change in Quantity Demanded}}{\text{Proportionate change in Price}}$$

Numerically,

$$E_p = \frac{\Delta Q}{\Delta P} X \frac{P}{Q}$$

Where,

ΔQ = Q1 –Q0, ΔP = P1 – P0, Q1= New quantity, Q2= Original quantity, P1 = New price, P0 = Original priceThe following are the main Types of Price Elasticity of Demand:

- Perfectly Elastic Demand
- Perfectly Inelastic Demand
- Relatively Elastic Demand
- Relatively Inelastic Demand
- Unitary Elastic Demand

Income Elasticity of Demand

The responsiveness of quantity demanded to changes in income is called income elasticity of demand. With income elasticity, consumer incomes vary while tastes, the commodity's own price, and the other prices are held constant.

Cross Elasticity of Demand

Demand is also influenced by prices of other goods and services. The cross elasticity measures the responsiveness of quantity demanded to changes in price of other goods and services. Cross elasticity of demand is defined as the percentage change in quantity demanded of one good caused by a 1 percentage change in the price of some other good.

Advertisement or Promotional Elasticity of Sales

The advertisement expenditure helps in promoting sales. The impact of advertisement on sales is not uniform at all level of total sales. The concept of advertising elasticity is significant in determining the optimum level of advertisement outlay particularly in view of competitive advertising by rival firms. An advertising elasticity could be defined as the percentage change in quantity demanded for a percentage change in advertising. Advertising might be measured by expenditure.

Income Elasticity of Demand

Income elasticity of demand refers to the sensitivity of the quantity demanded for a certain good to a change in real income of consumers who buy this good, keeping all other things constant. The formula for calculating income elasticity of demand is the percent change in quantity demanded divided by the percent change in income.

$$E_y = \frac{\text{Percentage Change in Demand for a product}}{\text{Percentage Change in Income}}$$

Income elasticity of demand measures the responsiveness of demand for a particular good to changes in consumer income. The higher the income elasticity of demand in absolute terms for a particular good, the bigger consumers' response in their purchasing habits — if their real income changes. Businesses typically evaluate income elasticity of demand for their products to help predict the impact of a business cycle on product sales.

Demand Forecasting: Need, Objectives and Methods

Some of the popular definitions of demand forecasting are as follows:

According to Evan J. Douglas, "Demand estimation (forecasting) may be defined as a process of finding values for demand in future time periods."

In the words of Cundiff and Still, "Demand forecasting is an estimate of sales during a specified future period based on proposed marketing plan and a set of particular uncontrollable and competitive forces."

Demand forecasting enables an organization to take various business decisions, such as planning the production process, purchasing raw materials, managing funds, and deciding the price of the product. An organization can forecast demand by making own estimates called guess estimate or taking the help of specialized consultants or market research agencies.

Need of Demand Forecasting

Demand plays a crucial role in the management of every business. It helps an organization to reduce risks involved in business activities and make important business decisions. Apart from this, demand forecasting provides an insight into the organization's capital investment and expansion decisions.

(i) Fulfilling objectives

Implies that every business unit starts with certain pre-decided objectives. Demand forecasting helps in fulfilling these objectives. An organization estimates the current demand for its products and services in the market and move forward to achieve the set goals.

For example, an organization has set a target of selling 50, 000 units of its products. In such a case, the organization would perform demand forecasting for its products. If the demand for the organization's products is low, the organization would take corrective actions, so that the set objective can be achieved.

(ii) Preparing the budget

Plays a crucial role in making budget by estimating costs and expected revenues. For instance, an organization has forecasted that the demand for its product, which is priced at Rs. 10, would be 10, 00, 00 units. In such a case, the total expected revenue would be 10* 100000 = Rs. 10, 00, 000. In this way, demand forecasting enables organizations to prepare their budget.

(iii) Stabilizing employment and production

Helps an organization to control its production and recruitment activities. Producing according to the forecasted demand of products helps in avoiding the wastage of the resources of an organization. This further helps an organization to hire human resource according to requirement. For example, if an organization expects a rise in the demand for its products, it may opt for extra labor to fulfill the increased demand.

(iv) Expanding organizations

Implies that demand forecasting helps in deciding about the expansion of the business of the organization. If the expected demand for products is higher, then the organization may plan to expand further. On the other hand, if the demand for products is expected to fall, the organization may cut down the investment in the business.

(v) Taking Management Decisions

Helps in making critical decisions, such as deciding the plant capacity, determining the requirement of raw material, and ensuring the availability of labor and capital.

(vi) Evaluating Performance

Helps in making corrections. For example, if the demand for an organization's products is less, it may take corrective actions and improve the level of demand by enhancing the quality of its products or spending more on advertisements.

(vii) Helping Government

Enables the government to coordinate import and export activities and plan international trade.

Objectives of short-term demand forecasting

- **Production policy:** Short-term demand forecasting is used to evolve a suitable production policy which can avoid the problems of over production and short supply.
- **Expenditure pattern:** It helps the firm in purchasing. Knowledge of near future economic conditions help the firm in reducing costs of purchasing raw materials and controlling inventory.
- **Sales policy:** Demand forecasting helps the firm in evolving a suitable sales policy.
- **Price policy:** Sales forecasting is useful in determining pricing policy. When the market conditions are expected to be weak, the firm can avoid an increase in price and vice-versa.
- **Sales targets, controls and incentives:** Short term demand forecasting is used to set sales targets and for establishing controls and incentives.
- **Financial requirements:** It is useful in forecasting short term financial requirements. Cash requirement depends on production and sales levels. Hence sales forecasts help the firm to make arrangements for necessary funds well in advance.

Objectives of long term demand forecasting

1. **New unit or expansion:** Long term demand forecasting helps in planning of a new unit or expansion of an existing unit of a business organization.
2. **Financial requirements:** It is useful in long term financial planning. Long-term sales forecast is necessary to estimate long term financial requirements.
3. **Man power planning:** Long term demand forecasting enables the firm to make arrangements for training and personnel development. Demand forecasting is also useful to the Government in determining import and export policies.

Objectives Of Demand Forecasting In Business Economics is well recognized by the business organizations who want to produce goods at optimum level. The objectives of short-term demand forecasting are different from those of long term demand forecasting.

Methods of Demand Forecasting

There is no easy or simple formula to forecast the demand. Proper judgment along with the scientific formula is needed to correctly predict the future demand for a product or service. Some methods of demand forecasting are discussed below:

1. Survey of Buyer's Choice

When the demand needs to be forecasted in the short run, say a year, then the most feasible method is to ask the customers directly that what are they intending to buy in the forthcoming

time period. Thus, under this method, the potential customers are directly interviewed. This survey can be done in any of the following ways:

- Complete Enumeration Method: Under this method, nearly all the potential buyers are asked about their future purchase plans.
- Sample Survey Method: Under this method, a sample of potential buyers is chosen scientifically and only those chosen are interviewed.
- End-use Method: It is especially used for forecasting the demand of the inputs. Under this method, the final users i.e. the consuming industries and other sectors are identified. The desirable norms of consumption of the product are fixed, the targeted output levels are estimated and these norms are applied to forecast the future demand of the inputs.

Hence, it can be said that under this method the burden of demand forecasting is on the buyer. However, the judgments of the buyers are not completely reliable and so the seller should take decisions in the light of his judgment also.

The customer may misjudge their demands and may also change their decisions in the future which in turn may mislead the survey. This method is suitable when goods are supplied in bulk to industries but not in the case of household customers.

2. Collective Opinion Method

Under this method, the salesperson of a firm predicts the estimated future sales in their region. The individual estimates are aggregated to calculate the total estimated future sales. These estimates are reviewed in the light of factors like future changes in the selling price, product designs, changes in competition, advertisement campaigns, the purchasing power of the consumers, employment opportunities, population, etc.

The principle underlying this method is that as the salesmen are closest to the consumers they are more likely to understand the changes in their needs and demands. They can also easily find out the reasons behind the change in their tastes.

Therefore, a firm having good sales personnel can utilize their experience to predict the demands. Hence, this method is also known as Salesforce opinion or Grassroots approach method. However, this method depends on the personal opinions of the sales personnel and is not purely scientific.

3. Barometric Method

This method is based on the past demands of the product and tries to project the past into the future. The economic indicators are used to predict the future trends of the business. Based on the future trends, the demand for the product is forecasted. An index of economic indicators is formed. There are three types of economic indicators, viz. leading indicators, lagging indicators, and coincidental indicators.

The leading indicators are those that move up or down ahead of some other series. The lagging indicators are those that follow a change after some time lag. The coincidental

indicators are those that move up and down simultaneously with the level of economic activities.

4. Market Experiment Method

Another one of the methods of demand forecasting is the market experiment method. Under this method, the demand is forecasted by conducting market studies and experiments on consumer behavior under actual but controlled, market conditions.

Certain determinants of demand that can be varied are changed and the experiments are done keeping other factors constant. However, this method is very expensive and time-consuming.

5. Expert Opinion Method

Usually, the market experts have explicit knowledge about the factors affecting the demand. Their opinion can help in demand forecasting. The Delphi technique, developed by Olaf Helmer is one such method.

Under this method, experts are given a series of carefully designed questionnaires and are asked to forecast the demand. They are also required to give the suitable reasons. The opinions are shared with the experts to arrive at a conclusion. This is a fast and cheap technique.

6. Statistical Methods

The statistical method is one of the important methods of demand forecasting. Statistical methods are scientific, reliable and free from biases. The major statistical methods used for demand forecasting are:

- **Trend Projection Method:** This method is useful where the organization has sufficient amount of accumulated past data of the sales. This date is arranged chronologically to obtain a time series. Thus, the time series depicts the past trend and on the basis of it, the future market trend can be predicted. It is assumed that the past trend will continue in future. Thus, on the basis of the predicted future trend, the demand for a product or service is forecasted.
- **Regression Analysis:** This method establishes a relationship between the dependent variable and the independent variables. In our case, the quantity demanded is the dependent variable and income, the price of goods, price of related goods, the price of substitute goods, etc. are independent variables. The regression equation is derived assuming the relationship to be linear. Regression Equation: $Y = a + bX$. Where Y is the forecasted demand for a product or service.

UNIT-3

Production Concepts & Analysis

Production is a process of combining various inputs to produce an output for consumption. It is the act of creating output in the form of a commodity or a service which contributes to the utility of individuals.

In other words, it is a process in which the inputs are converted into outputs.

The basic proposition of the production concept is that customers will choose products and services that are widely available and are of low cost. So business is mainly concerned with making as many units as possible. By concentrating on producing maximum volumes, such a business aims to maximise profitability by exploiting economies of scale.

Managers try to achieve higher volume with low cost and intensive distribution strategy. This seems a viable strategy in a developing market where market expansion is the survival strategy for the business. Companies interested to take the benefit of scale economies pursue this kind of orientation.

In a production-orientated business, the needs of customers are secondary compared with the need to increase output. Such an approach is probably most effective when a business operates in very high growth markets or where the potential for economies of scale is significant. It is natural that the companies cannot deliver quality products and suffer from problems arising out of impersonal behavior with the customers.

Do note, the production concept is a thing of the past and was used when there was very less competition. At such times, the more you produced, the more will be the consumption of the product. An example in this case is FORD, which manufactured huge number of automobiles through its manufacturing assembly line which was the first of its kind.

Production is a process of transformation of the factors of production into the economic goods. So in term of production analysis we are dealing with the physical relationships between inputs and outputs (i.e. we are observing the dependence of physical production volume on physical quantity of the inputs).

PRODUCTION ANALYSIS

Production analysis basically is concerned with the analysis in which the resources such as land, labor, and capital are employed to produce a firm's final product. To produce these goods the basic inputs are classified into two divisions −

1. **Variable Inputs**

   Inputs those change or are variable in the short run or long run are variable inputs.

2. **Fixed Inputs**

   Inputs that remain constant in the short term are fixed inputs.

Short run fixed cost	Variable cost	Short run total cost
•Fixed cost is a cost which won't change with the changes in the output. •For example, Building rent, Insurance charges, etc	•Variable cost is the cost which changes with the change in the output. •For example, Cost of raw material, Wages, Electricity, Telephone charges, etc.	•The total actual cost that is supposed to be incurred to produce a given output is short run total cost •Total cost = Total Fixed Cost + Total Variable Cost

Production Function and Types of Production Function

In simple words, production function refers to the functional relationship between the quantity of a good produced (output) and factors of production (inputs).

"The production function is purely a technical relation which connects factor inputs and output." Prof. Koutsoyiannis

Defined production function as "the relation between a firm's physical production (output) and the material factors of production (inputs)." Prof. Watson

In this way, production function reflects how much output we can expect if we have so much of labour and so much of capital as well as of labour etc. In other words, we can say that production function is an indicator of the physical relationship between the inputs and output of a firm.

The reason behind physical relationship is that money prices do not appear in it. However, here one thing that becomes most important to quote is that like demand function a production function is for a definite period.

It shows the flow of inputs resulting into a flow of output during some time. The production function of a firm depends on the state of technology. With every development in technology the production function of the firm undergoes a change.

The new production function brought about by developing technology displays same inputs and more output or the same output with lesser inputs. Sometimes a new production function of the firm may be adverse as it takes more inputs to produce the same output.

Mathematically, such a basic relationship between inputs and outputs may be expressed as:

$Q = f(L, C, N)$

Where Q = Quantity of output

L = Labour

C = Capital

N = Land.

Hence, the level of output (Q), depends on the quantities of different inputs (L, C, N) available to the firm. In the simplest case, where there are only two inputs, labour (L) and capital (C) and one output (Q), the production function becomes.

Q =f (L, C)

Features of Production Function

Following are the main features of production function:

1. **Substitutability**

The factors of production or inputs are substitutes of one another which make it possible to vary the total output by changing the quantity of one or a few inputs, while the quantities of all other inputs are held constant. It is the substitutability of the factors of production that gives rise to the laws of variable proportions.

2. **Complementarily**

The factors of production are also complementary to one another, that is, the two or more inputs are to be used together as nothing will be produced if the quantity of either of the inputs used in the production process is zero.

The principles of returns to scale is another manifestation of complementarily of inputs as it reveals that the quantity of all inputs are to be increased simultaneously in order to attain a higher scale of total output.

3. **Specificity**

It reveals that the inputs are specific to the production of a particular product. Machines and equipment's, specialized workers and raw materials are a few examples of the specificity of factors of production. The specificity may not be complete as factors may be used for production of other commodities too. This reveals that in the production process none of the factors can be ignored and in some cases ignorance to even slightest extent is not possible if the factors are perfectly specific.

Production involves time; hence, the way the inputs are combined is determined to a large extent by the time period under consideration. The greater the time period, the greater the freedom the producer has to vary the quantities of various inputs used in the production process.

In the production function, variation in total output by varying the quantities of all inputs is possible only in the long run whereas the variation in total output by varying the quantity of single input may be possible even in the short run.

TYPES OF PRODUCTION FUNCTIONS

Production function is the mathematical representation of relationship between physical inputs and physical outputs of an organization.

There are different types of production functions that can be classified according to the degree of substitution of one input by the other.

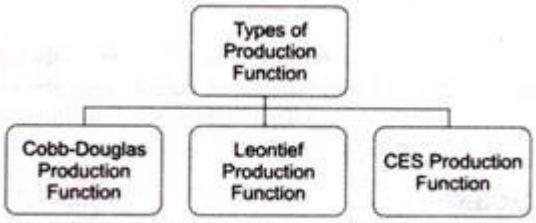


Figure- Types of Production Function

1. **Cobb-Douglas Production Function**

Cobb-Douglas production function refers to the production function in which one input can be substituted by other but to a limited extent. For example, capital and labor can be used as a substitute of each other, but to a limited extent only.

Cobb-Douglas production function can be expressed as follows:

$Q = AK^aL^b$

Where, A = positive constant

a and b = positive fractions

b = 1 – a

Therefore, Cobb- Douglas production function can also be expressed as follows:

$Q = ak^aL^{1-a}$

The characteristics of Cobb- Douglas production function are as follows:

(i) Makes it possible to change the algebraic form in log linear form, represented as follows:

log Q = log A + a log K + b log L

This production function has been estimated with the help of linear regression analysis.

(ii) Makes it possible to change the algebraic form in log linear form, represented as follows:

$\log Q = \log A + a \log K + b \log L$

This production function has been estimated with the help of linear regression analysis.

(iii) Acts as a homogeneous production function, whose degree can be calculated by the value obtained after adding values of a and b. If the resultant value of a + b is 1, it implies that the degree of homogeneity is 1 and indicates the constant returns to scale.

(iv) Makes use of parameters a and b, which signifies the elasticity' coefficients of output for inputs, labor and capital, respectively. Output elasticity coefficient refers to the change produced in output due to change in capital while keeping labor at constant.

(v) Represents that there would be no production at zero cost.

2. **Leontief Production Function**

Leontief production function uses fixed proportion of inputs having no substitutability between them. It is regarded as the limiting case for constant elasticity of substitution.

The production function can be expressed as follows:

$q = \min (z_1/a, Z_2/b)$

Where, q = quantity of output produced

Z_1 = utilized quantity of input 1

Z_2 = utilized quantity of input 2

a and b = constants

For example, tyres and steering wheels are used for producing cars. In such case, the production function can be as follows:

$Q = \min (z_1/a, Z_2/b)$

Q = min (number of tyres used, number of steering used).

3. **CES Production Function**

CES stands for constant elasticity substitution. CES production function shows a constant change produced in the output due to change in input of production.

It can be represented as follows:

$Q = A\ [aK^{\beta} + (1-a)\ L^{-\beta}]^{-1/\beta}$

Or,

$Q = A\ [aL^{-\beta} + (1-a)\ K^{-\beta}]^{-1/\beta}$

CES has the homogeneity degree of 1 that implies that output would be increased with the increase in inputs. For example, labor and capital has increased by constant factor m.

In such a case, production function can be represented as follows:

$Q' = A\ [a\ (mK)^{-\beta} + (1-a)\ (mL)^{-\beta}]^{-1/\beta}$

$Q' = A\ [m^{-\beta}\ \{aK^{-\beta} + (1-a)\ L^{-\beta}\}]^{-1/\beta}$

$Q' = (m^{-\beta})^{-1/\beta}\ .A\ [aK^{-\beta} + (1-a)\ L^{-\beta})^{-1/\beta}$

Because, $Q = A\ [aK^{-\beta} + (1-a)\ L^{-\beta}]^{-1/\beta}$

Therefore, $Q' = mQ$

This implies that CES production function is homogeneous with degree one.

Laws of Production

The laws of production describe the technically possible ways of increasing the level of production. Output may increase in various ways.

Output can be increased by changing all factors of production. Clearly this is possible only in the long run. Thus the laws of returns to scale refer to the long-run analysis of production.

In the short run output may be increased by using more of the variable factor(s), while capital (and possibly other factors as well) are kept constant.

The **marginal** product of the variable factors) will decline eventually as more and more quantities of this factor are combined with the other constant factors. The expansion of output with one factor (at least) constant is described by the law of (eventually) diminishing returns of the variable factor, which is often referred to as the law of variable proportions.

Laws of Production in economics deals with the concepts of cost and producers equilibrium. It is an important aspect of economics as it helps a business determine the level of output that leads to maximum profits. It also defines the various variable and fixed costs of the firm.

Law of Diminishing Returns

The **law of diminishing** returns also referred to as the law of diminishing marginal returns, states that in a production process, as one input variable is increased, there will be a point at which the marginal per unit output will start to decrease, holding all other factors constant. In other words, keeping all other factors constant, the additional output gained by another one unit increase of the input variable will eventually be smaller than the additional output gained by the previous increase in input variable. At that point, the diminishing marginal returns take effect.

Assumptions of Law of Diminishing Returns

The assumptions of the law of diminishing returns are as follows:

(i) Units of capital and labor are used as variable factors.

(ii) The prices of the factors do not change.

(iii) All units of variable factors are equally efficient.

(iv) There is no change in technique of production.

(v) Best combination of factors of production has crossed the level of optimum point.

(vi) There is no change in the fixed factor of production.

A Farmer Example of Diminishing Returns

Consider a corn farmer with one acre of land. In addition to land, other factors include quantity of seeds, fertilizer, water, and labor. Assume the farmer has already decided how much seed, water, and labor he will be using this season. He is still deciding on how much fertilizer to use. As he increases the amount of fertilizer, the output of corn will increase. It may also reach a point where the output actually begins to decrease since too much fertilizer can become poisonous.

The law of diminishing returns states that there will be a point where the additional output of corn gained from one additional unit of fertilizer will be smaller than the additional output of corn from the previous increase in fertilizer. This table shows the output of corn per unit of fertilizer:

As the farmer increases from one to two units of fertilizer, total output increases from 100 to 250 ears of corn. Therefore the marginal, or additional, ears of corn gained from one more unit of fertilizer is 150 (250 – 100). From two to three units of fertilizer, the total output increases from 250 to 425 ears of corn, a 175 marginal increase.

At what point does the law of diminishing returns set in? Look for the point at which the marginal increase is at the highest point and the next marginal increase is less. In this example, that occurs after the farmer adds the third unit of fertilizer. At three units, the marginal output in ears of corn is 175, but when the fourth unit is added, the marginal output drops to 125.

Units of Fertilizer	Total Ears of Corn	Marginal Ears of Corn
1	100	100
2	250	150
3	425	175
4	550	125
5	600	50
6	525	-75

Again, this does not mean the total production starts to decrease. In fact, the total production is still increasing, as shown in the total ears of corn column. Also note that at the sixth unit of fertilizer, the farmer starts to experience negative returns, where the increase in fertilizer actually decreases the total output and the marginal output becomes negative.

Application of Law of Diminishing Returns

The law of diminishing returns has its wide application. But is especially applicable to agricultural sector. In this sector, there is the supremacy of nature plays in production corresponds to diminishing returns. Due to the following reasons, the agricultural sector is subject to law of diminishing returns.

1. The natural factors have more role than human factors in agricultural sector and marginal productivity decreases.
2. The sector has very wide area and supervision cannot be very effective.
3. Scope of specialized machinery is limited.
4. There are other limitations of seasonal nature e.g. rain, climate changes etc.
5. The fertility land also declines

The application of this law is not confined to agriculture but it applies everywhere. If the industry is expanded too much, the supervision will become inefficient and costs will go up. In agriculture it sets in earlier and in industry much later. Agriculture has also increasing returns in the beginning.

Law of Returns to Scale

The law of 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 production. To meet a long-run change in demand, the firm increases its scale of production by using more space, more machines and labourers in the factory'.

Assumptions

(i) All factors (inputs) are variable but enterprise is fixed.

(ii) A worker works with given tools and implements.

(iii) Technological changes are absent.

(iv) There is perfect competition.

(v) The product is measured in quantities.

Explanation

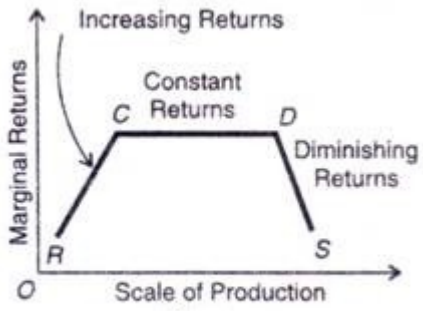
Given these assumptions, when all inputs are increased in unchanged proportions and the scale of production is expanded, the effect on output shows three stages: increasing returns to scale, constant returns to scale and diminishing returns to scale.

Table – : Returns to Scale in Physical Units

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

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 + o acres of land), returns become more than three-fold, i.e., 27. It shows 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 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 of 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 narrower range of processes. For this, specialised equipment can be installed. Thus with specialization, efficiency increases and increasing returns to scale follow.

(iii) Internal Economies

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 centres appear which help in increasing the productive efficiency of the firms. Thus these external economies 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 4th and 5th 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 neutralised and output increases in the same proportion.

(iii) Divisible Factors: When factors of production are perfectly divisible, substitutable, and homogeneous with perfectly elastic supplies at given prices, returns to scale are constant.

3. **Diminishing Returns to Scale**

Returns to scale diminish because 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 diminishing 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 scale 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 go up. Transport and marketing difficulties emerge. All these factors tend to raise costs and the expansion of the firms leads to diminishing returns to scale so that doubling the scale would not lead to doubling the output.

For the management increasing, decreasing or constant returns to scale reflect changes in production efficiency that result from scaling up productive inputs. But returns to scale is strictly a production and cost concept. Management's decision on what to produce and how much to produce must be based upon the demand for the product. Therefore, demand and other factors must also be considered in decision making.

UNIT-4

Factors Affecting the Pricing Decisions: Price is the only element of marketing mix that helps in generating income. Therefore, a marketer should adopt a well-planned approach for pricing decisions. The marketer should know the factors that influence the pricing decisions before setting the price of a product.

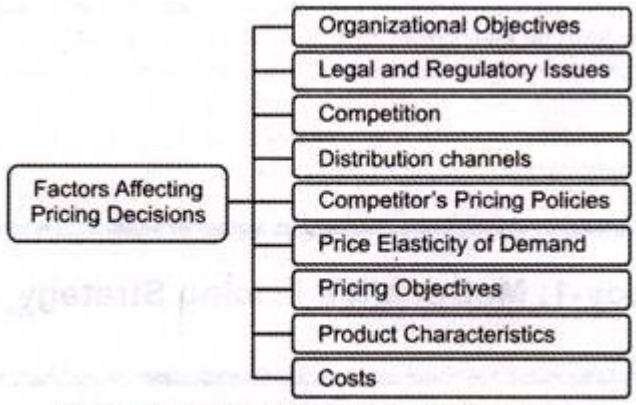


Figure-2: Factors Affecting Pricing Decisions

i. Organizational Objectives: Affect the pricing decisions to a great extent. The marketers should set the prices as per the organizational goals. For instance, an organization has set a goal to produce quality products, thus, the prices will be set according to the quality of products. Similarly, if the organization has a goal to increase sales by 18% every year, then the reasonable prices have to be set to increase the demand of the product.

ii. Costs: Influence the price setting decisions of an organization. The organization may sell products at prices less than that of the competitors even if it is incurring high costs. By following this strategy, the organization can increase sales volumes in the short run but cannot survive in the long run.Thus, the marketers analyze the costs before setting the prices to minimize losses. Costs include cost of raw materials, selling and distribution overheads, cost of advertisement and sales promotion and office and administration overheads.

iii. Legal and Regulatory Issues: Persuade marketers to change price decisions. The legal and regulatory laws set prices on various products, such as insurance and dairy items. These laws may lead to the fixing, freezing, or controlling of prices at minimum or maximum levels.

iv. Product Characteristics: Include the nature of the product, substitutes of the product, stage of life-cycle of the product, and product diversification.

v. Competition: Affects prices significantly. The organization matches the prices with the competitors and adjusts the prices more or less than the competitors. The organization also assesses that how the competitors respond to changes in the prices.

vi. Pricing Objectives: Help an organization in determining price decisions. For instance, an organization has a pricing objective to increase the market share through low pricing. Therefore, it needs to set the prices less than the competitor prices to gain the market share. Giving rebates and discounts on products is also a price objective that influences the customer's decisions to buy a product.

vii. Price Elasticity of Demand: Refers to change in demand of a product due to change in price.

There are three situations that arise under it:

a. Products that have inelastic demand will be highly priced

b. Products that have more than elastic demand will be priced low

c. Products that have elastic demand will be reasonably priced.

viii. Competitor's pricing Policies: Influence the pricing policies of the organizations. The price of a product should be determined in such a way that it should easily face price competition.

ix. Distribution Channels: Implies a pathway through which the final products of manufacturers reach the end users. If the distribution channel is large, price of the product will be high and if the distribution channel is short, the price of the product will be low. Thus, these are the major factors that influence the pricing decisions.

Price determination is one of the most crucial aspects in economics. Business managers are expected to make perfect decisions based on their knowledge and judgment. Since every economic activity in the market is measured as per price, it is important to know the concepts and theories related to pricing. Pricing discusses the rationale and assumptions behind pricing decisions. It analyzes unique market needs and discusses how business managers reach upon final pricing decisions.

It explains the equilibrium of a firm and is the interaction of the demand faced by the firm and its supply curve. The equilibrium condition differs under perfect competition, monopoly, monopolistic competition, and oligopoly. Time element is of great relevance in the theory of pricing since one of the two determinants of price, namely supply depends on the time allowed to it for adjustment.

Market Structure

A market is the area where buyers and sellers contact each other and exchange goods and services. Market structure is said to be the characteristics of the market. Market structures are basically the number of firms in the market that produce identical goods and services. Market structure influences the behavior of firms to a great extent. The market structure affects the supply of different commodities in the market.

When the competition is high there is a high supply of commodity as different companies try to dominate the markets and it also creates barriers to entry for the companies that intend to

join that market. A monopoly market has the biggest level of barriers to entry while the perfectly competitive market has zero percent level of barriers to entry. Firms are more efficient in a competitive market than in a monopoly structure.

Perfect Competition

Perfect competition is a situation prevailing in a market in which buyers and sellers are so numerous and well informed that all elements of monopoly are absent and the market price of a commodity is beyond the control of individual buyers and sellers

With many firms and a homogeneous product under perfect competition no individual firm is in a position to influence the price of the product that means price elasticity of demand for a single firm will be infinite.

Pricing Decisions

Determinants of Price under Perfect Competition

Market price is determined by the equilibrium between demand and supply in a market period or very short run. The market period is a period in which the maximum that can be supplied is limited by the existing stock. The market period is so short that more cannot be produced in response to increased demand. The firms can sell only what they have already produced. This market period may be an hour, a day or a few days or even a few weeks depending upon the nature of the product.

Market Price of a Perishable Commodity

In the case of perishable commodity like fish, the supply is limited by the available quantity on that day. It cannot be stored for the next market period and therefore the whole of it must be sold away on the same day whatever the price may be.

Market Price of Non-Perishable and Reproducible Goods

In case of non-perishable but reproducible goods, some of the goods can be preserved or kept back from the market and carried over to the next market period. There will then be two critical price levels.

The first, if price is very high the seller will be prepared to sell the whole stock. The second level is set by a low price at which the seller would not sell any amount in the present market period, but will hold back the whole stock for some better time. The price below which the seller will refuse to sell is called the Reserve Price.

Monopolistic Competition

Monopolistic competition is a form of market structure in which a large number of independent firms are supplying products that are slightly differentiated from the point of view of buyers. Thus, the products of the competing firms are close but not perfect substitutes because buyers do not regard them as identical. This situation arises when the same

commodity is being sold under different brand names, each brand being slightly different from the others.

For example − Lux, Liril, Dove, etc.

Each firm is therefore the sole producer of a particular brand or "product". It is monopolist as far as a particular brand is concerned. However, since the various brands are close substitutes, a large number of "monopoly" producers of these brands are involved in a keen competition with one another. This type of market structure, where there is competition among a large number of "monopolists" is called monopolistic competition.

In addition to product differentiation, the other three basic characteristics of monopolistic competition are −

- There are large number of independent sellers and buyers in the market.
- The relative market shares of all sellers are insignificant and more or less equal. That is, seller-concentration in the market is almost non-existent.
- There are neither any legal nor any economic barriers against the entry of new firms into the market. New firms are free to enter the market and existing firms are free to leave the market.
- In other words, product differentiation is the only characteristic that distinguishes monopolistic competition from perfect competition.

Monopoly

Monopoly is said to exist when one firm is the sole producer or seller of a product which has no close substitutes. According to this definition, there must be a single producer or seller of a product. If there are many producers producing a product, either perfect competition or monopolistic competition will prevail depending upon whether the product is homogeneous or differentiated.

On the other hand, when there are few producers, oligopoly is said to exist. A second condition which is essential for a firm to be called monopolist is that no close substitutes for the product of that firm should be available.

From above it follows that for the monopoly to exist, following things are essential −

- One and only one firm produces and sells a particular commodity or a service.
- There are no rivals or direct competitors of the firm.
- No other seller can enter the market for whatever reasons legal, technical, or economic.

Monopolist is a price maker. He tries to take the best of whatever demand and cost conditions exist without the fear of new firms entering to compete away his profits.

The concept of market power applies to an individual enterprise or to a group of enterprises acting collectively. For the individual firm, it expresses the extent to which the firm has discretion over the price that it charges. The baseline of zero market power is set by the individual firm that produces and sells a homogeneous product alongside many other similar firms that all sell the same product.

Since all of the firms sell the identical product, the individual sellers are not distinctive. Buyers care solely about finding the seller with the lowest price.

In this context of "perfect competition", all firms sell at an identical price that is equal to their marginal costs and no individual firm possess any market power. If any firm were to raise its price slightly above the market-determined price, it would lose all of its customers and if a firm were to reduce its price slightly below the market price, it would be swamped with customers who switch from the other firms.

Oligopoly

In an oligopolistic market there are small number of firms so that sellers are conscious of their interdependence. The competition is not perfect, yet the rivalry among firms is high. Given that there are large number of possible reactions of competitors, the behavior of firms may assume various forms. Thus there are various models of oligopolistic behavior, each based on different reactions patterns of rivals.

Oligopoly is a situation in which only a few firms are competing in the market for a particular commodity. The distinguishing characteristics of oligopoly are such that neither the theory of monopolistic competition nor the theory of monopoly can explain the behavior of an oligopolistic firm.

Two of the main characteristics of Oligopoly are briefly explained below −

- Under oligopoly the number of competing firms being small, each firm controls an important proportion of the total supply. Consequently, the effect of a change in the price or output of one firm upon the sales of its rival firms is noticeable and not insignificant. When any firm takes an action its rivals will in all probability react to it. The behavior of oligopolistic firms is interdependent and not independent or atomistic as is the case under perfect or monopolistic competition.
- Under oligopoly new entry is difficult. It is neither free nor barred. Hence the condition of entry becomes an important factor determining the price or output decisions of oligopolistic firms and preventing or limiting entry of an important objective.

For Example: Aircraft manufacturing, in some countries: wireless communication, media, and banking.

Pricing Strategies:

Definition: Price is the value that is put to a product or service and is the result of a complex set of calculations, research and understanding and risk taking ability. A pricing strategy takes into account segments, ability to pay, market conditions, competitor actions, trade margins and input costs, amongst others. It is targeted at the defined customers and against competitors.

Premium pricing: high price is used as a defining criterion. Such pricing strategies work in segments and industries where a strong competitive advantage exists for the company. Example: Porche in cars and Gillette in blades.

Penetration pricing: price is set artificially low to gain market share quickly. This is done when a new product is being launched. It is understood that prices will be raised once the promotion period is over and market share objectives are achieved. Example: Mobile phone rates in India; housing loans etc.

Economy pricing: no-frills price. Margins are wafer thin; overheads like marketing and advertising costs are very low. Targets the mass market and high market share. Example: Friendly wash detergents; Nirma; local tea producers.

Skimming strategy: high price is charged for a product till such time as competitors allow after which prices can be dropped. The idea is to recover maximum money before the product or segment attracts more competitors who will lower profits for all concerned. Example: the earliest prices for mobile phones, VCRs and other electronic items where a few players ruled attracted lower cost Asian players.

UNIT-5

The term profit has distinct meaning for different people, such as businessmen, accountants, policymakers, workers and economists.

Profit simply means a positive gain generated from business operations or investment after subtracting all expenses or costs.

In economic terms profit is defined as a reward received by an entrepreneur by combining all the factors of production to serve the need of individuals in the economy faced with uncertainties. In a layman language, profit refers to an income that flow to investor. In accountancy, profit implies excess of revenue over all paid-out costs. Profit in economics is termed as a pure profit or economic profit or just profit.

Profit differs from the return in three respects namely:

(i) Profit is a residual income, while return is a total revenue

(ii) Profits may be negative, whereas returns, such as wages and interest are always positive

(iii) Profits have greater fluctuations than returns

Functions of Profit

Profit is the primary objective of all business organizations. The expectation of earning higher profits of business organizations induces them to invest money in new ventures. This results in large employment opportunities in the economy which further raises the level of income. Consequently, there is a rise in the demand for goods and services in the economy. In this way, profit generated by business organizations play a significant role in the economy.

According to Peter Ducker, there are three main purposes of profit, which are explained as follows:

(i) Tool for measuring performance

Refers to the fact that profit generated by an organization helps in estimating the effectiveness of its business efforts. If the profits earned by an organization are high, it indicates the efficient management of its business. However, profit is not the most efficient measure of estimating the business efficiency of an organization, but is useful to measure the general efficiency of the organization.

(ii) Source of covering costs

Helps organizations to cover various costs, such as replacement costs, technical costs, and costs related to other risks and uncertainties. An organization needs to earn sufficient profit to cover its various costs and survive in the business.

(iii) Aid to ensure future capital

Assures the availability of capital in future for various purposes, such as innovation and expansion. For example, if the retained profits of an organization are high, it may invest in various projects. This would help in the business expansion and success of the organization.

Apart from aforementioned functions, following are the positive results of high profits:

(i) Investment in research and development

Leads to better technology and dynamic efficiency. An organization invests in research and development activities for its further expansion, if it earns high profit. The organization would lose its competitiveness, if it does not invest in research and development activities.

(ii) Reward for shareholders

Includes dividends for shareholders. If an organization earns high profits, it would provide high dividends to shareholders. As a result, the organization would attract more investors, which are crucial for the growth of the organization.

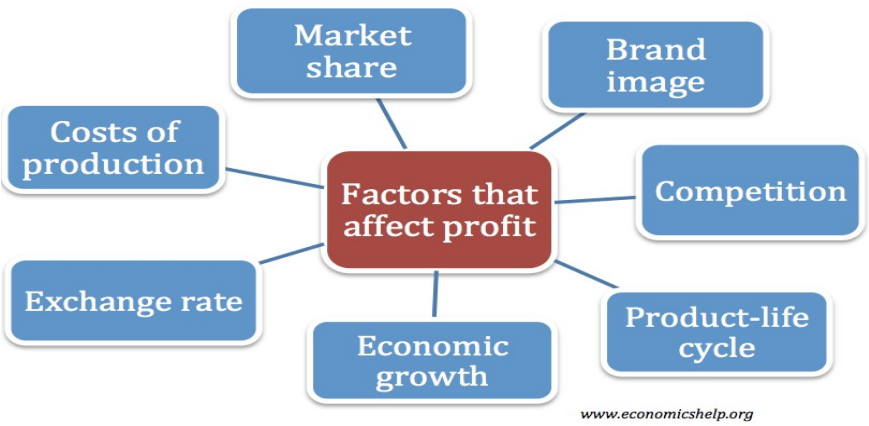
(iii) Aid for economies

Implies that profits are helpful for economies. If organizations generate high profits, they would be able to cope with adverse economic situations, such as recession and inflation. This results in stability of economies even in adverse situations.

(iv) Tool to stimulate government finances

Implies that if the profits generated by organizations are high, they are liable for paying high taxes. This helps government to earn high revenue and spend for social welfare.

Factors affecting profit:



Theories of Profit

Profits of businesses depend on the successful management of risks and uncertainties by entrepreneurs. These risks can be cost risks due to change in wage rates, prices, or technology, and other market risks. Different economists have presented different views on profit.

1. **Walker's Theory**

An American economist, Prof F. A. Walker propounded the theory of profit, known as rent theory of profit. According to him "as rent is the difference between least and most fertile land similarly, profit is the difference between earnings of the least and most efficient entrepreneurs." He advocated that profit is the rent of exceptional abilities that an entrepreneur possesses over others.

According to Walker; profit is the difference between the earnings of the least and most efficient entrepreneurs. An entrepreneur with the least efficiency generally strives to cover only the cost of production. On the other hand, an efficient entrepreneur is rewarded with profit for his differential ability.

Thus, profit is also said to be the reward for differential ability of the entrepreneur. While formulating this theory, Walker assumed the condition of perfect competition in which all organizations are supposed to have equal managerial ability. In this case, there is no pure profit and all the organizations earn only managerial wages known as normal profit.

The rent theory was mainly criticized for its inability to explain the real nature of profits.

Apart from this, the theory failed on the following aspects:

- Provides only a measure of profit. The theory does not focus on the nature of profit, which is of utmost importance.
- Assumes that profits arise because of the superior or exceptional ability of the entrepreneur, which is not always true. Profit can also be the result of the monopolistic position of the entrepreneur.

2. **Clark's Dynamic Theory**

Clark's dynamic theory was introduced by an American economist, J.B. Clark. According to him, profit does not arise in a static economy, but arise in a dynamic economy. A static economy is characterized as the one where the size of population, the amount of capital, nature of human wants, the methods of production remain the same and there is no risk and uncertainty. Therefore, according to Clark, only normal profits are earned in the static economy. However, an economy is always dynamic in nature that changes from time to time.

A dynamic economy is characterized by increase in population, increase in capital, multiplication of consumer wants, advancement in production techniques, and changes in the form of business organizations. The dynamic world offers opportunities to entrepreneurs to make pure profits.

According to Clark, the role of entrepreneurs in a dynamic environment is to take advantage of changes that help in promoting businesses, expanding sales, and reducing costs. The entrepreneurs, who successfully take advantage of changing conditions in a dynamic economy, make pure profit.

There are internal and external factors that make the world dynamic. The internal changes are changes that take place within the organization, such as layoff and hiring of employees, product changes, and changes in infrastructure. The external changes are of two kinds, namely, regular changes and irregular changes.

3. **Hawley's Risk Theory**

The risk theory of profit was given by F. B. Hawley in 1893. According to Hawley, "profit is the reward of risk taking in a business. During the conduct of any business activity, all other factors of production i.e. land, labor, capital have guaranteed incomes from the entrepreneur. They are least concerned whether the entrepreneur makes the profit or undergoes losses."

Hawley refers profit as a reward for taking risk. According to him, the greater the risk, the higher is the expected profit. The risks arise in the business due to various reasons, such as non-availability of crucial raw materials, introduction of better substitutes by competitors, obsolescence of a technology, fall in the market prices, and natural and manmade disasters. Risks in businesses are inevitable and cannot be predicted. According to Hawley, an entrepreneur is rewarded for undertaking risks.

There is a criticism against this theory that profits arise not because risks are borne, but because the superior entrepreneurs are able to reduce them. The profits arise only because of better management and supervision by entrepreneurs. Another criticism is that profits are never in the proportion to the risk undertaken. Profits may be more in enterprises with low risks and less in enterprises with high risks.

4. **Knight's Theory**

Prof Knight propounded the theory known as uncertainty-bearing theory of profits. According to the theory, profit is a reward for the uncertainty bearing and not the risk taking. Knight divided the risks into calculable and non-calculable risks. Calculable risks are those risks whose probability of occurrence can be easily estimated with the help of the given data, such as risks due to fire and theft.

The calculable risks can be insured. On the other hand, non-calculable risks are those risks that cannot be accurately calculated and insured such as shifts in demand of a product. These non-calculable risks are uncertain, while calculable risks are certain and can be anticipated.

According to Knight, "risks are foreseen in nature and can be insured". Thus, risk taking is not a function of an entrepreneur, but of insurance organizations. Therefore, an entrepreneur gets profit as a reward for bearing uncertainties and not for risks that are borne by insurance organizations.

The theory of uncertainty bearing is criticized on the following grounds:

- Assumes that profit is the result of uncertainty bearing ability of an entrepreneur, which does not always hold true. The profit can also be the reward for other aspects, such as strong co-ordination and market share.
- Fails to show any relevance with the real world.

5. **Schumpeter's Innovation Theory**

Joseph Schumpeter propounded a theory called innovation according to which profits are the reward for innovation He advocated that innovation is the introduction of a new product, new technology, new method of production, and new sources of raw materials. This helps in lowering the cost of production or improving the quality of production. Innovation also includes new policy or measure by an entrepreneur for an organization.

In general, innovation can take place in two ways, which are as follows:

- Reducing the cost of production and earning high profit. The cost of production can be reduced by introducing new machines and improving production techniques.
- Stimulating the demand by enhancing the existing improvement or finding new markets.

According to innovation theory, profit is the cause and effect of innovations. In other words, it acts as a necessary incentive for making innovation.

Schumpeter's innovation theory is criticized on two aspects, which are as follows:

- Ignores uncertainty as a source of profit
- Denies the role of risk in profit

Concept of Profit Maximization

In the neo-classical theory of the firm, the main objective of a business firm is profit maximization. The firm maximizes its profits when it satisfies the two rules. MC = MR and the MC curve cuts the MR curve from below Maximum profits refer to pure profits which are a surplus above the average cost of production.

It is the amount left with the entrepreneur after he has made payments to all factors of production, including his wages of management. In other words, it is a residual income over and above his normal profits.

The profit maximization condition of the firm can be expressed as:

Maximize p (Q)

Where p (Q) = R (Q) – C (Q)

where p (Q) is profit, R(Q) is revenue, C (Q) are costs, and Q are the units of output sold The two marginal rules and the profit maximization condition stated above are applicable both to a perfectly competitive firm and to a monopoly firm.

Assumptions:

The profit maximization theory is based on the following assumptions:

1. The objective of the firm is to maximize its profits where profits are the difference between the firm's revenue and costs.
2. The entrepreneur is the sole owner of the firm.
3. Tastes and habits of consumers are given and constant.
4. Techniques of production are given.
5. The firm produces a single, perfectly divisible and standardized commodity.
6. The firm has complete knowledge about the amount of output which can be sold at each price.
7. The firm's own demand and costs are known with certainty.
8. New firms can enter the industry only in the long run. Entry of firms in the short run is not possible.
9. The firm maximizes its profits over some time-horizon.
10. Profits are maximized both in the short run and the long run.

Given these assumptions, the profit maximizing model of the firm can be shown under perfect competition and monopoly.

Profit Maximization under Perfect Competition:

Under perfect competition, the firm is one among a large number of producers. It cannot influence the market price of the product. It is the price-taker and quantity-adjuster. It can only decide about the output to be sold at the market price.

The firm is, thus, in equilibrium when MC = MR = AR (Price). The equilibrium of the profit maximization firm under perfect competition is shown in Figure 1. Where the MC curve cuts the MR curve first at point A.

It satisfies the condition of MC = MR, but it is not a point of maximum profits because after point A, the MC curve is below the MR curve. It does not pay the firm to produce the minimum output when it can earn larger profits by producing beyond OM.

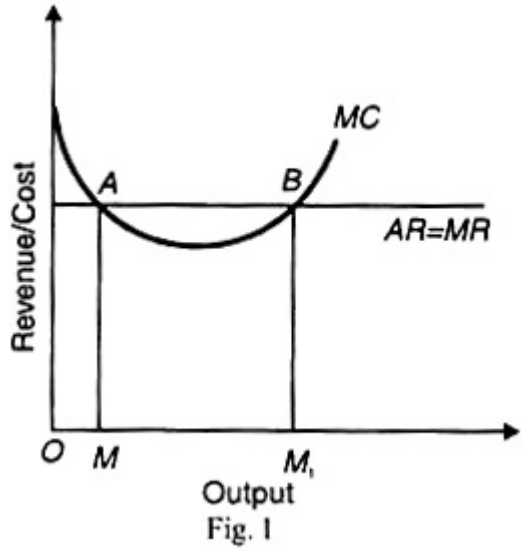


Fig. 1

It will, however, stop further production when it reaches the OM_1 level of output where the firm satisfies both conditions of equilibrium. If it has any plans to produce more than OM_1 it will be incurring losses, for the marginal cost exceeds the marginal revenue after the equilibrium point B. Thus the firm maximises its profits at M_1B price and at the output level OM_1.

Profit Maximization under Monopoly:

There being one seller of the product under monopoly, the monopoly firm is the industry itself. Therefore, the demand curve for its product is downward sloping to the right, given the tastes and incomes of its customers. It is a price-maker which can set the price to its maximum advantage. But it does not mean that the firm can set both price and output. It can do either of the two things.

If the firm selects its output level, its price is determined by the market demand for its product. Or, if it sets the price for its product, its output is determined by what consumers will take at that price. In any situation, the ultimate aim of the monopoly firm is to maximize its profits. The conditions for equilibrium of the monopoly firm are (1) MC = MR< AR (Price), and (2) the MC curve cuts the MR curve from below.

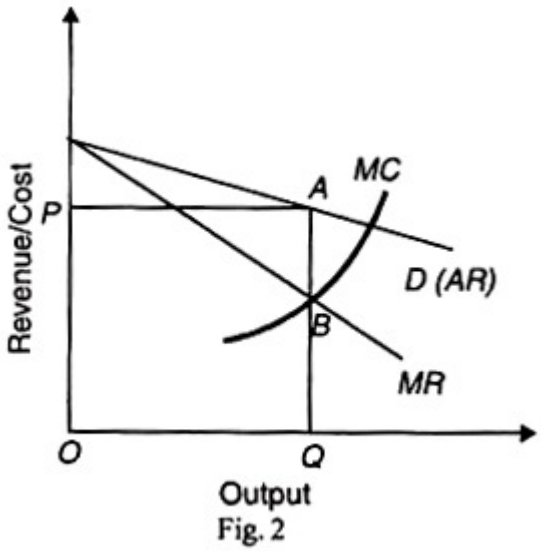


Fig. 2

In Figure 2, the profit maximizing level of output is OQ and the profit maximization price is OP (=QA). If more than OQ output is produced, MC will be higher than MR, and the level of profit will fall. If cost and demand conditions remain the same, the firm has no incentive to change its price and output. The firm is said to be in equilibrium.

Criticism of the Profit Maximization Theory:

The profit maximization theory has been severely criticised by economists on the following grounds:

1. Profits uncertain

The principle of profit maximization assumes that firms are certain about the levels of their maximum profits. But profits are most uncertain for they accrue from the difference between the receipt of revenues and incurring of costs in the future. It is, therefore, not possible for firms to maximize their profits under conditions of uncertainty.

2. No relevance to internal organisation

This objective of the firm bears little or no direct relevance to the internal organisation of firms. For instance, some managers incur expenditures apparently in excess of those that would maximize wealth or profits of the owners of the firm. Managers of corporations are observed to emphasize growth of total assets of the firm and its sales as objectives of managerial actions.

Also managers of firms undertake cost reducing, efficiency increasing campaigns when demand falls.

3. No perfect knowledge

The profit maximization hypothesis is based on the assumption that all firms have perfect knowledge not only about their own costs and revenues but also of other firms. But, in

reality, firms do not possess sufficient and accurate knowledge about the conditions under which they operate.

At the most they may have knowledge about their own costs of production, but they can never be definite about the market demand curve. They always operate under conditions of uncertainty and the profit maximization theory is weak in that it assumes that firms are certain about everything.

4. Empirical evidence vague

The empirical evidence on profit maximization is vague. Most firms do not rank profits as the major goal. The working of modem firms is so complex that they do not think merely about profit maximization. Their main problems are of control and management.

The function of managing these firms is performed by managers and shareholders rather than by the entrepreneurs. They are more interested in their emoluments and dividends respectively. Since there is substantial separation of ownership from control in modern firms, they are not operated so as to maximize profits.

5. Firms do not bother about MC and MR

It is asserted that the real world firms do not bother about the calculation of marginal revenue and marginal cost. Most of them are not even aware of the two terms. Others do not know the demand and marginal revenue curves faced by them.

Still others do not possess adequate information about their cost structure. Empirical evidence by Hall and Hitch shows that businessman have not heard of marginal cost and marginal revenue. After all, they are not greedy calculating machines.

6. Principle of average-cost maximizes profits

Hall and Hitch found that firms do not apply the rule of equality of MC and MR to maximize short run profits. Rather, they aim at the maximization of profits in the long run. For this, they do not apply the marginalistic rule but they fix their prices on the average cost principle.

According to this principle, price equals AVC+AFC+ profit margin (usually 10%). Thus the main aim of the profit maximizing firm is to set a price on the average cost principle and sell its output at that price.

7. Static Theory

The neo-classical theory of the firm is static in nature. The theory does not tell the duration of either the short period or the long period. The time-horizon of the neo-classical firm consists of identical and independent time-periods. Decisions are considered as independent of the time-period.

This is a serious weakness of the profit maximization theory. In fact, decisions are ‘temporally interdependent’. It means that decisions in any one period are affected by

decisions in past periods which will, in turn, influence the future decisions of the firm. This interdependence has been ignored by the neo-classical theory of the firm.

8. Not applicable to oligopoly firm

As a matter of fact, the profit maximization objective has been retained for the perfectly competitive, or monopolistic, or monopolistic competitive firm in economic theory. But it has been abandoned in the case of the oligopoly firm because of the criticisms levelled against it. Hence the different objectives that have been put forth by economists in the theory of the firm relate to the oligopoly or duopoly firm.

9. Varied Objectives

The basis of the difference between the objectives of the neo-classical firm and the modern corporation arises from the fact that the profit maximization objective relates to the entrepreneurial behaviour while modern corporations are motivated by different objectives because of the separate roles of shareholders and managers. In the latter, shareholders have practically no influence over the actions of the managers.

As early as in 1932, Berle and Means suggested that managers have different goals from shareholders. They are not interested in profit maximization. They manage firms in their own interests rather than in the interests of shareholders. Thus modern firms are motivated by objectives relating to sales maximization, output maximization, utility maximization, satisfaction maximization and growth maximization.