

MANAGERIAL ECONOMICS

Study material

COMPLEMENTARY COURSE
For
I SEMESTER B.COM/BBA.

(2011 Admission)



UNIVERSITY OF CALICUT

SCHOOL OF DISTANCE EDUCATION
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Managerial Economics

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MODULE I

INTRODUCTION

Introduction

The term “economics” has been derived from a Greek Word “Oikonomia” which means ‘household’. Economics is a social science. It is called ‘social’ because it studies mankind of society. It deals with aspects of human behavior. It is called science since it studies social problems from a scientific point of view. The development of economics as a growing science can be traced back in the writings of Greek philosophers like Plato and Aristotle. Economics was treated as a branch of politics during early days of its development because ancient Greeks applied this term to management of city-state, which they called ‘Polis’. Actually economics broadened into a full fledged social science in the later half of the 18th century.

Definition of Economics

Classical economists like Adam Smith, Ricardo, Mill Malthus and others; socialist economist like Karl Marx; neo-classical economists like Alfred Marshall, AC Pigou and Lionel Robbins and modern economists like JM Keynes, Samuelson and others have made considerable contribution to the development of Economics. Hence a plethora of definitions are available in connection with the subject matter of economics. These are broadly divided into

- A. Wealth Definition,
- B. Welfare Definition,
- C. Scarcity Definition and
- D. Growth Definition

A. Wealth Definition

Really the science of economics was born in 1776, when Adam Smith published his famous book “An Enquiry into the Nature and Cause of Wealth of Nation”. He defined economics as the study of the nature and cause of national wealth. According to him, economics is the study of wealth- How wealth is produced and distributed. He is called as “father of economics” and his definition is popularly called “Wealth definition”. But this definition was severely criticized by highlighting the points like;

- Too much emphasis on wealth,
- Restricted meaning of wealth,
- No consideration for human feelings,
- No mention for man’s welfare
- Silent about economic problem etc...

B. Welfare Definition

It was Alfred Marshall who rescued the economics from the above criticisms. By his classic work “Principles of Economics”, published in 1890, he shifted the emphasis from wealth to human welfare. According to him wealth is simply a means to an end in all activities, the end being human welfare. He adds, that economics “is on the one side a study of the wealth; and the other and more important side, a part of the study of man”. Marshall gave primary importance to man and secondary importance to wealth. Prof. A C Pigou was also holding Marshall’s view. This definition clarified the scope of economics and rescued economics from the grip of being called “Dismal science”, but this definition also criticized on the grounds that welfare cannot be measured correctly and it was ignored the valuable services like teachers,lawyers,singers etc (non-material welfare)

C. Scarcity Definition

After Alfred Marshall, Lionel Robbins formulated his own conception of economics in his book “The Nature and Significance of Economic Science” in 1932. According to him, “Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses”. He gave importance to four fundamental characters of human existence such as;

1. Unlimited wants- In his definition “ends” refers to human wants which are boundless or unlimited.
2. Scarcity of means (Limited Resources) – the resources (time and money) at the disposal of a person to satisfy his wants are limited.
3. Alternate uses of Scarce means- Economic resources not only scarce but have alternate uses also. So one has to make choice of uses.
4. The Economic Problem –when wants are unlimited, means are scarce and have alternate uses, the economic problem arises. Hence we need to arrange wants in the order of urgency.

The merits of scarcity definition are; this definition is analytical, universal in application, a positive study and considering the concept of opportunity cost. But this also criticized on the grounds that; it is too narrow and too wide, it offers only light but not fruit, confined to micro analysis and ignores Growth economics etc..

D. Modern Definition

The credit for revolutionizing the study of economics surely goes to Lord J.M Keynes. He defined economics as the “study of the administration of scarce resources and the determinants of income and employment”.

Prof. Samuelson recently given a definition based on growth aspects which is known as Growth definition. “Economics is the study of how people and society end up choosing, with or without the use of money to employ scarce productive resources that could have alternative uses to produce various commodities and distribute them for consumption, now or in the future, among various persons or groups in society. Economics analyses the costs and the benefits of improving patterns of resources use”. Main features of growth definition are; it is applicable even in barter economy, the inclusion of time element makes the scope of economics dynamic and it is an improvement in scarcity definition.

Meaning and Definition of Managerial Economics.

Managerial Economics as a subject gained popularity in U.S.A after the publication of the book “Managerial Economics” by Joel Dean in 1951. Joel Dean observed that managerial Economics shows how economic analysis can be used in formulating policies.

Managerial economics bridges the gap between traditional economic theory and real business practices in two ways. Firstly, it provides number of tools and techniques to enable the manager to become more competent to take decisions in real and practical situation. Secondly, it serves as an integrating course to show the interaction between various areas in which the firm operates.

According to Prof. Evan J Douglas, Managerial economics is concerned with the application of business principles and methodologies to the decision making process within the firm or organization under the conditions of uncertainty. It seeks to establish rules and principles to facilitate the attainment of the desired economic aim of management. These economic aims relate to costs, revenue and profits and are important within both business and non business institutions.

Spencer and Siegleman defined managerial Economics as “the integration of economic theory with business practice for the purpose of facilitating decision making and forward planning of management” managerial economics helps the managers to analyze the problems faced by the business unit and to take vital decisions. They have to choose from among a number of possible alternatives. They have to choose that course of action by which the available resources are most efficiently used. Cristopor I Savage and John R Small opinioned that “managerial economics is some thing that concerned with business efficiency”.

In the words of Michael Baye, ”Managerial Economics is the study of how to direct scares resources in a way that mostly effectively achieves a managerial goal”.

Objectives and Uses (importance) of managerial Economics

Objectives: The basic objective of managerial economics is to analyze the economic problems faced by the business. The other objectives are:

1. To integrate economic theory with business practice.
2. To apply economic concepts and principles to solve business problems.
3. To allocate the scares resources in the optimal manner.
4. To make all-round development of a firm.
5. To minimize risk and uncertainty
6. To helps in demand and sales forecasting.
7. To help in profit maximization.
8. To help to achieve the other objectives of the firm like industry leadership, expansion implementation of policies etc...

Importance: In order to solve the problems of decision making, data are to be collected and analyzed in the light of business objectives. Managerial economics provides help in this area. The importance of managerial economics maybe relies in the following points:

1. It provides tool and techniques for managerial decision making.
2. It gives answers to the basic problems of business management.
3. It supplies data for analysis and forecasting.
4. It provides tools for demand forecasting and profit planning.
5. It guides the managerial economist.
6. It helps in formulating business policies.
7. It assists the management to know internal and external factors influence the business.

Following are the important areas of decision making;

- a) Selection of product.
- b) Selection of suitable product mix.
- c) Selection of method of production.
- d) Product line decision.
- e) Determination of price and quantity.
- f) Decision on promotional strategy.
- g) Optimum input combination.
- h) Allocation of resources.
- i) Replacement decision.
- j) Make or buy decision.
- k) Shut down decision.
- l) Decision on export and import.
- m) Location decision.
- n) Capital budgeting.

Scope of Managerial / Business Economics

The scope of managerial economics refers to its area of study. Scope of Managerial Economics is wider than the scope of Business Economics in the sense that while managerial economics dealing the decisional problems of both business and non business organizations, business economics deals only the problems of business organizations. Business economics giving solution to the problems of a business unit or profit oriented unit. Managerial economics giving solution to the problems of non profit organizations like schools, hospital etc., also. The scope covers two areas of decision making (A) operational or internal issues and (B) Environmental or external issues.

A) Operational/internal issues

These issues are those which arise within the business organization and are under the control of the management. They pertain to simple questions of what to produce, when to produce, how much to produce and for which category of consumers. The following aspects may be said to fall under internal issues.

1. **Demand analysis and Forecasting:** - The demands for the firm's product would change in response to change in price, consumer's income, his taste etc. which are the determinants of demand. A study of the determinants of demand is necessary for forecasting future demand of the product.
2. **Cost analysis:** - Estimation of cost is an essential part of managerial problems. The factors causing variation of cost must be found out and allowed for it management to arrive at cost estimates. This will help for more effective planning and sound pricing practices.
3. **Pricing Decisions:** - The firm aims to profit which depends upon the correctness of pricing decisions. Pricing is an important area of managerial economics. Theories regarding price fixation help the firm to solve the price fixation problems.
4. **Profit Analysis:** - Business firms work for profit and it is an important measure of success. But firms working under conditions of uncertainty. Profit planning becomes necessary under the conditions of uncertainty.
5. **Capital budgeting:** - The business managers have to take very important decisions relating to the firm's capital investment. The manager has to calculate correctly the profitability of investment and to properly allocate the capital. Success of the firm depends upon the proper analysis of capital project and selecting the best one.
6. **Production and supply analysis:** - Production analysis is narrower in scope than cost analysis. Production analysis proceeds in physical terms while cost analysis proceeds in monetary terms. Important aspects of supply analysis are; supply schedule, curves and functions, law of supply, elasticity of supply and factors influencing supply...

B) Environmental or external issues

It refers to the general business environment in which the firm operates. A study of economic environment should include:

1. The types of economic system in the country.
2. The general trend in production, employment, income, prices, savings and investments
3. Trends in the working of financial institutions like banks, financial corporations, insurance companies etc..
4. Magnitude and trends in foreign trade.
5. Trends in labour and capital market.
6. Government economic policies viz., industrial policy, monetary policies, fiscal policy, price policy etc...

Functions and Responsibilities of managerial economist

A managerial economist can play an important role by assisting the management to solve the difficult problems of decision making and forward planning. Managerial economists have to study external and internal factors influencing the business while taking the decisions. The important questions to be answered by the managerial economists include:

1. Is competition likely to increase or decrease?
2. What are the population shifts and their influence in purchasing power?
3. Will the price of raw materials increase or decrease? Etc...
4. .managerial economist can also help the management in taking decisions regarding internal operation of the firm. Following are the important specific functions of managerial economist;

1. Sales forecasting.
2. Market research.
3. Production scheduling
4. Economic analysis of competing industry.
5. Investment appraisal.
6. Security management analysis.
7. Advise on foreign exchange management.
8. Advice on trade.
9. Environmental forecasting.
10. Economic analysis of agriculture Sales forecasting

The **responsibilities** of managerial economists are the following;

1. To bring reasonable profit to the company.
2. To make accurate forecast.
3. To establish and maintain contact with individual and data sources.
4. To keep the management informed of all the possible economic trends.
5. To prepare speeches for business executives.
6. To participate in public debates
7. To earn full status in the business team.

Chief Characteristics of Managerial or Business economics.

Following are the important feature of managerial economics

- 1) Managerial economics is **Micro economic** in character. Because it studies the problems of a business firm, not the entire economy.
- 2) Managerial economics largely uses the body of economic concepts and principles which is known as **“Theory of the Firm” or “Economics of the firm”**.
- 3) Managerial economics is **pragmatic**. It is purely practical oriented. So Managerial economics considers the particular environment of a firm or business for decision making.
- 4) Managerial economics is **Normative** rather than positive economics (descriptive economics). Managerial economics is **prescriptive** to solve particular business problem by giving importance to firms aim and objectives.
- 5) **Macro economics is also useful** to managerial economics since it provides intelligent understanding of the environment in which the business is operating.
- 6) **It is management oriented.**

Managerial economics as a tool for decision making and forward planning.

Decision making: Decision making is an integral part of modern management. Perhaps the most important function of the business manager is decision making. Decision making is the process of selecting one action from two or more alternative course of actions. Resources such as land, labour and capital are limited and can be employed in alternative uses, so the question of choice is arises.

Managers of business organizations are constantly faced with wide variety of decisions in the areas of pricing, product selection, cost control, asset management and plant expansion. Manager has to choose best among the alternatives by which available resources are most efficiently used for achieving the desired aims. Decision making process involves the following elements;

1. The identification of the firm's objectives.
2. The statement of the problem to be solved.
3. The listing of various alternatives.
4. Evaluation and analysis of alternatives.
5. The selection best alternative
6. The implementation and monitoring of the alternative which is chosen.

Following are the important areas of decision making;

- a) Selection of product.
- b) Selection of suitable product mix.
- c) Selection of method of production.
- d) Product line decision.
- e) Determination of price and quantity.
- f) Decision on promotional strategy.
- g) Optimum input combination.
- h) Allocation of resources.
- i) Replacement decision.
- j) Make or buy decision.
- k) Shut down decision.
- l) Decision on export and import.
- m) Location decision.
- n) Capital budgeting.

Forward Planning: -Future is uncertain. A firm is operating under the conditions of risk and uncertainty. Risk and uncertainty can be minimized only by making accurate forecast and forward planning. Managerial economics helps manager in forward planning Forward planning means making plans for the future. A manager has to make plan for the future e.g. Expansion of existing plants etc...The study of macro economics provides managers a clear understanding about environment in which the business firm is working. The knowledge of various economic theories viz, demands theory, supply theory etc. also can be helpful for future planning of demand and supply. So managerial economics enables the manager to make plan for the future.

Economics Vs Managerial economics.

Economics	Managerial Economics
1. Dealing both micro and macro aspects	1. Dealing only micro aspects
2. Both positive and normative science.	2. Only a normative science.
3. Deals with theoretical aspects	3. Deals with practical aspects.
4. Study both the firm and individual.	4. Study the problems of firm only.
5. Wide scope	5. Narrow scope.

Self check questions.

Fill in the blanks. (Weightage-1/4)

1. The famous book on economics “An Enquiry into the Nature and Cause of Wealth of Nation” was written by.....
2. is known as the ‘father of economics’.
3. Welfare definition of economics is given by.....
4. The scarcity definition is suggested by.....
5. bridges the gap between traditional economic theory and real business practices

Short answer type (Weightage -1)

1. Define managerial economics?
2. What is the difference between business economics and managerial economics?
3. What is scarcity definition?
4. What you mean by decision making?
5. What is forward planning?
6. What is economic problem?

Short essay type (Weightage -2)

- 1) Define Managerial economics? What are its basic characteristics?
- 2) What are the responsibilities of managerial economist?
- 3) What is decision making? What are its elements or steps?
- 4) Distinguish between economics and managerial economics?

Essay type (Weightage -4)

- 1) Define Managerial economics? Explain the scope of managerial economics?
- 2) Explain role and functions and responsibilities of managerial economists?

MODULE II

DEMAND CONCEPTS

Meaning of Demand

Demand is a common parlance means desire for an object. But in economics demand is something more than this. In economics 'Demand' means the quantity of goods and services which a person can purchase with a requisite amount of money.

According to Prof.Hidbon, "Demand means the various quantities of goods that would be purchased per time period at different prices in a given market. Thus demand for a commodity is its quantity which consumer is able and willing to buy at various prices during a given period of time. Simply, demand is the behavior of potential buyers in a market.

In the opinion of Stonier and Hague, "Demand in economics means demand backed up by enough money to pay for the goods demanded". In other words, demand means the desire backed by the willingness to buy a commodity and purchasing power to pay. Hence desire alone is not enough. There must have necessary purchasing power, ie, .cash to purchase it. For example, everyone desires to possess Benz car but only few have the ability to buy it. So everybody cannot be said to have a demand for the car. Thus the demand has three essentials-Desire, Purchasing power and Willingness to purchase.

Demand Analysis

Demand analysis means an attempt to determine the factors affecting the demand of a commodity or service and to measure such factors and their influences. The demand analysis includes the study of law of demand, demand schedule, demand curve and demand forecasting. Main objectives of demand analysis are;

- 1) To determine the factors affecting the demand.
- 2) To measure the elasticity of demand.
- 3) To forecast the demand.
- 4) To increase the demand.
- 5) To allocate the resources efficiently

Law of Demand

The law of Demand is known as the 'first law in market'. Law of demand shows the relation between price and quantity demanded of a commodity in the market. In the words of Marshall "the amount demanded increases with a fall in price and diminishes with a rise in price".

According to Samuelson, "Law of Demand states that people will buy more at lower price and buy less at higher prices". In other words while other things remaining the same an increase in the price of a commodity will decrease the quantity demanded of that commodity and decrease in the price will increase the demand of that commodity. So the relationship described by the law of demand is an inverse or negative relationship because the variables (price and demand) move in opposite direction. It shows the cause and effect relationship between price and quantity demand.

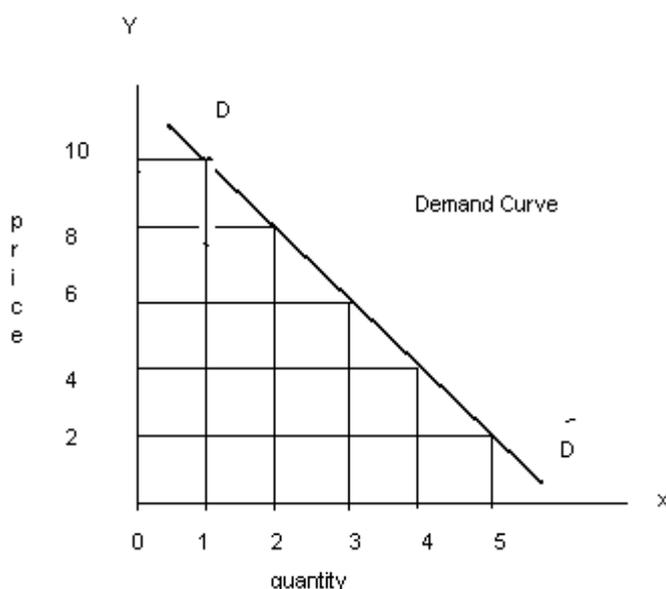
The concept of law of demand may be explained with the help of a demand schedules.

Individual demand Schedule

An individual demand schedule is a list of quantities of a commodity purchased by an individual consumer at different prices. The following table shows the demand schedule of an individual consumer for apple.

Price of Apple (In Rs.)	Quantity demanded
10	1
8	2
6	3
4	4
2	5

When the price falls from Rs 10 to 8, the quantity demanded increases from one to two. In the same way as price falls, quantity demanded increases. On the basis of the above demand schedule we can draw the demand curve as follows;



The demand curve DD shows the inverse relation between price and demand of apple. Due to this inverse relationship, demand curve is slopes downward from left to right. This kind of slope is also called “negative slope”

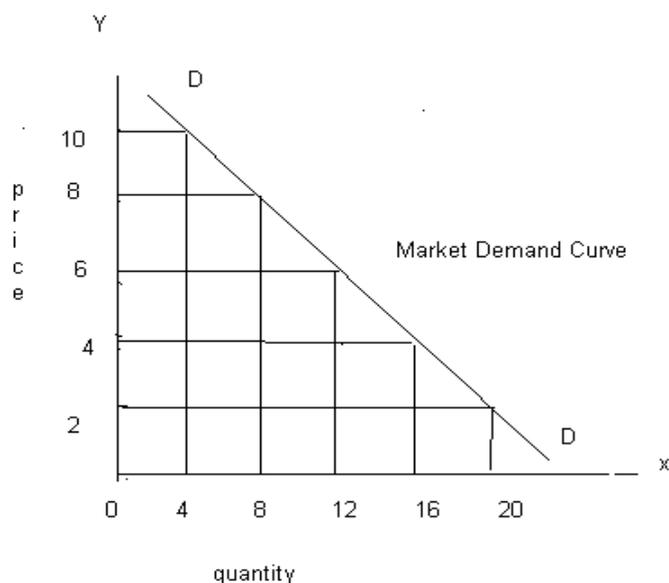
Market demand schedule

Market demand refers to the total demand for a commodity by all the consumers. It is the aggregate quantity demanded for a commodity by all the consumers in a market. It can be expressed in the following schedule.

Market Demand Schedule for egg.

Price per dozen(Rs)	Demand by consumers				Market Demand
	A	B	C	D	
10	1	2	0	0	3
8	2	3	1	0	6
6	3	4	2	1	10
4	4	5	3	2	14
2	5	6	4	3	18

Derivation of market demand curve is a simple process. For example, let us assume that there are four consumers in a market demanding eggs. When the price of one dozen eggs is Rs.10, A buys one dozen and B buys 2 dozens. When price falls to Rs.8, A buys 2 , B buys 3 and C buys one dozen. When price falls to Rs.6, A buys 3 b buys 4,C buys 2 and D buys one dozen and so on. By adding up the quantity demanded by all the four consumers at various prices we get the market demand curve. So last column of the above demand schedule gives the total demand for eggs at different prices,ie,"Market Demand" as given below;



Assumptions of Law of Demand

Law of demand is based on certain basic assumptions. They are as follows

- 1) There is no change in consumers' taste and preference
- 2) Income should remain constant.
- 3) Prices of other goods should not change.
- 4) There should be no substitute for the commodity.
- 5) The commodity should not confer any distinction.
- 6) The demand for the commodity should be continuous.
- 7) People should not expect any change in the price of the commodity.

Why does demand curve slopes downward?

Demand curve slopes downward from left to right (Negative Slope). There are many causes for downward sloping of demand curve:-

1) Law of Diminishing Marginal utility

As the consumer buys more and more of the commodity, the marginal utility of the additional units falls. Therefore the consumer is willing to pay only lower prices for additional units. If the price is higher, he will restrict its consumption

2) Principle of Equi- Marginal Utility

Consumer will arrange his purchases in such a way that the marginal utility is equal in all his purchases. If it is not equal, they will alter their purchases till the marginal utility is equal.

3) Income effect.

When the price of the commodity falls, the real income of the consumer will increase. He will spend this increased income either to buy additional quantity of the same commodity or other commodity.

4) Substitution effect.

When the price of tea falls, it becomes cheaper. Therefore the consumer will substitute this commodity for coffee. This leads to an increase in demand for tea.

5) Different uses of a commodity.

Some commodities have several uses. If the price of the commodity is high, its use will be restricted only for important purpose. For e.g. when the price of tomato is high, it will be used only for cooking purpose. When it is cheaper, it will be used for preparing jam, pickle etc...

6) Psychology of people.

Psychologically people buy more of a commodity when its price falls. In other word it can be termed as **price effect**.

7) Tendency of human beings to satisfy unsatisfied wants.

Exceptions to the Law of Demand. (Exceptional Demand Curve).

The basic feature of demand curve is negative sloping. But there are some exceptions to this. I.e... In certain circumstances demand curve may slope upward from left to right (positive slopes). These phenomena may due to;

1) Giffen paradox

The Giffen goods are inferior goods is an exception to the law of demand. When the price of inferior good falls, the poor will buy less and vice versa. When the price of maize falls, the poor will not buy it more but they are willing to spend more on superior goods than on maize. Thus fall in price will result into reduction in quantity. This paradox is first explained by Sir Robert Giffen.

2) Veblen or Demonstration effect.

According to Veblen, rich people buy certain goods because of its social distinction or prestige. Diamonds and other luxurious article are purchased by rich people due to its high prestige value. Hence higher the price of these articles, higher will be the demand.

3) Ignorance.

Some times consumers think that the product is superior or quality is high if the price of that product is high. As such they buy more at high price.

4) Speculative Effect.

When the price of commodity is increasing, then the consumer buy more of it because of the fear that it will increase still further.

5) Fear of Shortage.

During the time of emergency or war, people may expect shortage of commodity and buy more at higher price to keep stock for future.

6) Necessaries

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

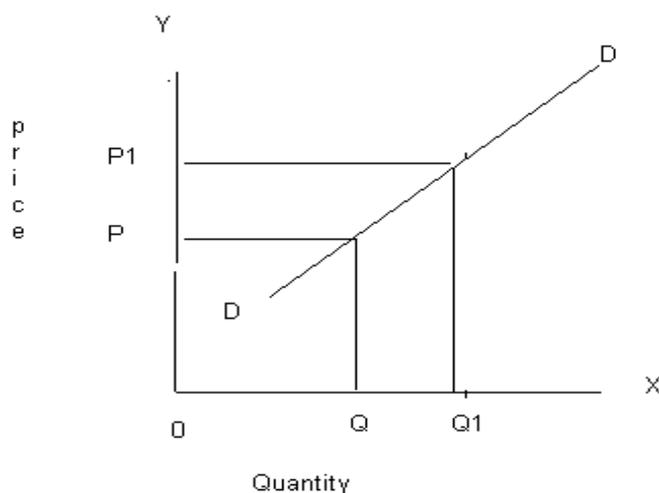
7) Brand Loyalty

When consumer is brand loyal to particular product or psychological attachment to particular product, they will continue to buy such products even at a higher price.

8) Festival, Marriage etc.

In certain occasions like festivals, marriage etc. people will buy more even at high price.

Exceptional Demand Curve (perverse demand curve)



When price raises from OP to OP1 quantity demanded also increases from OQ to OQ1. In other words, from the above, we can see that there is positive relation between price and demand. Hence, demand curve (DD) slopes upward.

CHANGES IN DEMAND

Demand of a commodity may change. It may increase or decrease due to changes in certain factors. These factors are called **determinants of demand**. These factors include;

- 1) Price of a commodity
- 2) Nature of commodity
- 3) Income and wealth of consumer
- 4) Taste and preferences of consumer
- 5) Price of related goods (substitutes and compliment goods)
- 6) Consumers' expectations.
- 7) Advertisement etc...

Demand Function.

There is a functional relationship between demand and its various determinants. I.e., a change in any determinant will affect the demand. When this relationship expressed mathematically, it is called Demand Function. Demand function of a commodity can be written as follows:

$$D = f(P, Y, T, P_s, U)$$

Where, **D**= Quantity demanded

Y= Income of the consumer

P_s = Price of substitutes

f = Function of (indicates how variables are related)

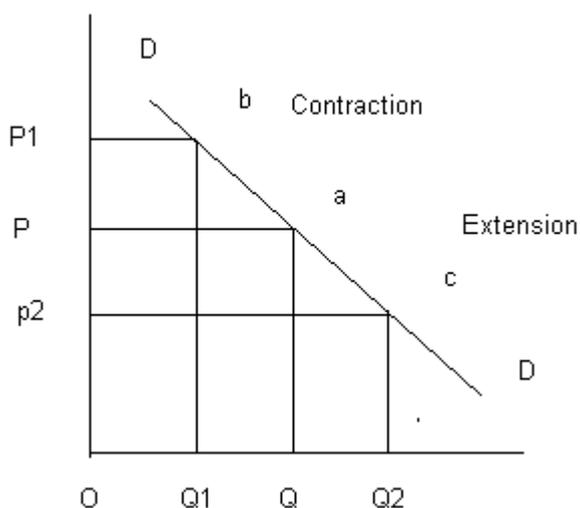
P= Price of the commodity

T= Taste and preference of consumers.

U= Consumers expectations & others

Extension and Contraction of Demand.

Demand may change due to various factors. The change in demand due to change in price only, where other factors remaining constant, it is called extension and contraction of demand. A change in demand solely due to change in price is called extension and contraction. When the quantity demanded of a commodity rises due to a fall in price, it is called extension of demand. On the other hand, when the quantity demanded falls due to a rise in price, it is called contraction of demand. It can be understand from the following diagram.

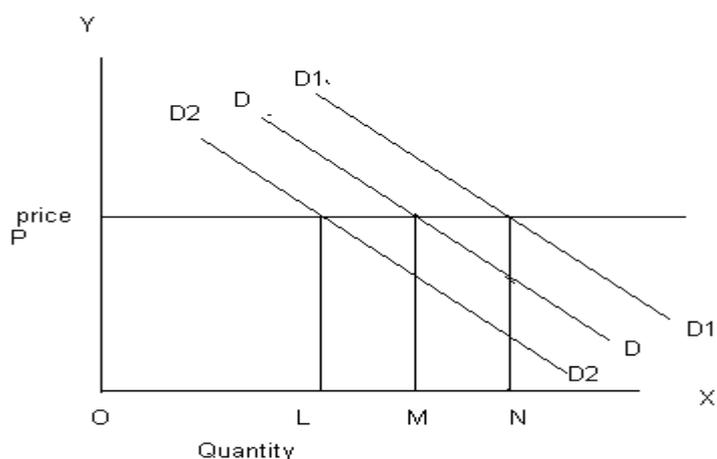


When the price of commodity is OP, quantity demanded is OQ. If the price falls to P2, quantity demanded increases to OQ2. When price rises to P1, demand decreases from OQ to OQ1. In demand curve, the area **a** to **c** is extension of demand and the area **a** to **b** is contraction of demand. As result of change in price of a commodity, the consumer moves along the same demand curve.

Shift in Demand (Increase or Decrease in demand)

When the demand changes due to changes in other factors, like taste and preferences, income, price of related goods etc... , it is called shift in demand. Due to changes in other factors, if the consumers buy more goods, it is called increase in demand or upward shift. On the other hand, if the consumers buy fewer goods due to change in other factors, it is called downward shift or decrease in demand.

Shift in demand cannot be shown in same demand curve. The increase and decrease in demand (upward shift and downward shift) can be expressed by the following diagram.



DD is the original demand curve. Demand curve shift upward due to change in income, taste & preferences etc of consumer, where price remaining the same. In the above diagram demand curve D1-D1 is showing upward shift or increase in demand and D2-D2 shows downward shift or decrease in demand.

Comparison between extension/contraction and shift in demand

SL. No	Extension/Contraction of Demand	Shift in Demand
1	Demand is varying due to changes in price	Demand is varying due to changes in other factors
2	Other factors like taste, preferences, income etc... remaining the same.	Price of commodity remain the same
3	Consumer moves along the same demand curve	Consumer may moves to higher or lower demand curve

Different types of demand.

Joint demand:

When two or more commodities are jointly demanded at the same time to satisfy a particular want, it is called joint or complimentary demand.(demand for milk, sugar, tea for making tea).

Composite demand:

The demand for a commodity which can be put for several uses (demand for electricity)

Direct and Derived demand:

Demand for a commodity which is for a direct consumption is called direct demand.(food, cloth). When the commodity is demanded as a result of the demand of another commodity, it is called derived demand.(demand for tyres depends on demand of vehicles).

Industry demand and company demand:

Demand for the product of particular company is company demand and total demand for the products of particular industry which includes number of companies is called industry demand

ELASTICITY OF DEMAND

Meaning of Elasticity

Law of demand explains the directions of changes in demand. A fall in price leads to an increase in quantity demanded and vice versa. But it does not tell us the rate at which demand changes to change in price. The concept of elasticity of demand was introduced by Marshall. This concept explains the relationship between a change in price and consequent change in quantity demanded. Nutshell, it shows the rate at which changes in demand take place.

Elasticity of demand can be defined as “the degree of responsiveness in quantity demanded to a change in price”. Thus it represents the rate of change in quantity demanded due to a change in price. There are mainly three types of elasticity of demand:

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

Price Elasticity of Demand

Price Elasticity of demand measures the change in quantity demanded to a change in price. It is the ratio of percentage change in quantity demanded to a percentage change in price. This can be measured by the following formula.

$$\text{Price Elasticity} = \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price}}$$

OR

$$E_p = \frac{\text{Change in Quantity demanded} / \text{Quantity demanded}}{\text{Change in Price}/\text{price}}$$

OR

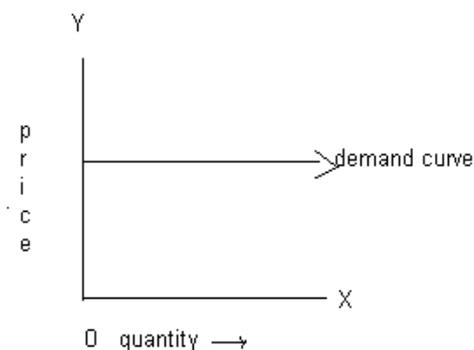
$$E_p = \frac{(Q_2 - Q_1) / Q_1}{(P_2 - P_1) / P_1} ,$$

Where: Q1 = Quantity demanded before price change
 Q2 = Quantity demanded after price change
 P1 = Price charged before price change
 P2 = Price charge after price change.

There are five types of price elasticity of demand. (Degree of elasticity of demand) Such as perfectly elastic demand, perfectly inelastic demand, relatively elastic demand, relatively inelastic demand and unitary elastic demand.

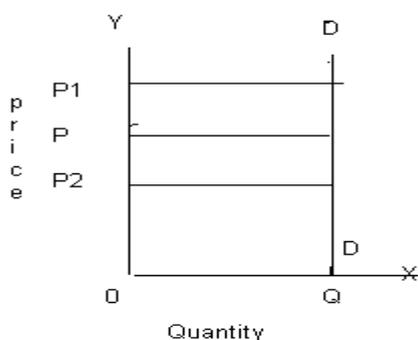
1) Perfectly elastic demand (infinitely elastic)

When a small change in price leads to infinite change in quantity demanded, it is called perfectly elastic demand. In this case the demand curve is a horizontal straight line as given below. (Here $e_p = \infty$)



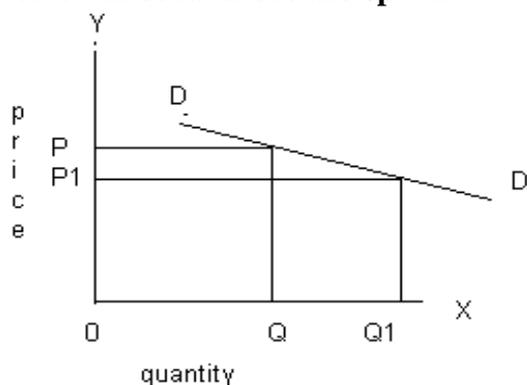
2) Perfectly inelastic demand

In this case, even a large change in price fails to bring about a change in quantity demanded. I.e. the change in price will not affect the quantity demanded and quantity remains the same whatever the change in price. Here demand curve will be vertical line as follows and $ep=0$



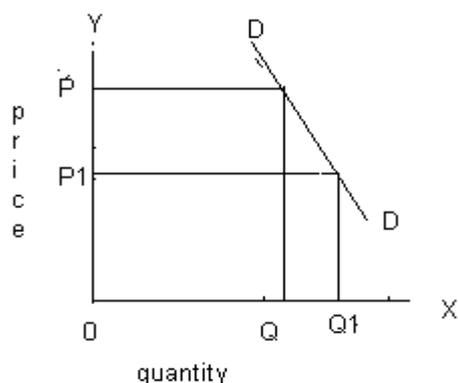
3) Relatively elastic demand

Here a small change in price leads to very big change in quantity demanded. In this case demand curve will be fatter one and $ep=>1$



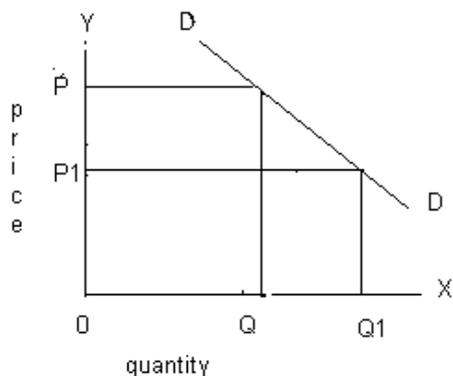
4) Relatively inelastic demand

Here quantity demanded changes less than proportionate to changes in price. A large change in price leads to small change in demand. In this case demand curve will be steeper and $ep=<1$



5) Unit elasticity of demand (unitary elastic)

Here the change in demand is exactly equal to the change in price. When both are equal, $ep= 1$, the elasticity is said to be unitary.



The above five types of elasticity can be summarized as follows

SL No	type	Numerical expression	description	Shape of curve
1	Perfectly elastic	∞	infinity	Horizontal
2	Perfectly inelastic	0	Zero	Vertical
3	Unitary elastic	1	One	Rectangular hyperbola
4	Relatively elastic	>1	More than one	Flat
5	Relatively inelastic	<1	Less than one	Steep

3.3 Income Elasticity

of Demand

Income elasticity of demand shows the change in quantity demanded as a result of a change in consumers' income. Income elasticity of demand may be stated in the form of formula:

$$E_y = \frac{\text{Proportionate Change in Quantity Demanded}}{\text{Proportionate Change in Income}}$$

Income elasticity of demand mainly of three types:

- 1) Zero income Elasticity.
- 2) Negative income Elasticity
- 3) Positive income Elasticity.

Zero income elasticity – In this case, quantity demanded remain the same, eventhough money income increases.ie, changes in the income doesn't influence the quantity demanded (Eg.salt,sugar etc). Here E_y (income elasticity) = 0

Negative income elasticity -In this case, when income increases, quantity demanded falls.Eg, inferior goods. Here $E_y = < 0$.

Positive income Elasticity - In this case, an increase in income may lead to an increase in the quantity demanded. i.e., when income rises, demand also rises. ($E_y \Rightarrow 0$) This can be further classified into three types:

- a) Unit income elasticity; Demand changes in same proportion to change in income. i.e, $E_y = 1$
- b) Income elasticity greater than unity: An increase in income brings about a more than proportionate increase in quantity demanded. i.e, $E_y \Rightarrow 1$
- c) Income elasticity less than unity: when income increases quantity demanded is also increases but less than proportionately. I.e., $E_y = <1$

Business decision based on income elasticity.

The concept of income elasticity can be utilized for the purpose of taking vital business decision. A businessman can rely on the following facts.

If income elasticity is greater than Zero, but less than one, sales of the product will increase but slower than the general economic growth

If income elasticity is greater than one, sales of his product will increase more rapidly than the general economic growth.

Firms whose demand functions have high income elasticity have good growth opportunities in an expanding economy. This concept helps manager to take correct decision during business cycle and also helps in forecasting the effect of changes in income on demand.

Cross Elasticity of Demand

Cross elasticity of demand is the proportionate change in the quantity demanded of a commodity in response to change in the price of another related commodity. Related commodity may either substitutes or complements. Examples of substitute commodities are **tea and coffee**. Examples of compliment commodities are **car and petrol**. Cross elasticity of demand can be calculated by the following formula;

$$\text{Cross Elasticity} = \frac{\text{Proportionate Change in Quantity Demanded of a Commodity}}{\text{Proportionate Change in the Price of Related Commodity}}$$

If the cross elasticity is positive, the commodities are said to be substitutes and if cross elasticity is negative, the commodities are compliments. The substitute goods (tea and Coffee) have positive cross elasticity because the increase in the price of tea may increase the demand of the coffee and the consumer may shift from the consumption of tea to coffee.

Complementary goods (car and petrol) have negative cross elasticity because increase in the price of car will reduce the quantity demanded of petrol.

The concept of cross elasticity assists the manager in the process of decision making. For fixing the price of product which having close substitutes or compliments, cross elasticity is very useful.

Advertisement Elasticity of Demand

Advertisement elasticity of demand (Promotional elasticity of demand) measure the responsiveness of demand due to a change in advertisement and other promotional expenses. This can be measured by the following formula;

$$\text{Advertisement Elasticity} = \frac{\text{Proportionate Increase in Sales}}{\text{Proportionate increase in Advertisement expenditure.}}$$

There are various determinants of advertisement elasticity, they are;

1. Type of commodity- elasticity will be higher for luxury, new product, growing product etc.,
2. Market share – larger the market share of the firm lower will be promotional elasticity.
3. Rival's reaction – if the rivals react to increase in firm's advertisement by increasing their own advertisement expenditure, it will reduce the advertisement elasticity of the firm.
4. State of economy – if economic conditions are good, the consumers are more likely to respond to the advertisement of the firm.

Advertisement elasticity helps in the process of decision making. It helps to deciding the optimum level of advertisement and promotional cost. If the advertisement elasticity is high, it is profitable to spend more on advertisement. Hence, advertisement elasticity helps to decide optimum advertisement and promotional outlay.

Importance of Elasticity.

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

1. **Production-** Producers generally decide their production level on the basis of demand for their product. Hence elasticity of demand helps to fix the level of output.
2. **Price fixation-** Each seller under monopoly and imperfect competition has to take into account the elasticity of demand while fixing their price. If the demand for the product is inelastic, he can fix a higher price.
3. **Distribution-** Elasticity helps in the determination of rewards for factors of production. For example, if the demand for labour is inelastic, trade union can raise wages.
4. **International trade-** This concept helps in finding out the terms of trade between two countries. Terms of trade means rate at which domestic commodities is exchanged for foreign commodities.
5. **Public finance-** This assists the government in formulating tax policies. In order to impose tax on a commodity, the government should take into consideration the demand elasticity.
6. **Nationalization-** Elasticity of demand helps the government to decide about nationalization of industries.
7. **Price discrimination-** A manufacture can fix a higher price for the product which have inelastic demand and lower price for product which have elastic demand.
8. **Others-** The concept elasticity of demand also helping in taking other vital decision Eg.Determining the price of joint product, take over decision etc..

Determinants of elasticity.

Elasticity of demand varies from product to product, time to time and market to market. This is due to influence of various factors. They are;

1. **Nature of commodity-** Demand for necessary goods (salt, rice, etc.) is inelastic. Demand for comfort and luxury good are elastic.
2. **Availability/range of substitutes** – A commodity against which lot of substitutes are available, the demand for that is elastic. But the goods which have no substitutes, demand is inelastic.
3. **Extent /variety of uses-** a commodity having a variety of uses has a comparatively elastic demand. Eg. Demand for steel, electricity etc..
4. **Postponement/urgency of demand-** if the consumption of a commodity can be postponed, then it will have elastic demand. Urgent commodity has inelastic demand.
5. **Income level-** income level also influences the elasticity. E.g. Rich man will not curtail the consumption quantity of fruit, milk etc, even if their price rises, but a poor man will not follow it.
6. **Amount of money spend on the commodity-** where an individual spends only a small portion of his income on the commodity, the price change doesn't materially affect the demand for the commodity, and the demand is inelastic... (match box, salt Etc)
7. **Durability of commodity-** if the commodity is durable or repairable at a substantially less amount (eg. Shoes), the demand for that is elastic.
8. **Purchase frequency of a product/time** –if the frequency of purchase of a product is very high, the demand is likely to be more price elastic.
9. **Range of Prices-** if the products at very high price or at very low price having inelastic demand since a slight change in price will not affect the quantity demand.
10. **Others** – the habit of consumers, demand for complimentary goods, distribution of income and wealth in the society etc., are other important factors affecting elasticity.

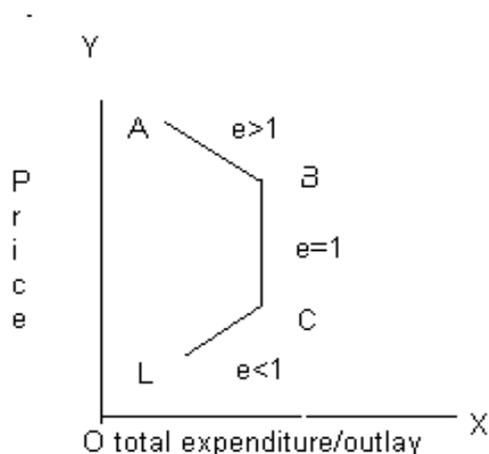
Measurement of Elasticity

There are various methods for the measurement of elasticity of demand. Following are the important methods:

1. **Proportional or Percentage Method:** Under this method the elasticity of demand is measured by the ratio between the proportionate or percentage change in quantity demanded and proportionate change in price. It is also known as formula method. It can be computed as follows:

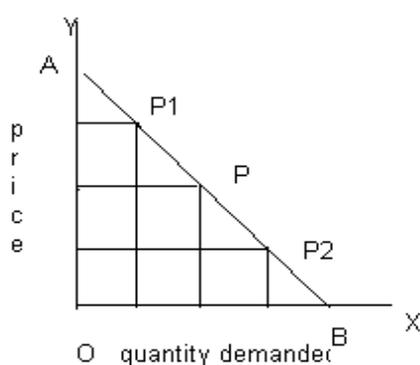
$$\begin{aligned} \text{ED} &= \frac{\text{Proportionate change in quantity demanded}}{\text{Proportionate change in price.}} \\ &\text{OR} \\ &= \frac{\text{Change in Demand}}{\text{Original Quantity demanded}} \\ &\quad \frac{\text{Change in Price}}{\text{Original price}} \end{aligned}$$

2. **Expenditure or Outlay Method:** This method was developed by Marshall. Under this method, the elasticity is measured by estimating the changes in total expenditure as a result of changes in price and quantity demanded. This has three components
- If the price changes, but total expenditure remains constant, unit elasticity exists.
 - If the price changes, but total expenditure moves in the opposite directions, demand is elastic (>1).
 - If the price changes and total revenues moves in the same direction, demand is inelastic (<1). This can be expressed by the following diagram.



3. **Geometric or Point method:** This also developed by Marshall. This is used as a measure of the change in quantity demanded in response to a very small change in the price. In this method we can measure the elasticity at any point on a straight line demand curve by using the following formula;

$$ED = \frac{\text{Lower section of the Demand curve}}{\text{Upper section of Demand curve.}}$$



In the above diagram, AB is a straight line demand curve with P as its middle point. Further it is assumed that AB is 6 cm. then,

At point P, $ED = PB/PA = 3/3 = 1$

At point P1, $ED = P1B/P1A = 4.5/1.5 = 3 > 1$,

At point A, $ED = AB/A = 6/0 = \infty$ (infinity),

At point P2, $ED = P2B/P2A = 1.5/4.5 = 1/3 < 1$,

At point B, $ED = B/BA = 0/6 = 0$

4. **Arc Method:** the point method is applicable only when there are minute (very small) changes in price and demand. Arc elasticity measures elasticity between two points. It is a measure of the average elasticity According to Watson, "Arc elasticity is the elasticity at the midpoint of an arc of a demand curve". formula to measure elasticity is:

$$ED = \Delta Q / \Delta P \times (P1+P2) / (Q1+Q2) \text{ or } \frac{\text{Change in D}}{\text{Average D}} \times \frac{\text{Average P}}{\text{Change in P}}$$

Where, ΔQ = change in quantity $Q1$ = original quantity
 $P1$ = original price $Q2$ = new quantity
 $P2$ = New price ΔP = change in price

Fill in the blanks. (Weightage-1/4)

1. ----- means the degree of responsiveness of demand to the changes in price
2. Generally income elasticity for a commodity is.....
3. $ep = 0$ in the case of -----elasticity
4. Tea and coffee are.....goods
5. car and petrol are.....goods

Short answer type (Weightage -1)

1. What you mean by elasticity?
2. What is price elasticity?
3. What is income elasticity?
4. What is cross elasticity?
5. What is promotional elasticity?

Short essay type (Weightage -2)

1. What are the various degrees of price elasticity?
2. What is the importance of the concept of elasticity?
3. What are different types of elasticity?

Essay type (Weightage -4)

1. What is elasticity of demand? State the determinants of elasticity?
2. Define elasticity of demand? Discuss various methods for measuring elasticity?

Fill in the blanks. (Weightage-1/4)

2. Demand has three essentials-Desires+ Purchasing power +.....
3. Is known as the 'first law in market'.
4. Law of demand states that price and quantity demanded have.....relationship.
5.means relationship between demand and its various determinants expressed mathematically.
6. In economics, desire backed by purchasing power is called.....
7. The change in demand due to change in price only, where other factors remaining constant, it is called.....
8. The demand changes due to changes in other factors, like taste and preferences, income, price of related goods etc... , it is called
9. Generally demand curve haveslope.

Short answer type (Weightage -1)

1. What is demand?
- 2) What is demand analysis?
- 3) State the “law of demand”?
- 4) What is demand schedule?
- 5) What is Giffen paradox?
- 6) What is Veblen effect?
- 7) Define demand function?
- 8) What is shift in demand?
- 9) What is extension and contraction?
- 10) What is market demand schedule?

Short essay type (Weightage -2)

1. Define law of demand? What are its basic assumptions?
2. Why demand curve slopes downward?
3. What are the exceptions to the law of demand?
4. Explain the extension and contraction of demand?
5. Explain the shift in demand?
6. What are different types of demand?

Essay type (Weightage -4)

- 1) Define demand .discuss various determinants of demand?
- 2) Explain and illustrate shift in demand, extension and contraction of demand and make a comparative study?

DEMAND ESTIMATION AND FORECASTING

Demand Estimation

Business enterprise needs to know the demand for its product. An existing unit must know current demand for its product in order to avoid underproduction or over production. The current demand should be known for determining pricing and promotion policies so that it is able to secure optimum sales or maximum profit. Such information about the current demand for the firm's product is known as demand estimation.

Demand Estimation is the process of finding current values of demand for various values of prices and other determining variables.

Steps in Demand Estimation

1. Identification of independent variables such as price, price of substitutes, population, percapita income, advertisement expenditure etc.,
2. collection of data on the variables from past records, publications of various agencies etc.,
3. Development a mathematical model or equation that indicates the relationship between independent and dependant variables.
4. Estimation of the parameters of the model. I.e., to estimate the unknown values of the parameters of the model.
5. Development of estimates based on the model.

Tools and techniques for demand estimation includes;

1. Consumer surveys.
2. Consumer clinics and focus groups
3. Market Experiment.
4. Statistical techniques.

Demand Forecasting.

Accurate demand forecasting is essential for a firm to enable it to produce the required quantities at the right time and to arrange well in advance for the various factors of production. Forecasting helps the firm to assess the probable demand for its products and plan its production accordingly.

Demand Forecasting refers to an estimate of future demand for the product. It is an "objective assessment of the future course of demand". It is essential to distinguish between forecast of demand and forecast of sales. Sales forecast is important for estimating revenue, cash requirements and expenses. Demand forecast relate to production inventory control, timing, reliability of forecast etc...

Levels of Demand forecasting

Demand forecasting may be undertaken at three different levels;

1. **Macro level** – Micro level demand forecasting is related to the business conditions prevailing in the economy as a whole.
2. **Industry Level** – it is prepared by different trade association in order to estimate the demand for particular industries products. Industry includes number of firms. It is useful for inter-industry comparison.
3. **Firm level** – it is more important from managerial view point as it helps the management in decision making with regard to the firms demand and production.

Types of Demand Forecasting.

Based on the time span and planning requirements of business firms, demand forecasting can be classified into short term demand forecasting and long term demand forecasting.

Short term Demand forecasting: Short term Demand forecasting is limited to short periods, usually for one year. Important purposes of Short term Demand forecasting are given below;

1. Making a suitable production policy to avoid over production or underproduction.
2. Helping the firm to reduce the cost of purchasing raw materials and to control inventory.
3. Deciding suitable price policy so as to avoid an increase when the demand is low.
4. Setting correct sales target on the basis of future demand and establishment control. A high target may discourage salesmen.
5. Forecasting short term financial requirements for planned production.
6. Evolving a suitable advertising and promotion programme.

Long term Demand Forecasting: this forecasting is meant for long period. The important purpose of long term forecasting is given below;

1. Planning of a new unit or expansion of existing on them basis of analysis of long term potential of the product demand.
2. Planning long term financial requirements on the basis of long term sales forecasting.
3. Planning of manpower requirements can be made on the basis of long term sales forecast.
4. To forecast future problems of material supply and energy crisis.

Demand forecasting is a vital tool for marketing management. It is also helpful in decision making and forward planning. It enables the firm to produce right quantities at right time and arrange well in advance for the factors of production.

Methods of Demand Forecasting (Established Products)

Several methods are employed for forecasting demand. All these methods can be grouped into survey method and statistical method.

Survey Method.

Under this method, information about the desire of the consumers and opinions of experts are collected by interviewing them. This can be divided into four types;

1. Opinion Survey method: This method is also known as Sales- Force –Composite method or collective opinion method. Under this method, the company asks its salesmen to submit estimate for future sales in their respective territories. This method is more useful and appropriate because the salesmen are more knowledgeable about their territory.
2. Expert Opinion: Apart from salesmen and consumers, distributors or outside experts may also be used for forecast. Firms in advanced countries like USA, UK etc...make use of outside experts for estimating future demand. Various public and private agencies sell periodic forecast of short or long term business conditions.
3. Delphi Method: It is a sophisticated statistical method to arrive at a consensus. Under this method, a panel is selected to give suggestions to solve the problems in hand. Both internal and external experts can be the members of the panel. Panel members are kept apart from each other and express their views in an anonymous manner.

4. Consumer Interview method: Under this method a list of potential buyers would be drawn and each buyer will be approached and asked about their buying plans. This method is ideal and it gives firsthand information, but it is costly and difficult to conduct. This may be undertaken in three ways:
- A) Complete Enumeration – In this method, all the consumers of the product are interviewed.
 - B) Sample survey - In this method, a sample of consumers is selected for interview. Sample may be random sampling or Stratified sampling.
 - C) End-use method – The demand for the product from different sectors such as industries, consumers, export and import are found out.

Statistical Methods

It is used for long term forecasting. In this method, statistical and mathematical techniques are used to forecast demand. This method is relies on past data. This includes;

1. Trent projection method: Under this method, demand is estimated on the basis of analysis of past data. This method makes use of time series (data over a period of time). Here we try to ascertain the trend in the time series. Trend in the time series can be estimated by using least square method or free hand method or moving average method or semi-average method.
2. Regression and Correlation: These methods combine economic theory and statistical techniques of estimation. in this method, the relationship between dependant variables(sales) and independent variables(price of related goods, income, advertisement etc..) is ascertained. This method is also called the economic model building.
3. Extrapolation: In this method the future demand can be extrapolated by applying binomial expansion method. This is based on the assumption that the rate of change in demand in the past has been uniform.
4. Simultaneous equation method: This means the development of a complete economic model which will explain the behaviour of all variables which the company can control.
5. Barometric techniques: Under this, present events are used to predict directions of change in the future. This is done with the help of statistical and economic indicators like:
 - Construction contract,
 - Personal income
 - Agricultural income
 - Employment
 - GNP
 - Industrial production
 - Bank deposit etc...

Forecasting Demand for a New Product.

Joel Dean has suggested six approaches for forecasting the demand for new products.

1. **Evolutionary Approach**: In this method, the demand for new product is estimated on the basis of existing product. E.g. Demand forecasting of colour TV on the basis of demand for black & white TV.
2. **Substitute Approach**: The demand for the new product is analyzed as substitute for the existing product.
3. **Growth curve Approach**: On the basis of the growth of an established product, the demand for the new product is estimated.
4. **Opinion Polling Approach**: In this approach, the demand for the new product is estimated by inquiring directly from the consumers by using sample survey.
5. **Sales Experience Approach**: The demand is estimated by supplying the new product in a sample market and analyzing the immediate response on that product in the market..
6. **Vicarious Approach**: Consumers reactions on the new products are found out indirectly with the help of specialized dealers.

Factors Affecting Demand Forecasting.

The following are the important factors governing demand forecasting:

1. Prevailing Business conditions (price level change, percapita income, consumption pattern, saving, investments, employment etc..,
2. Condition within the Industry (Price –product-competition policy of firms within the industry).
3. Condition within the firm. (Plant capacity, quality, important policies of the firm).
4. Factors affecting Export trade (EXIM control, EXIM policy, terms of export, export finance etc..)
5. Market behaviour
6. Sociological Conditions (Population details, age group, family lifecycle, education, family income, social awareness etc..)
7. Psychological Conditions (taste, habit, attitude, perception, culture, religion etc...)
8. Competitive Condition (competitive condition within the industry)

Criteria for Good forecasting Method.

A good forecasting method should satisfy the following criteria:

1. **Plausibility**-It should be reasonable or believable.
2. **Simplicity**- It should be simple and easy.
3. **Economy** – it should be less costly.
4. **Accuracy** – it should be as accurate as possible.
5. **Availability** –Relevant data should be easily available.
6. **Flexibility** – it should be flexible to adopt required changes.

Concept of Revenue

For the purpose of demand analysis, it is considered useful to distinguish between various types of revenue:

Average Revenue (AR);

AR means the total receipts from sales divided by the number of unit sold.

$$AR = TR/Q$$

Total Revenue (TR):

TR means the total sales proceeds .it can be ascertained by multiplying quantity sold by price.

$$TR = P \times Q$$

Incremental Revenue (IR):

IR measures then differences between the new TR and existing TR

$$IR = R_2 - R_1 = \Delta R$$

Marginal Revenue (MR);

It is the additional revenue which would be earned by selling an additional unit of a firm's products. It shows the change in TR when one more or one less unit is sold.

$$MR = \frac{R_2 - R_1}{Q_2 - Q_1} = \frac{\Delta R}{\Delta Q}$$

Where, R1= TR before price change

R2= TR after price change

Q1 = old quantity before price change

Q2 = new quantity after price change

The relationship between AR, TR and MR can be understood with the help of the following table

Quantity demanded (Q)	AR	TR	MR
1	9	9	9
2	8	16	7
3	7	21	5
4	6	24	3
5	5	25	1
6	4	24	-1
7	3	21	-3
8	2	16	-5
9	1	9	-7

The study of the above table reveals that:

1. So long as AR is falling, MR will be less than AR
2. MR falls more steeply than AR
3. TR will be rising so long as MR is positive
4. Where MR is negative, TR will be falling
5. TR will be maximum at the point where MR is Zero.

The relation between elasticity of demand and TR can be summarized as under:

Change in price	Elasticity >1	Elasticity $=1$	Elasticity <1
Rises in price	TR falls	TR unchanged	TR rises
Fall in price	TR rises	TR unchanged	TR falls

Incremental Revenue is the change in total revenue irrespective of changes in price. It is not confined to the effect of price change. It rather measures the effect of managerial decision on total revenue.

Self check questions

Fill in the blanks. (Weightage-1/4)

1. ----- Is an “objective assessment of the future course of demand”.
2. Vicarious approach is meant for the forecasting of
3.method is also called “economic model building”
4.is the base of marketing planning.

Short answer type (Weightage -1)

What do you mean by demand forecasting?

2. What is demand estimation?
3. What is Delphi method?
4. What are the levels of forecasting?
5. What is survey method?

Short essay type (Weightage -2)

What are the objectives of demand forecasting?

1. What are the factors affecting demand forecasting?
2. What are the methods for forecasting demand for the new product?
3. What are the criteria for ideal forecasting method?

Essay type (Weightage -4)

1. What is demand forecasting? State various methods for demand forecasting?
2. Define demand forecasting? How is it different from demand estimation? Explain its objectives?

MODULE III

PRODUCTION

Introduction

In Economics the term production means process by which a commodity(or commodities) is transformed in to a different usable commodity. In other words, production means transforming inputs(labour ,machines ,raw materials etc.) into an output. This kind of production is called manufacturing. The production process however does not necessarily involve physical conversion of raw materials in to tangible goods . it also includes the conversion of intangible inputs to intangible outputs . For example , production of legal, medical ,social and consultancy services- where lawyers, doctors, social workers consultants are all engaged in producing intangible goods.

An 'input' is good or service that goes in to the process of production and "out put" is any good or service that comes out of production process.

Fixed and variable inputs.

In economic sense, a fixed input is one whose supply is inelastic in the short run .Therefore, all of its users cannot buy more of it in short run. Conceptually, all its users, cannot employ more of it in the short run. If one user buys more of it, some other users will get less of it. A variable input is defined as one whose supply in the short run is elastic, eg:Labour, raw materials etc. All the users of such factors can employ larger quantity in the short run.

In technical sense ,a fixed input remains fixed (constant) up to a certain level of output whereas a variable input changes with change in output . A firm has two types of production function:-

(1) Short run production function

(2) Long run production function

Production function

Production function shows the technological relationship between quantity of out put and the quantity of various inputs used in production. Production function in economic sense states the maximum output that can be produced during a period with a certain quantity of various inputs in the existing state of technology. In other words, It is the tool of analysis which is used to explain the input - output relationships. In general, it tells that production of a commodity depends on the specified inputs. in its specific tem it presents the quantitative relationship between inputs and output . inputs are classified as:-

- 1 . Fixed input or fixed factors.
2. Variable input or variable factors.

Short run and Long run

Short run refers to a period of time in which the supply of certain inputs (E.g. :- plant, building ,machines, etc) are fixed or inelastic. Thus an increase in production during this period is possible only by increasing the variable input . In some Industries, short run may be a matter of few weeks or a few months and in some others it may extend even up to three or more years.

The long run refers to a period of time in which " supply of all the input is elastic ; but not enough to permit a change in technology. In the long run, the availability of even fixed factor increases. Thus in the long run, production of commodity can be increased by employing more of both ,variable and fixed inputs.

In the strict sense ,production function is defined as the transformation of physical input in to physical out put where out put is a function input .It can be expressed algebraically as;

$$Q=f(K,L \text{ etc}). \text{Where}$$

Q- Is the quantity of out put produced during a particular period

K, L etc are the factors of production

f -denotes the function of or depends on.

The production functions are based on certain assumptions;

1. Perfect divisibility of both inputs and out put;
2. Limited substitution of one factor for the others
3. Constant technology; and
4. Inelastic supply of fixed factors in the short run

Cobb-Douglas Production Function.

One of the important tool of statistical analysis in production function that measures the relation between change in physical input is cob-Douglas production function . The concept was originated in USA. This is more peculiar to manufacturing concerns. The cob-Douglas formula says that labour contributes about 75% increases in manufacturing production while capital contributes only 25%.The formula is as follows:-

$$O=KL^aC^{1-a}$$

Where O is output. L is the quantity of labour 'C' is the quantity of capital employed K and a(a<1)are positive constants. a and 1-a measure percentage response of output to percentage change in labour and capital respectively.

The production function shows at One (1%)percentage change in labour, capital remaining constant, is associated with 0.75% change in output . Similarly One percentage change in capital, labour remaining constant, is associated with a 20%change in output. Returns to scale are constant. That is if factors of production are increased, each by 10 percentage then the output also increases by 10 percentage

The laws of production

Production function shows the relationship between a given quantity of input and its maximum possible out put. Given the production function, the relationship between additional quantities of input and the additional output can be easily obtained. This kind of relationship yields the law of production The traditional theory of production studies the marginal input-output relationship under (I) Short run; and (II) long run. In the short run, input-output relations are studied with one variable input, while other inputs are held constant .The Law of production under these assumptions are called “ the Laws of variable production”. In the long run input output relations are studied assuming all the input to be variable. The long-run input output relations are studied under `Laws of Returns to Scale.

Law of Diminishing Returns (Law of Variable Proportions)

The Laws of returns states the relationship between the variable input and the output in the short term. By definition certain factors of production (e.g.-Land, plant, machinery etc) are available in short supply during the short run . Such factors which are available in unlimited supply even during the short periods are known as variable factor. In short-run there fore ,the firms can employ a limited or fixed quantity of fixed factors and an unlimited quantity of the variable factor . In other words, firms can employ in the short run varying quantities of variable inputs against given quantity of fixed factors. This kind of change in input combination leads to variation in factor proportions. The Law which brings out the relationship between varying factor properties and output are there fore known as the Law of variable proportions..

The variation in inputs lead to a disproportionate increase in output more and more units of variable factor when applied cause an increase in output but after a point the extra output will grow less and less. The law which brings out this tendency in production is known as' Law of Diminishing Returns`

The Law of Diminishing returns levels that any attempt to increase output by increasing only one factor finally faces diminishing returns. The Law states that when some factor remain constant ,more and more units of a variable factor are introduced the production may increase initially at an increasing rate; but after a point it increases only at diminishing rate. Land and capital remain fixed in the short-term whereas labour shows a variable nature.

OX axis represents the units of labour and OY axis represents the unit of output. The total output (TP) curve has a steep rise till the employment of the 4th worker. This shows that the output increases at an increasing rate till the employment of the 4th labour. TP curve still goes on increasing but only at a diminishing rate. Finally TP curve shows a downward trend.

The Law of Diminishing Returns operation at three stages. At the first stage, total product increases at an increasing rate. The marginal product at this stage increases at an increasing rate resulting in a greater increase in total product. The average product also increases. This stage continues up to the point where average product is equal to marginal product. The law of increasing returns is in operation at this stage.

The Law of increasing Returns operates from the second stage onwards. At the second stage, the total product continues to increase but at a diminishing rate. As the marginal product at this stage starts falling, the average product also declines. The second stage comes to an end where total product becomes maximum and marginal product becomes zero. The marginal product becomes negative in the third stage. So the total product also declines. The average product continues to decline in the third stage.

Assumptions of Law Diminishing Returns

The Law of Diminishing Returns is based on the following assumptions:-

Returns is based on the following assumptions:-

1. The production technology remains unchanged
2. The variable factor is homogeneous.
3. Any one factor is constant
4. The fixed factor remains constant.

Law of Returns to scale

In the long-run all the factors of production are variable, and an increase in output is possible by increasing all the inputs. The Law of Returns to scale explains the technological relationship between changing scale of input and output. The law of returns of scale explains how a simultaneous and proportionate increase in all the inputs affects the total output. The increase in output may be proportionate, more than proportionate or less than proportionate. If the increase in output is proportionate to the increase in input, it is constant Returns to scale. If it is less than proportionate, it is diminishing returns to scale. The increasing returns to the scale comes first, then constant and finally diminishing returns to scale happens.

Increasing Returns to scale

When proportionate increase in all factors of production results in a more than proportionate increase in output and this results in the first stage of production which is known as increasing returns to scale. Marginal output increases at this stage. Higher degree of specialization, falling cost etc will lead to higher efficiency which results in increased returns in the very first stage of production.

Constant Returns to scale

Firms cannot maintain increasing returns to scale indefinitely after the first stage, firm enters a stage when total output tends to increase at a rate which is equal to the rate of increase in inputs. This stage comes into operation when the economies of large scale production are neutralized by the diseconomies of large scale operation.

Diminishing Returns to Scale

In this stage, a proportionate increase in all the inputs results only in a less than proportionate increase in output. This is because of the diseconomies of large scale production. When the firm grows further, the problem of management arises which results in inefficiency and it will affect the position of output.

Economies of Scale

The factors which cause the operation of the laws of returns to scale are grouped under economies and diseconomies of scale. Increasing returns to scale operates because of economies of scale and decreasing returns to scale operates because of diseconomies of scale where economies and diseconomies arise simultaneously. Increasing returns to scale operates when economies of scale are greater than the diseconomies of scale and returns to scale decreases when diseconomies outweigh the economies of scale. Similarly when economies and diseconomies are in balance, returns to scale becomes constant.

When a firm increases all the factors of production it enjoys the same advantages of economies of production. The economies of scale are classified as ;

1. Internal economies.
2. External economies

Internal economies of scale

Internal economies are those which arise from the expansion of the plant-size of the firm. Internal economies of scale may be classified;-

- (a) Economies in production.
- (b) Economies in marketing
- (c) Economies in management
- (d) Economies in transport and storage

A . Economies in production :-it arises from

1. Technological advantages
2. Advantages of division of labour and specialization

B . Economies in marketing;-It facilitates through

1. Large scale purchase of inputs.
2. Advertisement economies ;
3. Economies in large scale distribution
4. Other large-scale economies

C . Managerial economies ;- It achieves through

1. Specialization in management
2. Mechanization of managerial function.

D . Economies in transport and storage

Economies in transportation and storage costs arise from fuller utilization of transport and storage facilities.

External Economies of scale

External or pecuniary economies to large size firms arise from the discounts available to it due to;

- 1 . Large scale purchase of raw materials
- 2 . Large scale acquisition of external finance at low interest
- 3 . Lower advertising rate from advertising media.
- 4 . Concessional transport charge on bulk transport.
- 5 . Lower wage rates if a large scale firm is monopolistic employer of certain kind of specialized labour

Thus External economies of scale are strictly based on experience of large –scale firms or well managed small scale firms. Economies of scale will not continue for ever. Expansion in the size of the firms beyond a particular limit , too much specialization, inefficient supervision, Improper labour relations etc will lead to diseconomies of scale .

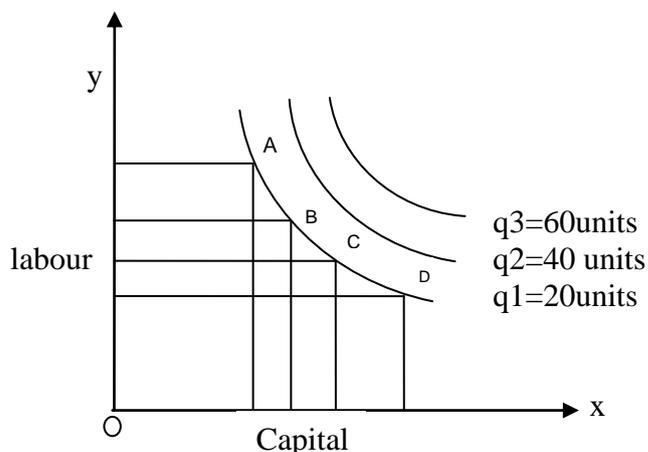
Isoquant curve.

The terms “ Iso-quant” has been derived from the Greek word *iso* means `equal` and Latin word *quantus* means `quantity`. The iso-quant curve is therefore also known as `` equal product curve ``or production indifference curve . An iso-quant curve is locus of point representing the various combination of two inputs –capital and labour –yielding the same output. It shows all possible combination of two inputs, namely- capital and labour which can produce a particular quantity of output or different combination of the two inputs that can give in the same output . An isoquant curve all along its length represents a fixed quantity of output.

The following table illustrates combination of capital (K) and labour (L) which give the same output say-20units.

The combinations of A uses one unit of ‘K’ and 12 units of ‘L’ to produce is20 units. likewise the combinations B,C,D and E give the same output --20 units.

Combination	Capital	Labour	Output
A	1	12	20
B	2	8	20
C	3	5	20
D	4	3	20
E	5	2	20



The above curve shows the four different combinations of inputs. (capital and labour) which give the same output namely 20units ,40units ,60units respectively. Thus it provides fixed level of output. Further the shape of isoquants reveal the degree of substitutability of one factor for another to yield the same level of output . It also implies the diminishing marginal rate of technical substitution. Marginal rate of technical substitution refers to the rate at which one output can be substituted for another in order to keep the output constant . The slope of an isoquant indicates the marginal rate of technical substitution at the point.

Properties of Isoquants

1. Isoquants have a negative slope:-An isoquant has a negative slope in the economic region or in the relevant range. Economic region means where substitution between input is technically possible that keeps same output.

2 . Isoquants are convex to origin:-

Convex nature of Isoquant shows the substitutability of One factor for another and the diminishing marginal rate of technical substitution

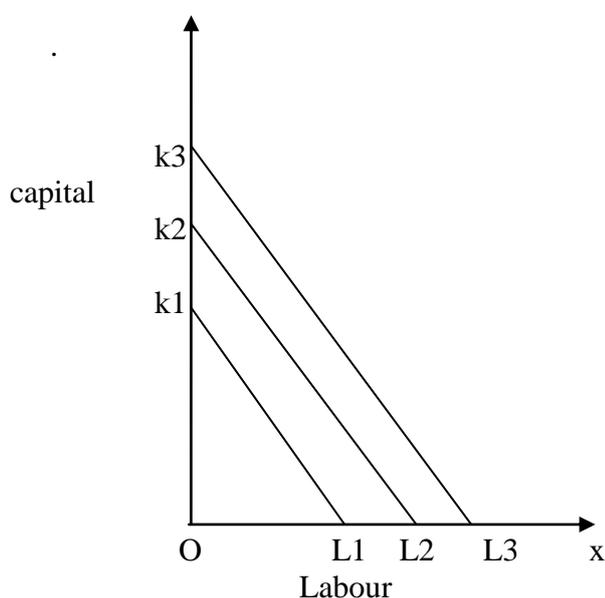
3 . Isoquant cannot Intersect or be tangent to each other

Marginal Rate of Technical substitution (MRTS)

MRTS is the rate at which marginal unit of an input can be substituted for the marginal units of the other input so that the level of output remains the same. In other words it is the ratio of marginal unit of labour substituted for the marginal units of capital without affecting the total output. This ratio indicates the slop of Isoquants

Isocost Curve

Isocost curve shows the different combination that a firm can buy with a certain an unit of money.

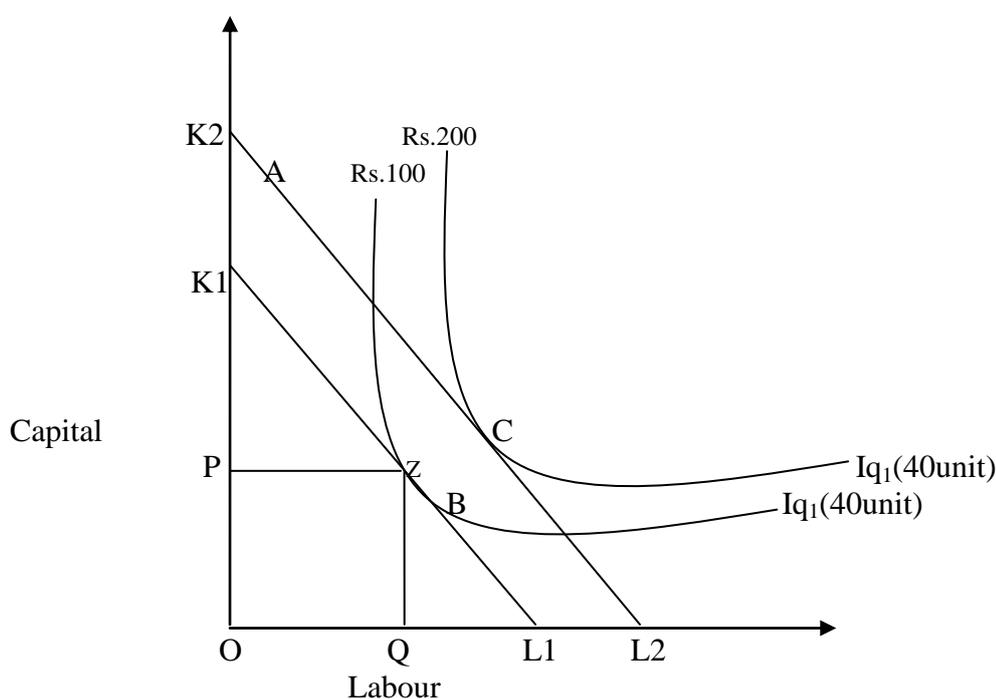


Usually, the management has to incur expenditure in buying inputs namely - labour , raw – materials, machinery etc. Further ,management is expected to know price of inputs what it costs to produce a given output. Therefore, it is required to minimize the cost of output that it produces. Here management is more helpful to draw isocost curve that represents the equal cost . An iso-cost line is so called because it shows the all combinations of inputs having equal total cost. The isocost lines are straight lines which represents the same cost with different input combinations. .Suppose a firm decides to spend Rs.100 on output .If one unit of labour costs Rs.10 the firm can purchase 10units of labour. Similarly, If a unit of capital cost Rs.25,the firm can spend the whole amount on buying 4 units of capital likewise the firm can spend partly on capital, say 2 units and party on labour ,say 5 units for this Rs.100.

The figure shows that the firm has the option to spend the total money either on capital or labour or on both, from this Rs.100, the firm can buy either OL, units of labour or OK, units of capital or any combination of those two between the extremes'K1'and L1. An isocost curve represents the same cost for all the different combination of inputs. The upward isocost curve as represented by K2 L2 and K3 L3shows higher amounts spent on larger quantities of both K and L

Optimum Combination of inputs

A profit maximizing firm seeks to minimize its cost for a given output or to maximize the output for a given total cost. A certain quantity of output can be produced with different Input combinations. Optimum input combination is that which bears least cost. Thus the input combination that results in the minimum cost of production is to be found out. This is known as least - cost input combination. This can be found out by combining Isoquant curves and Isocost curves. The production function is represented by Isoquant curve and the cost function is represented by Isocost curve. The least cost combination exists at a point where Isoquant is tangent to Isocost.



The figure shows the least –cost combination of capital end labour. The Isoquant Iq_1 , is tangent to the Isocost curve K_1L_1 at point 'z'. At this point in the combination is OP of capital and OQ of labour. The point 'z' gives the ideal combination which minimizes cost of production per units. It is the point at which the firm is in equilibrium. At the point 'z' the isocost line K_1L_1 , representing Rs100 is tangent to the isoquant curve Iq_1 , representing 20units of output. Any other point on Iq_1 , would mean the same output, but at high cost. The point A or B or Iq_1 , gives the same output but with a higher cost combination of inputs K_2L_2 representing Rs.200. The point C is the least cost point of producing 40 units formed by the intersection of $Iq_2(40\text{ units})$ and $K_2,L_2(\text{Rs.}200)$

Questions:-

(Each question carries a weightage of One-fourth)

1. The law of variable proportion was first explained by.....
2. Labour is.....nature.
3.is considered as produced means of production.
4. The technical relation between a given set of inputs and the output is called
5. All inputs becomein the long run.

(Each question carries a weightage of One)

1. Define production function ?
2. Distinguish between fixed and variable inputs?
3. State the Cobb-Douglas production function ?
4. Explain the term Law of return?
5. What is meant by economies of scale?
6. State the term isoquants?
7. What is Marginal Rate of Technical Substitution ?

(Each question carries a weightage of Two)

1. Explain the peculiarities of factors of production?
2. Explain the law of variable proportion ?
3. Distinguish between isoquants and isocosts?
4. Explain the input –output relationship?
5. Discuss the term optimum combination of inputs?

(Each question carries a weightage of One-four)

1. Briefly explain the concept of Law of diminishing returns? Discuss its assumption and importance?
2. Explain the various economies and diseconomies of scale?

MODULE IV

MARKET STRUCTURES AND PRICE OUTPUT DETERMINATION

Introduction

The determination of price of the product is an important managerial function. Price affects profit through its effect both on revenue and cost. profit is concerned With the difference between cost and the revenue .It always depends on cost and volume of sales. Therefore the management always tries to find out the optimum combination of price and output which offers the maximum profit to the firm. Thus pricing occupies an important place in economic analysis of firms.

The knowledge of market and market structure with which a firm operates is more helpful in price output decisions . Market in economic term means a meeting place where buyers and sellers deal directly or indirectly. Clark and Clark defines market as that “any body of persons who are in intimate business relations and carry on extensive transactions in any commodity” . Market structures are different market forms based on the degree of competition prevailing in the market. Broadly the market forms are classified into two types:-

1. Perfectly competitive market
2. Imperfectly competitive market

Perfect Competition

The term perfect competition is used in wider sense. perfect competition means all the buyers and sellers in the market are aware of price of products .The following are the characteristics of perfectly competitive market

1. Large number of buyers and sellers in the market
2. Homogeneous product
3. Free entry or exit
4. All the buyers and sellers in the market have perfect knowledge about the market conditions.
5. Perfect mobility of factor of production
6. Absence of transportation costs.

When the first three assumptions are satisfied there exists pure competition .competition becomes perfect only when all the assumptions are satisfied . In perfect competition ,the demand for the output for each producer is perfectly elastic .With the larger number of firms and homogeneous products, no individual firm is in a position to influence the price .

Equilibrium Price

The demand curve normally slopes downwards showing that more quantity of commodity will be demanded at a lower price than at a higher prices. Similarly supply curve showing an upward trend where the producers will offer to sell a larger quantity at a higher price than at a lower price . Thus the quantity demanded and quantity supplied vary with price .The price that tends to settle down or comes to stay in the market (where both buyers and sellers are satisfied) is at which quantity demanded equals quantity supplied. The point so formed is known as equilibrium point and price is known as equilibrium price.

Effect of time on supply

According to Marshall, time has great influence on the determination of price. The following are the market periods based on time- market period, short period and long period.

1. Very short period (Market period)
2. Short period
3. Long period

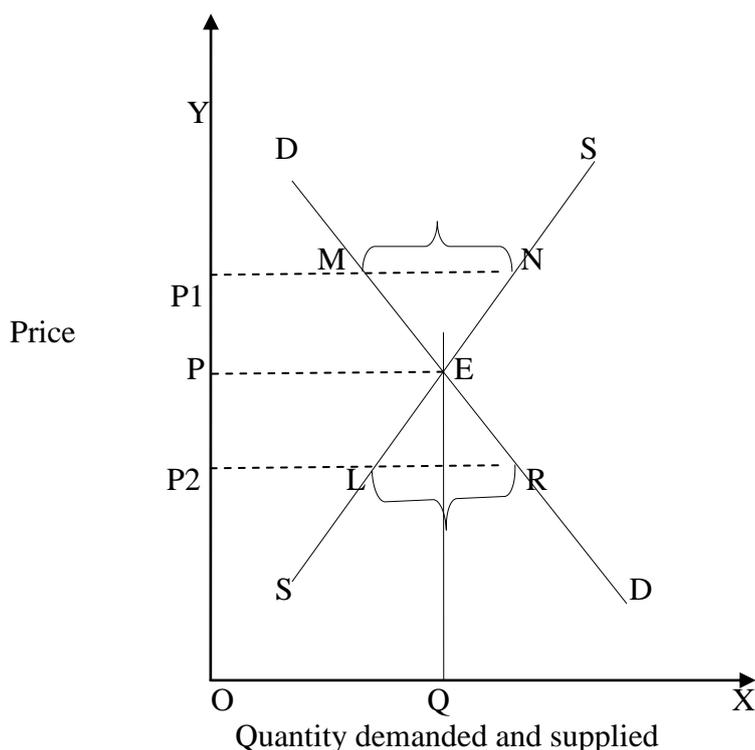
Market period or very short period may be only a day or very few days. Change in supply is not possible where the period is very short and quantity demanded will be the determining factor in this period. Further, supply curve in the market period is remain fixed showing vertical straight line.

The short period is a period not sufficient to make any changes in the existing fixed plant capacity. Increase in supply in the short period is possible by increasing the variable factors of production only. The supply curve slopes upward to right showing that some increase in supply is possible when the price increases.

Long period is a time long enough to adjust the supply to any changes in demand. The long run supply curve is less steep than short run supply curve showing increase in quantity supplied when price changes.

Price determination Under perfect competition

In perfect competition the market price of a commodity is determined by its demand and supply. The price of a commodity determines at the point where quantity demanded equates quantity supplied. It can be explained through the following diagram.



In the above diagram, DD denotes the demand curve and SS denotes the supply curve. Demand and supply curves slopes in opposite direction. In this diagram OP is the equilibrium price where the demand curve equates with the supply curve. In this figure, the point E determines the equilibrium price and OQ is the equilibrium quantity. From the diagram it can be noted that if the price increases to OP_1 , the demand will be P_1M and supply will be P_1N . So MN will be excess supply. Under this circumstance, the firm will be forced to lower the price in order to sell the excess stock. If the firm can minimize the price, the profit will be low. Thus we can say that at the point of equilibrium firm can derive maximum profit. At the point of equilibrium, there are two conditions to be satisfied.

1) $MC=MR$ Where MC =marginal Cost(Cost of producing an additional unit)

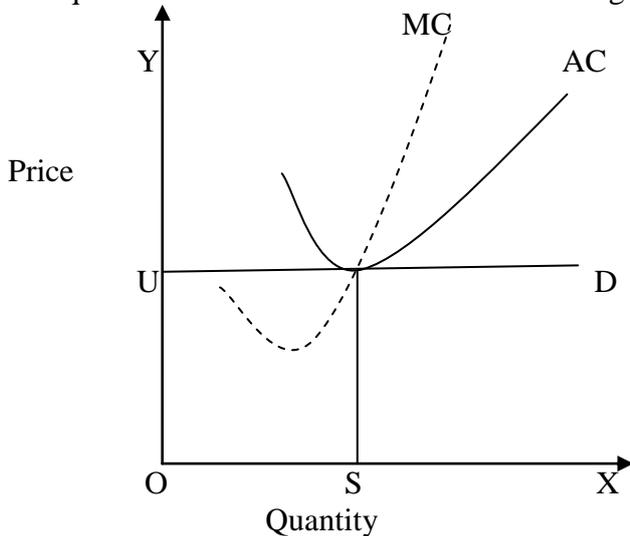
MR =marginal Revenue realized from the sale of an additional unit)

2) MC Curve Cuts MR curve from below that is MC Curve should have positive slope.

Under perfect competition ,the following equations are satisfied.

$MC=MR,$ $MR=AR$ $Price=AR=AC$ There fore , $Price= MR=MC=AR=AC.$

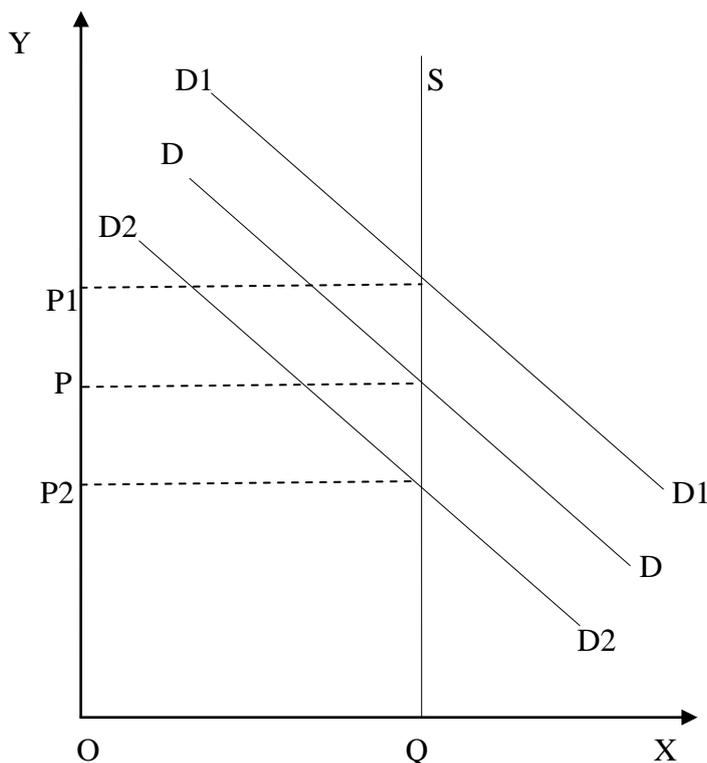
The equations can be satisfied with the following diagrams



When the firm is OS quantity of goods, the MC curve cuts the AC curve at its lowest. At the lowest point the AC curve is tangential to the demand (ie $AC=MC=AR$) curve .Thus the price OU is equal to the marginal cost(ST)which is again equal to average cost (ST).The firms under perfect competition will be the cost efficient size or optimum size which gives the lowest possible average cost of production per unit.

During the Market period

In very short period ,supply is inelastic ,thus the price depends on changes in demand .The supply curve will be vertical straight line parallel to y -axis.

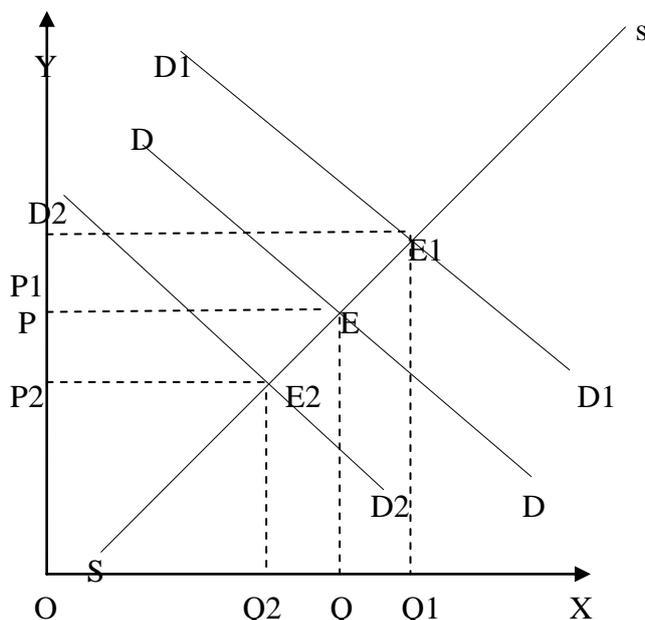


In the above diagram, SP is the supply curve. It means where ever the price is ,the fixed supply is to be sold in the market .Here DD is the demand curve .The supply is SQ .The point of equilibrium is at 'S' so the equilibrium is OP. Here the demand alone determines the price because supply is fixed. If the demand increases to D1D1, the price will increase from OP to OP₁ and vice versa ,ie, if the demand decreases to D2D2 , the price will decrease to OP₂.

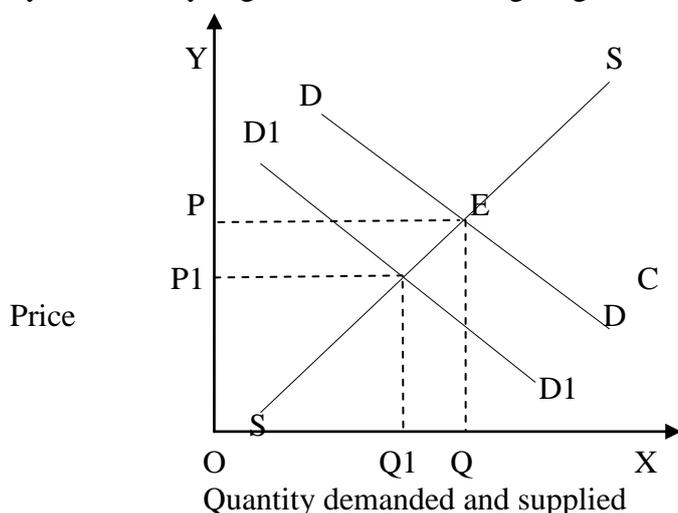
If the commodity is non- perishable, It can be stored .The seller does not sell the goods if the price is low. But the price is high he will sell whole stock .The curve will be curved at beginning ;then it will become a straight line .Under very short period , the demand alone determines the price.

During short period

In this period ,the firm can make slight changes in their supply of goods without changing the capacity of plant.



In this diagram ,DD is the demand curve and SS is the supply curve. At point 'E' the demand curve equals the supply curve ,the equilibrium price is OP.If the demand is increased to D1D1 the equilibrium price will be OP₁ and if the demand decreased to D2D2 , the equilibrium will be OP₂. But the quantity will be decreased from OQ to OQ₂. The firm in the short run can produce output by increasing the variable inputs. . A firm gets maximum profit where MC=MR .The price determination by the industry is given in the following diagram.



In the above diagram, it can be revealed that the price is determined by the industry OP. when the demand is shifted to D1D1 then the quantity demanded is decreased from OQ to OQ1 and also price decreases from OP to OP1. In the case of a firm, $MR=AR$, thus demand $=AR=MR=price$

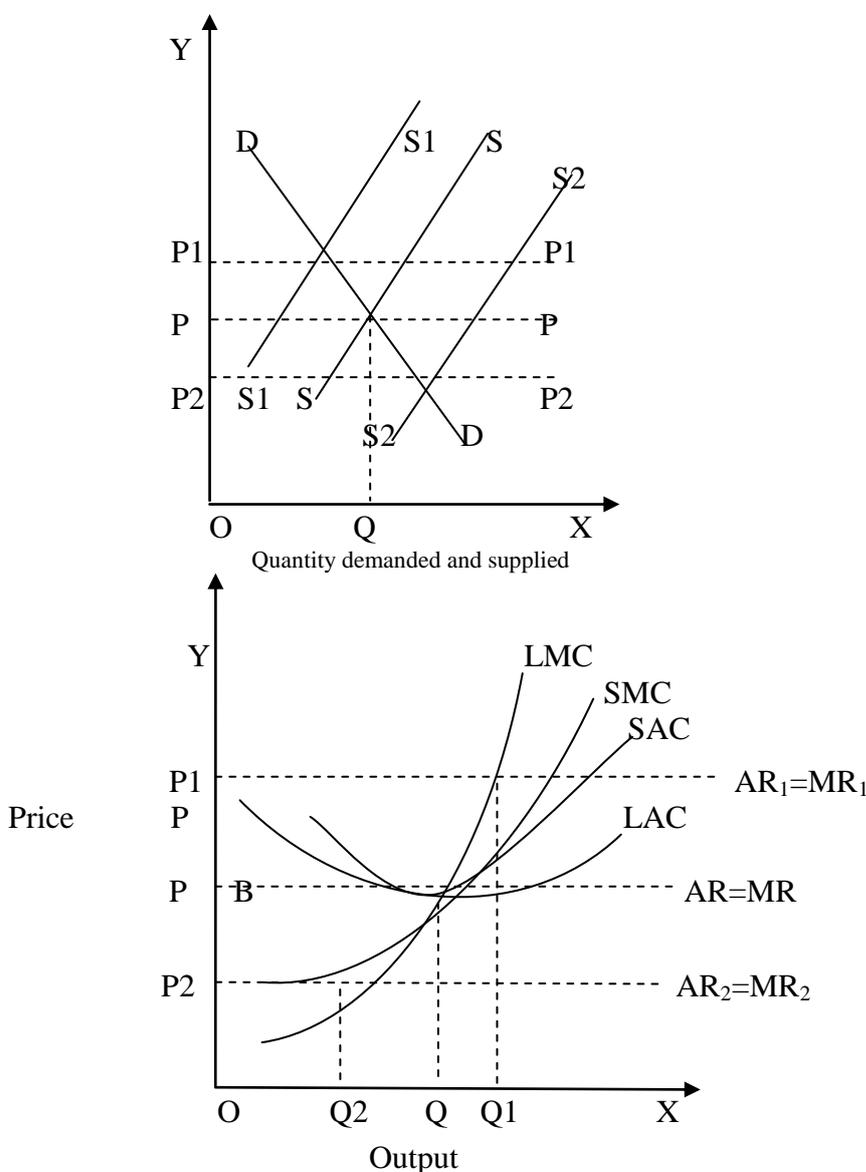
In the long run

In the long run, the firms in the industry are eager to get super normal profits. The price determination is explained through the diagram given below;

In output decision making in the long run. Long run Average Cost (LAC) and Long run Marginal Cost (LMC) are to be taken in to consideration. under this condition, the firm is in equilibrium

When $AR=MR=LAC=LMC$

Figure 1



In the above diagram. (1) DD is the long run . Demand curve and S₁ S₁ short run supply curve .The price is determined at OP.In the figure 2,the equilibrium output is at point E. At this point .AR₁=MR=LMC

Monopoly

Monopoly means `single` selling . In brief, monopoly is a market situation in which there is only one seller or producer of a product for which no close substitution is available .As there is only one firm under monopoly ,that single firm constitutes the whole industry .The monopolist can fix price of his product and can pursue an independent price policy .A monopolist can take the decision about the price of his product .For ex:- electricity , water supply companies etc.

Features

The following are the important features of monopoly :-

1. One seller and a large number of buyers.
2. No close substitutes for the product .
3. Monopolist is not the price taker and the price maker.
4. Monopolist can control the supply.
5. No entry of new firm to the market .
6. Firm and industry are the same

Causes of Monopoly

1. Legal restrictions
2. Exclusive ownership or control over the raw materials.
3. Economies of large scale production
4. Exclusive knowledge of a production technique.

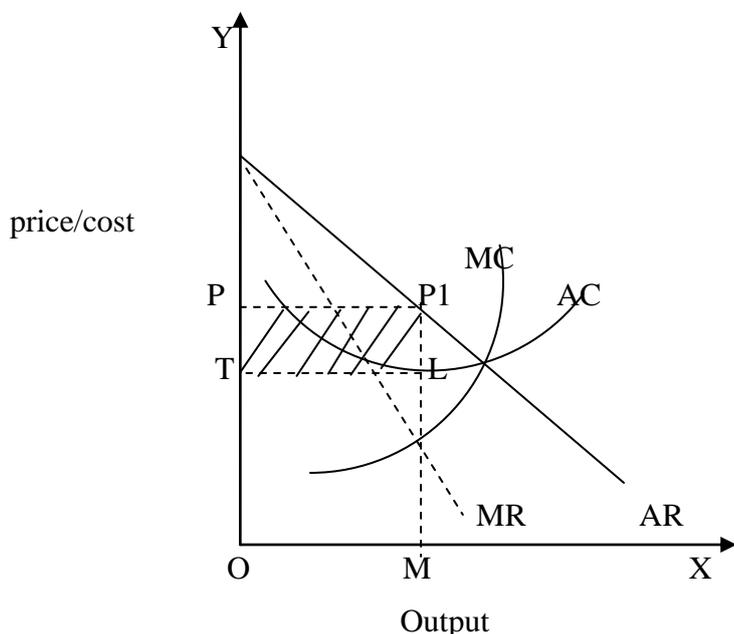
Price Determination under Monopoly

A monopoly firm has complete control over the entire supply .It can sell different quantities at different prices .It can sell more if it cuts down its price . Thus the monopoly firm faces a downward sloping demand curve or average revenue (AR)curve .As the single firm constitutes the industry the demand curve of the monopoly firm and the industry will be the same. But under perfect competition the firm`s demand curve is a horizontal straight line ,but the industry`s demand curve slopes down wards. Since average revenue falls when more units of output are sold marginal revenue will be less than average revenue .MR curve thus declines at a greater rate than .AR curve and it falls below AR curve .

Though the monopolist has the freedom to fix any price he will prefer a price output combination that gives him maximum profit.. He goes on producing so long as additional units add more to revenue than to cost He will stop at that point beyond which additional units of production add more to cost than to revenue. In other words he will be in equilibrium position at the output level at which MR equal MC and MC cuts MR from below.

Short Run Monopoly Equilibrium

The monopolist will be in short run equilibrium where the output having MR equal MC



In the following figure the monopolist will be in short run equilibrium at output OM where MR is equal to the short run marginal cost curve MC.

At an output OM, MP is the average revenue (price) and ML is the average cost of production. Therefore P1L is the monopoly profit per unit. The total profit is equal to product of profit per unit with total output. The following are the result of monopoly operation in the market

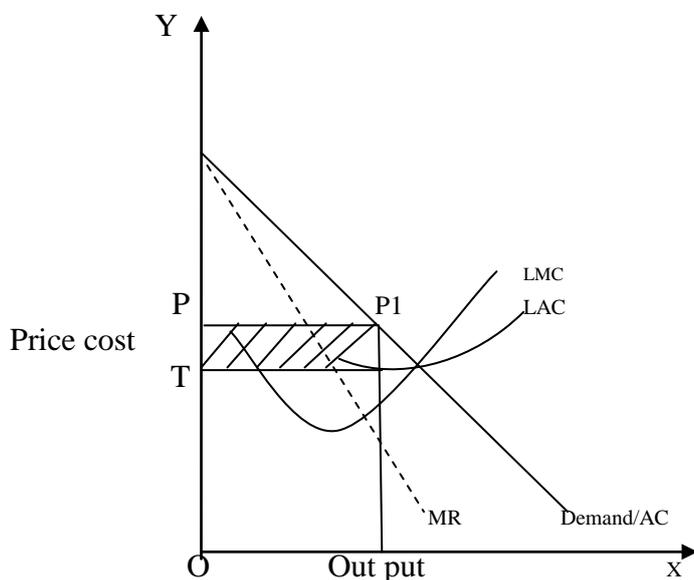
If AR greater than AC - results super normal profit

If AR equals AC results normal profit

If AR less than AC that results loss to the firm

Long run Monopoly Equilibrium

The monopolist is the single producer and the new firms cannot enter the industry which enables the monopolist to continue to earn super profit in the long run. In the figure the long run equilibrium of the monopolist will be at the output where the long run marginal cost curve MC intersects the marginal revenue curve MR



The shaded rectangle 'PP'LI' shows the long run monopolist profit. In the long run, if the cost is at an increasing trend, he will fix a high price and sell a large quantity. This will help him to make maximum profit.

Difference between perfect competition and Monopoly

1. Under perfect competition there are many sellers but in the case of monopoly, there is only one seller.
2. Individual seller has no control over the market supply in the case of perfect competition. But in the case of Monopoly individual seller controls the supply.
3. Products are identical in the case of perfect competition, but there is only one product in the case of Monopoly.
4. Under perfect competition, there are free entry and exit of firms. But the Monopolist blocks the entry.
5. The Monopolist discriminates the price but there is uniform price in perfect competition.
6. Firm and Industry is different in the case of perfect competition, they are same in the case of Monopoly.

Monopolistic Competition

In the present World market, it can be seen that there is no monopoly and there is no real competition. There is a mix up of the two. This situation is generally known as Monopolistic competition. According to Prof. E. H. Chamberlin of America, Monopolistic Competition means a market situation in which competition is imperfect. The products of the firms under monopolist competition, are mainly close substitutes to each other.

Features /Assumptions of Monopolistic Competition.

The following are the important features of Monopolistic Competition.

1. There are large numbers of producers or sellers.
2. It deals with differentiated products.
3. There are free entry and exit of firms to the markets.
4. The selling cost determines the demand for the products.
5. There is no association of firms.
6. There is no price competition.
7. There is lack of knowledge of the market.

Price and Output decisions under Monopolistic Competition

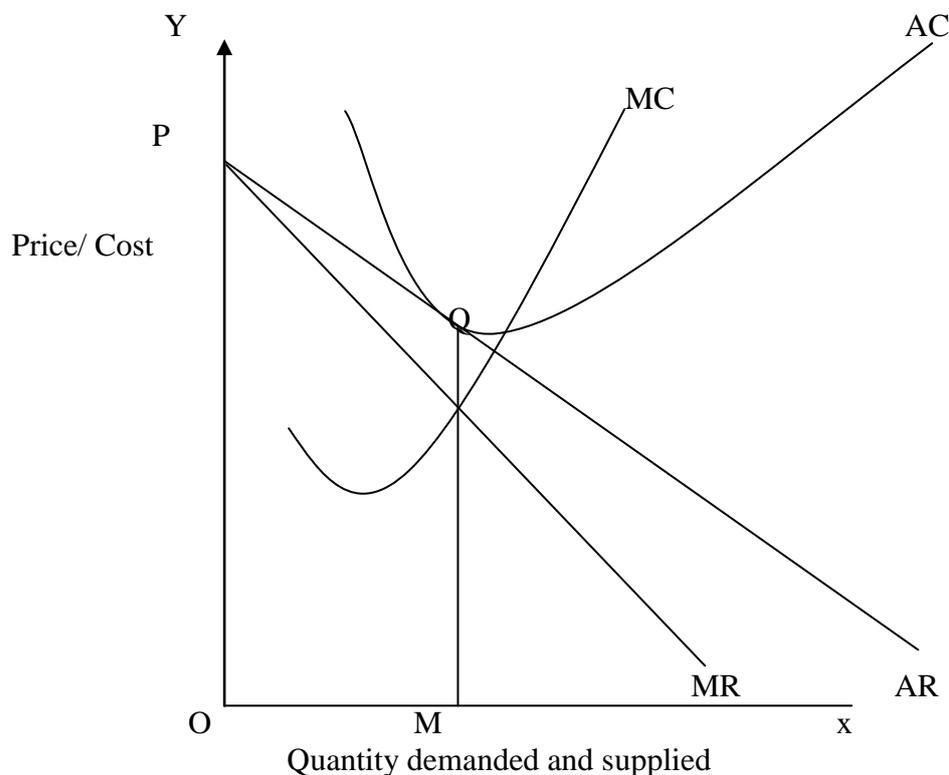
Short run period

In short run, each existing firm is a monopolist having a downward sloping demand curve for its product. In order to maximize its profit the firm will produce that level of output at which $MC=MR$ if price is more than MR, there will be abnormal profit.

Long –Run Period

In the long period, normal profits will disappear. New firms will enter the industry and consequent expansion of output will decrease the price and only normal profit are made by the firms. Profit are normal only when Average Cost (AC) equals the Average Revenue (AR). Then the equilibrium output will be at AC and $MC=MR$.

Figure 9



In the above diagram, the equilibrium output is OM where $MC = MR$ and $AC > AR$. Abnormal profit disappears because $TC = TR$. (Total cost = Total Revenue)

Difference between Perfect Competition and Monopolistic Competition

Perfect Competition	Monopolistic Competition
1) Products are identical . 2) It is not a real concept 3) Large Number of buyers and sellers . 4) Perfect knowledge of market Condition 5) Selling Cost do not play any role . 6) They are price takers 7) Demand curve is horizontal 8) AR, MR curves are parallel to x axis and price = demand = AR=MR	1) Products are differentiated 2) It is real concept . 3) Buyers and Sellers are not so large 4) Lack of perfect knowledge of market Condition 5) Selling cost has an important role. 6) They are price markers . 7) Demand curve is downward sloping 8) Price = demand = AR=But $MR < AR$.

Oligopoly

Oligopoly is a situation in which there are so few sellers that each of them is conscious of the results upon the price of the supply. Which he individually places upon the market. According to J. Stigler 'Oligopoly is that situation in which a firm bases its market policy in part on the expected behavior of a few close rivals'. Further, they may produce homogeneous or differentiated products.

Characteristics

Oligopoly is a distinct market condition . It has the following features:

1. The firms are inter dependent in decision making .
2. Advertising should be effective.
3. Firms should have group behavior.
4. Indeterminateness of demand curve .
5. The number of firms or producers or sellers are very small .
6. Product are identical or close substitutes to each other
7. There is an element of Monopoly

Price Determination Under Oligopoly

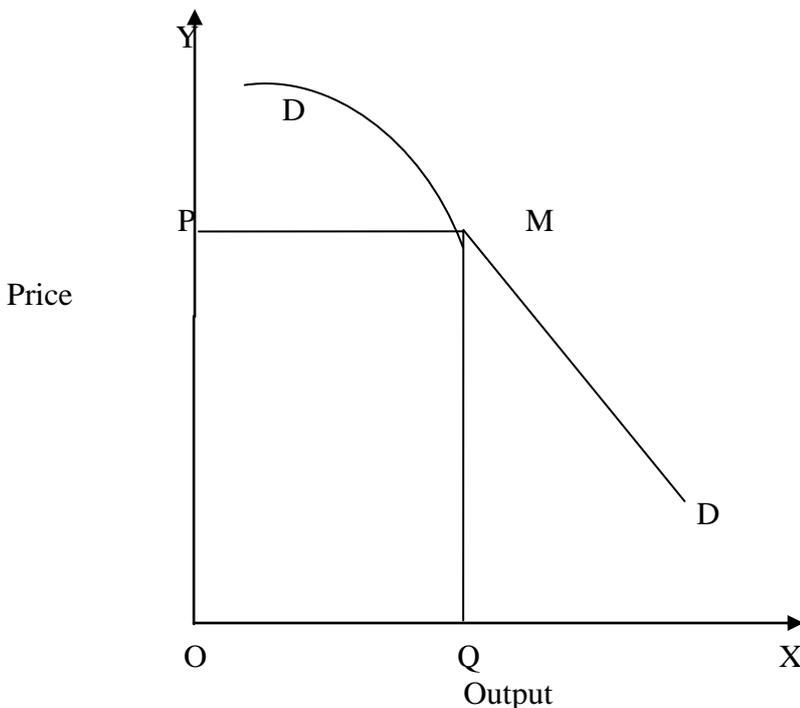
Pricing may be in condition of independent pricing ,Pricing under price leadership and pricing under collusion.

Independent pricing (Kinked Demand Model or Price rigidity Model)

Kinked demand curve was first introduced by prof Paul M Sweezy to explain price rigidity under oligopoly. An oligopolist always guesses about his competitors reaction. They assume that if one decides to decrease the price , the others will also reduce the price . The assumption behind the kinked curve is that each oligopolist will act and react in a way that keep condition tolerable for all the members of the industry . If one firm reduces the price of the product ,the others will be compelled to reduce the price . But some times, If one increases the price, the other will not increase the price. The firms in Oligopoly do not increase the prices due to the possibility of losing the customers to rivals who do not raise their prices. Firms usually do not change their price in response to small changes in costs.

The kinked demand curve has two segments i.e(i) the relatively elastic portion of the demand curve and(ii)the relatively inelastic portion of the demand curve. The following diagram will give you the clear idea:

Figure 10



Kinked demand curve DD with a kink at point M. The price prevailing in the market is OP and the firm produces OQ output. Here D, M is the relatively elastic of the demand curve and MD is the relatively inelastic portion. This difference in the elasticities of demand due to the particular competitive reaction pattern assumed by the Kinked demand Curve hypothesis.

Pricing under Price Leadership

The price leadership means the leading firm determines the price and others follow it. All the firms in the industry adjust, the price fixed by the price leader.

The large firm, who fixes the price, is known as the price maker and the firms, who follow it are known as price-takers. The price leadership may be four types. They are :

1. Dominant price leadership :- In this situation, there exists many small firms and one large firm and the large firm fixes the price and the small firms in the market accept that price.
2. Barometric Price Leadership :- Under this situation one reputed and experienced firm fixes the price and others may follow it.
3. Aggressive Price Leadership :- Under this market condition, one dominating firm fixes the price and they compel all others in the industry to follow the price.
4. Effective Price Leadership :- Under this condition, there are small number of firms in the industry.

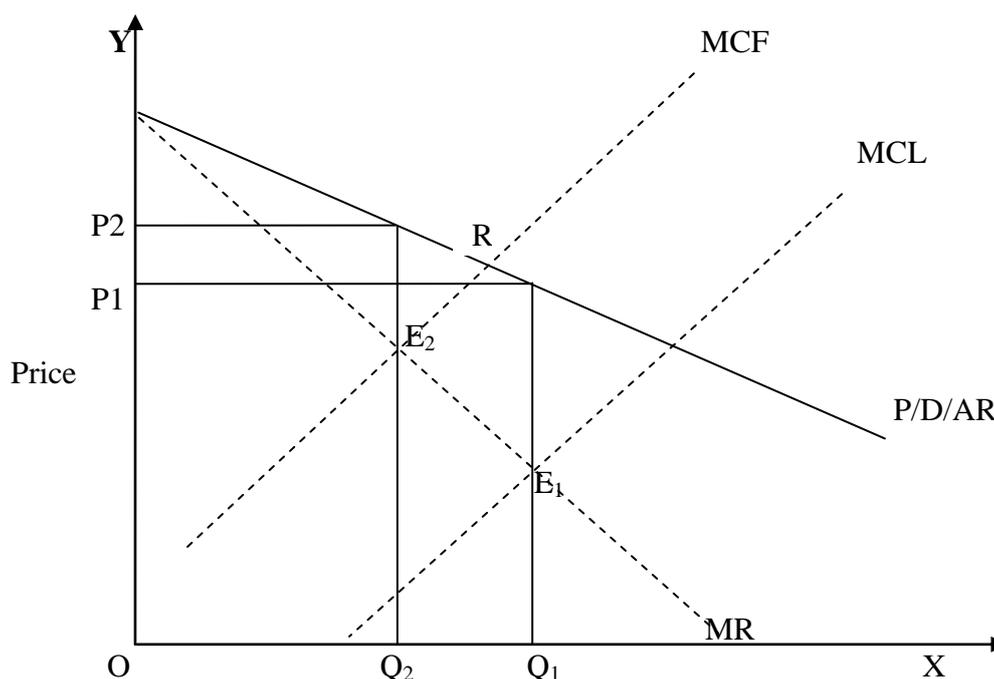
Price -Output determination Under Price Leadership

In order to determine the price and output under price leadership, we have to make two assumptions. They are,

1. There are two firms -L and F, in which the cost of production of L is less than that of F and
2. Product are identical

The following diagram will give the clear picture of price output determination.

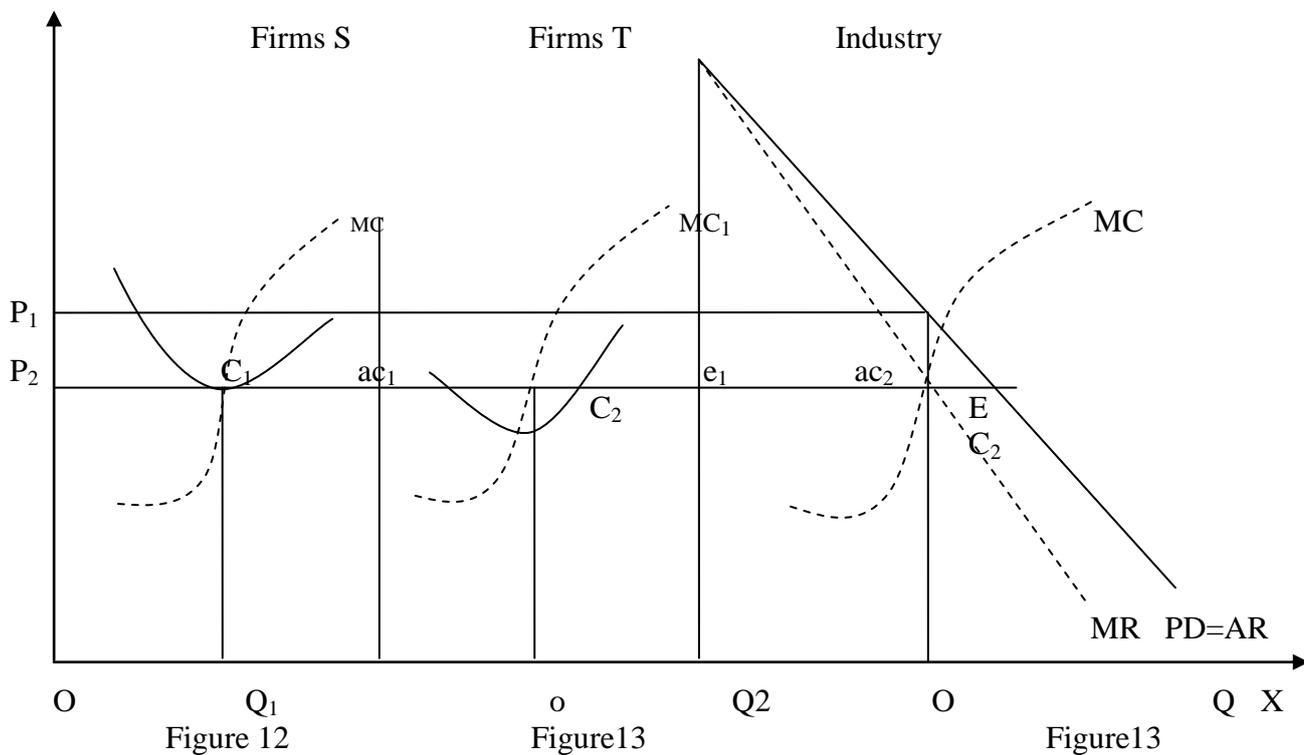
Figure 11



In the above diagram, MC and MC_1 are the marginal cost curves of the firms F and L respectively. By analysing this diagram it can be known that the firm L will fix at point E2, where $MC=MR$. The price of the firms F and L are OP_1 and OP_2 and the output are OQ_1 and OQ_2 respectively.

Pricing Under Collusive Oligopoly

The term Collusion means 'to play together'. To avoid the competition among the firms, monopolistic firms arrive at a formal agreement called cartel. It is common sales agency formed to eliminate competition and fix such a price and output that will maximize profit of member firms. The firms output and price are determined by this cartel. The following diagram will give the idea more clear or to make an assumption that there are only two firms viz. firm S and firm T.



In the above diagram, MC denotes the marginal cost curve of industry and MC_1 and MC_2 are the MC for the firm S and T. MR is Marginal Revenue Curve. The industry is in equilibrium at point E and equilibrium output is OQ and the price is OP. The equilibrium output of two firms are determined based on this own MC curve. The share of output of each firm will be obtained by drawing a parallel line through E to the X axis.

The points E1 and E2 determines the level of output for the firm S and the firm T respectively. OQ_1 and OQ_2 determine the market share of firms S and Firm T respectively. Here, we can say that, $OQ_1 + OQ_2 = OQ$, $OP_1 + OP_2 = OP$

Price Discrimination

A monopolist is in a position to fix the price of his product. He enjoys the control of supply of the product. A monopolist is able to charge different price for his products to the different customers. This is known as price discrimination. According to Mrs. John Robinson 'the act of selling the same article, produced under single control at different prices to different buyers is known as price discrimination. This is also known as differential pricing

Types of Price Discrimination

1. Price relatively elastic portion of the demand curve of the first degree –charging different price for different persons for the same product .
2. Price discrimination of the second degree –Under this, the buyers are classified into different divisions .
3. Price discrimination of the third degree –Here , the markets are divided according to elasticity of demand

Conditions of Price Discrimination

There are three conditions to be satisfied to apply the price discrimination They are :

1. There must be more than one separate market
2. The markets must have different elasticity of demand
3. The market should be such that no buyer of the market may enter the other market and vice versa

Dumping

When monopolist works in home market as well as foreign market, he is able to discriminate the price between these two markets . If he has monopoly in home market , and he faces competition in to foreign market , he will be able to charge higher prices for his products in home market. This practice is known as `Dumping` or `price dumping`

COST CONCEPTS

Introduction

The term *cost* simply means cost of production. It is the expenses incurred in the production of goods. It is the sum of all money-expenses incurred by a firm in order to produce a commodity. Thus it includes all expenses from the time the raw material are bought till the finished products reach the wholesaler.

A managerial economist must have a proper understanding of the different cost concept which are essential for clear business thinking. The cost concept which are relevant to business operation and decision can be grouped on the basis of their propose under two overlapping categories:

1. Concept used for accounting purpose
2. Concept used in economics analysis of the business

Types of Cost (or Cost Concepts)

There are several types of costs(or cost concepts).Following are the important items:-

Money Cost : money cost means the total money expenses incurred by a business firm on the various items entered into the production of a particular product. For example , money payments made on wages and salaries to workers and managerial staff, payments for raw materials purchased, expenses on power and light ,insurance ,transportation ,advertisement ;and also payments made on the purchase of machinery and equipments etc. constitute money cost of production. Money cost is also called nominal cost.

Real Cost : Real cost means the real cost of production of a particular product. It is the next best alternative sacrificed in order to obtain that product. .It also denotes the ‘efforts’ of workers and sacrifices of owners undergone in the production of a particular product.

Opportunity Cost: Opportunity cost refers to the cost of foregoing or giving up an opportunity. It is the cost of the next best alternative. It implies the income of benefit foregone because a certain course of action has been taken. As Adam smith observed , if a hunter can bag a deer or a beaver in the single day , the cost of deer is a beaver and the cost of beaver is a deer. A man who marries a girl is foregoing the opportunity of marrying another girl. A film actress can either act in films or do modeling work. She cannot do both the jobs at the same time. Her acting in the film results in the loss of an opportunity of doing modeling work . Likewise , if an old building is proposed to be used for a business, where rent of the building is the opportunity cost . The opportunity cost concept was first developed by an Austrian economist, Wieser .

The opportunity cost concept plays an important role in managerial decisions. It is useful in determination of relative prices of different goods. It is also useful in fixing the price of an output factor. Above all, it helps in the best allocation of available resources.

Sunk Cost : Sunk costs are those which have already been incurred and which cannot be changed by any decision made now or in the future. These are past or historical costs.

Incremental cost: These are additional costs incurred due to a change in the level or nature of activity.

Differential Cost : It refers to the change in cost due to change in the level of activity or pattern of production or method of production.

Explicit Cost: Explicit costs are those costs, which are actually paid (or paid in cash.). They are paid out costs.

Implicit Cost: Implicit costs are those costs, which are not paid in cash to anyone. These are not actually incurred, but are computed for decision-making purpose. These are the costs, which the entrepreneur pays to himself. For example, rent charged on owned premises, wages of entrepreneur, interest on owned capital etc. Implicit costs are also known as imputed costs or hypothetical costs.

Accounting cost: Accounting costs represent all such expenditures, which are incurred by a firm on factors of production. Thus, accounting costs are explicit costs. In short, all items of expenses appearing on the debit side of trading, profit and loss account of a firm represent the accounting cost. Since all the expenses on production are in money terms, the accounting costs are money costs or nominal costs.

Economic Cost

Economic cost refers total of explicit cost and implicit cost. Thus it includes the payment for factors of production (that is rent, wages etc.) and the payments for the self owned factors (interest on owned capital, rent on owned premises, salary to entrepreneur etc.)

Difference between Accounting Cost and Economic Cost

Accounting cost means the expenses incurred by the firm on production and sale of goods or service. These are paid by the firm to the outsiders. For example, payment made for wages, raw materials, fuel, power, building etc. are the accounting costs. Accounting cost is the money paid for contractual payments. It includes payments and charges made by the enterprise to the suppliers of resources. It is the explicit cost. But economic cost includes not only explicit cost but also implicit or imputed cost. Implicit cost includes rent charged on owned premises, interest charged on owned capital, wages paid to entrepreneur etc. Implicit cost is not included in accounting cost. Accounting cost includes only explicit costs which are recorded in the books of account. Implicit cost will not be recorded in the books of account. Thus the economist's concept of cost is more comprehensive as compared to accountant's concept of cost.

Accounting cost are generally used for financial reporting and control. Economic costs are used for decision-making

In short, accounting costs involve only cash payments made by the entrepreneur. On the other hand, economic costs include all these accounting costs plus the implicit cost

Social Cost of Production(or Social Cost)

In the production of goods, costs will be incurred not only by the owners business but also by the society. Cost incurred by a society in terms of resources used in the production of a commodity is known as social cost of production. It is the opportunity cost borne by a whole society or community. Social costs include not only the cost borne by the owners of a business(or producers) but also the cost passed on to the society. For example, production of certain commodities (chemical, rubber, petroleum, steel etc) causes environment pollution. Pollution caused while producing a commodity imposes a social cost on those residents who suffer ill health. Some industries leave wastes which the adjoining areas have to bear. A cost that is not borne by the firm but is incurred by others in the society is called external cost. Social cost includes external costs and private cost (because firms are also apart of society). Thus, social cost is the total cost of the society on account of production of a commodity. For example, the social cost of liquor sold by a firm includes the cost incurred by the firm (private cost) and the cost like expenditure of additional police force to deal with the drunken people and such other incidental expenses for the society. Take another example. When

people go for picnic in the park and throw wrappers, then they impose a real cost on the residents of that area who have to clean up the park. This is social cost.. Thus social cost includes real cost which is the cost borne by the society, directly or indirectly due to the production of goods . In short social costs are those costs ,which are incurred by the society in producing commodities and services. It is the sum of private costs of production and economic damage upon society.

Private Cost of Production(Private Costs)

Private cost are the costs incurred by a firm in production a commodity or service . All the actual costs incurred by a firm or producers are private costs. Private costs include both explicit cost and implicit cost. Private costs have to be borne by only those persons or firms who make decision . These do not include the effect of the produced commodity on the society.

Difference between Private Cost and Social Cost

Private costs are the costs incurred by a firm while producing a commodity or service. But social costs are those costs , which are incurred by the society in producing commodities or services. Social costs include private costs and external costs. Private costs include both explicit and implicit costs. Private costs do not include external costs.

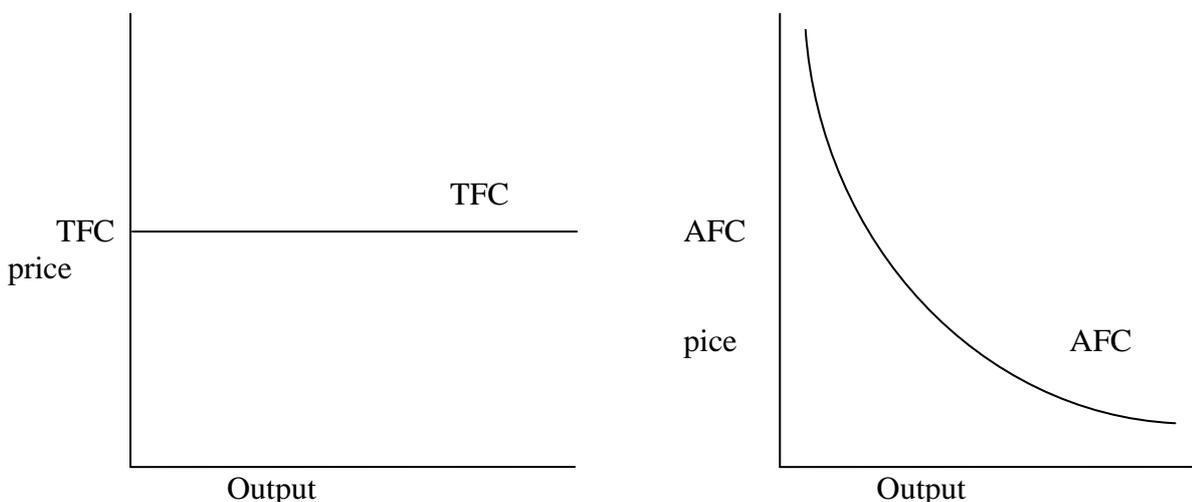
The concept of social cost enables to understand the social implication of the utilization of scarce resources among the different sections of the society . The economic optimum is the yardstick in matters of private cost, but social optimum is the governing factor in the case of social cost.

Fixed and Variable Cost :-

Fixed Cost: Fixed cost are those costs which do not vary with the volume of production. These costs remain fixed or constant up to a certain level of production. Even if the production is zero, a firm will have to incur fixed costs. Examples are rent, interest, depreciation, insurance, salaries etc. The fixed costs are also called supplementary costs, capacity costs or period costs or overhead costs.

Average fixed cost(fixed cost per unit) changes with a change in the quantity of production. If the volume of production increases, average fixed cost will decrease . If the quantity of production decrease, average fixed cost will increase. Thus, there Is an inverse relationship between fixed costs and quantity of production.

Average fixed cost is obtained by dividing total fixed cost by total output. Total fixed cost curve and average fixed cost curve are shown below :



From the above graph it is clear that the total fixed cost curve is horizontal to the OX axis.. On the other hand the average fixed cost curve slopes from left to right. This implies that as the output increases , the average fixed cost falls.

Variable Cost:

Variable costs are those costs, which change with the quantity of production. When the output increases, variable cost also increases. When the output decreases, the variable cost also decreases. Thus, there is a direct relationship between variable cost and volume of production.

Variable costs are also known as prime costs or direct costs. Examples are materials, wages, power, stores etc. Prime or variable cost consist of direct material cost, direct labour cost and other direct expenses

Business cost and full cost

Business cost include all the expenses which are incurred to carryout a business. It includes all the payments and contractual obligations made by the firm together with the book cost of depreciation on plant and equipment. These cost concepts are used for calculating business profits and losses and for filing returns for income- tax and also for other legal purposes

The concept of full costs ,includes business costs, opportunity costs and normal profits.The opportunity cost includes the expected earnings from the second best use of the resources,or the market rate of interest on the total money capital and also the value of the entrepreneurs own services which are not charged for in the current business.Normal profit is a necessary minimum earning in addition to the opportunity cost,which a firm must get to remain in its present occupation.

Total cost, Average cost and Marginal cost

Total cost means the sum of total fixed cost and total variable cost. In other words it is the aggregate money cost of production of a commodity

Average cost is the cost per unit of output.That is total cost divided by number of units produced
Average cost=total average fixed cost+total average variable cost

Marginal cost is the additional cost to total cost when an additional unit is produced.

Short run and Long run costs

Short run cost are those costs which may vary with output while fixed factors remain constant.Output may vary by changing the variable factors only. But on the other hand long run is a period which is enough to adjust all input factors . Thus long run costs are those costs which vary with output when all input factors(fixed and variable) are variable.

Cost function

The relationship between cost and output is technically known as cost function where –

$$TC = f(Q) \quad \begin{array}{l} TC= \text{Total cost,} \\ f= \text{function of,} \\ Q=\text{Quantity produced} \end{array}$$

Revenue Concept

Revenue means the current income or simply ‘sales receipts’. In other words it is the money value of output sold in the market. Further it has great relevance in economics and business.

Types of revenue

Mainly there are four main concepts of revenue

1. Total revenue
- 2.Average revenue
- 3.Marginal revenue
4. Incremental revenue

Total revenue means the product of price of the commodity to the total quantity of outputs produced in a current business period. **Average revenue** is obtained by dividing the total revenue with number of units sold.**Marginal revenue** is the additional revenue to total revenue when an additional unit is produced.

Incremental Revenue

Incremental revenue simply refers to increase in revenue. It is the difference between the new total revenue and the existing total revenue. It measures the impact of decision alternatives on the total revenue. The formula for measuring incremental revenue is as follows:

$$IR = R_2 - R_1$$

Where, IR = Incremental revenue

R_2 = New total revenue

R_1 = Old or existing total revenue

Suppose the present volume of production is 50000 units and the selling price is Rs.3. The existing total revenue is Rs.150000 (i.e., 50000 x 3). Suppose the firm has decided to increase the production to 75000 units. The firm expects that the 75000 units can be sold at a price of Rs.2.50. Then the total revenue (new) would be Rs.187500 (i.e., 75000 x 2.5). In this case the incremental revenue would be Rs.37500 (i.e., 1,87,500 - 1,50,000). As a result of the decision taken to increase the production from 50,000 units to 75,000 units, there is an increase in the total revenue by Rs. 37,500. This is the incremental revenue. It may be noted that incremental revenue will result not from change in price alone but from any decision alternative.

Questions

(Each question carries a 1/4 weightage)

1. Money cost are also known as-----?
2. -----Costs do not vary with the volume of production ?
3. -----cost is more useful for decision making ?
4. When the marginal revenue is-----total revenue is maximum ?
5. -----Is the difference between the new total revenue and the existing total revenue ?

(Each question carries a weightage of 1)

1. Define sunk Cost ?
2. Distinguish between Accounting cost and economic cost?
3. Define fixed cost ?
4. What is explicit Cost ?
5. What are Social costs ?
6. What is Marginal revenue

(Each question carries a weightage of 2)

1. Distinguish between marginal cost and incremental cost ?
2. Distinguish between long run cost and short run cost ?
3. State the relationship between TC, AC and MC ?
4. Distinguish between marginal revenue and incremental revenue ?

MODULE V (A)

PRICING POLICY AND PRACTICES.

Formulating price policies and setting the price are the most important aspects of managerial decision making. Price in fact, is the source of revenue which the firm seeks to maximize. Again, it is the most important device a firm can use to expand the market. If the price is set too high, a seller may price himself out of the market. If it is too low, his income may not cover costs, or at best, fall short of what it could be. In other words, if the Company prices too much, it will make fewer sales. If it charges too little, it will sacrifice profits. So the price must be fixed judiciously.

Meaning of price.

Price is the money value of the goods and services. In other words, it is the exchange value of a product or service in terms of money. To the seller, price is a source of revenue. To the buyer, price is the sacrifice of purchasing power.

Factors governing prices and pricing decision.

Price is very important to both the buyer and the seller. In this connection, it may be noted that in economic theory, two parties should be generally emphasized i.e. Buyers and sellers. In practice, however, as pointed out by Oxenfeldt, certain other parties are also involved in the pricing process, i.e. Rival seller, potential rivals, middlemen & government. All these parties also exercise their influence in price determination.

Factors governing prices may be divided into external factors and internal factors.

Internal Factors:

These are the factors which are within the control of the organization. Various internal factors are as follows.

1. **Cost:** The price must cover the cost of production including materials, labour, overhead, administrative and selling expenses and a reasonable profit.
2. **Objectives:** While fixing the price, the firm's objectives are to be taken into consideration. Objectives may be maximum sales, targeted rate of return, stability in prices, increase market share, meeting or preventing competition, projecting image etc.
3. **Organizational factors:** Internal arrangement of the organization. Organizational mechanism is to be taken into consideration while deciding the price.
4. **Marketing Mix:** Other element of marketing mix, product, place, promotion, price and politics are influencing factors for pricing. Since these are interconnected, change in one element will influence the other.
5. **Product differentiation:** One of the objectives of product differentiation is to charge higher prices.
6. **Product life cycle:** At various stages in the Product Life Cycle, various strategic pricing decisions are to be adopted, eg. In the introduction stage. Usually firm charges lower price and in growth stage charges maximum price.
7. **Characteristics of product:** Nature of product, durability, availability of substitute etc. will also influence the pricing.

External Factors.

These factors are beyond the control of organization. The following are the main external factors.

1. **Demand:** If the demand for a product is Inelastic it is better to fix a higher price and if demand is elastic, lower price may be fixed.
2. **Competition:** Number of substitutes available in the market and the extent of competition and the price of competition etc. are to be considered while fixing a firm price.
3. **Distribution channels:** Conflicting interest of manufacturers and middleman is one of the of the important factor that affect the pricing decision. Manufacturer would desire that middleman should sell the product at a minimum mark up.
4. **General economic conditions:** During inflation a firm forced to fix a higher price and in deflation forced to reduce the price.
5. **Government Policy:** While taking pricing decision, a firm has to take into consideration the taxation policy, trade policies etc. of the Government.
6. **Reaction of consumers:** If a firm fixes the price of its product unreasonably high, the consumer may boycott the product.

Pricing Policies.

Price must not be too high or too low. Price setting is a complex problem. The pricing decision is critical not only in the beginning but it must be reviewed and reformulated from time to time. Price policies provide the guidelines within which pricing strategy is formulated and implemented. It represents the general frame work within which pricing decision are taken. Price policies are those management guidelines that control the day to day pricing decision as a means of meeting the objectives of the firm such as maximization of profit, maximization of sales, targeted rate of return, survival, stability of prices, meeting or preventing competition etc.

Steps in formulating pricing policies:

1. Selecting the target market or market segment on which marketer would concentrate more.
2. Studying the consumer behavior and collecting information relating to target market selected.
3. Studying the prices, promotion strategies etc.of the competitors and their impact on the market segment.
4. Assigning a role to price in the marketing mix.
5. Collecting the cost of manufacturing the product at different levels of demand.
6. Fixing suitable (strategic) price after determining the price objectives and according to a selected method of pricing.

Objectives of pricing policy.

Pricing decisions are usually considered a part of the general strategy for achieving a broadly defined goal. Before determining the price itself, the management should decide the objectives. While setting the price, the firm may aim at one or more of the following objectives.

1. **Profit maximization:** Since the primary motive of business is to earn maximum profit, pricing always aim at maximization of profit through maximization of sales.
2. **Market share:** For maximizing market share a firm may lower its price in relation to the competitors' product.
3. **Target return in investment:** The firm should fix the price for the product in such a way that it will satisfy expected returns for the investment.
4. **Meet or prevent competition:** In order to discourage competition a firm may adopt a low price policy.
5. **Price stabilization:** Another objective of pricing is to stabilize the product prices over a considerable period of time.
6. **Resource mobilization:** Company may fix their prices in such a way that sufficient resources are made available for the firms expansion, developmental investment etc.
7. **Speed up cash collection:** Some firms try to set a price which will enable rapid cash recovery as they may be financially tight or may regard future is too uncertain to justify patient cash recovery.
8. **Survival and growth:** An important objective of pricing is survival and achieving the expected rate of growth. Profit is less important than survival.
9. **Prestige and goodwill:** Pricing also aims at maintaining the prestige and enhancing the goodwill of the firm.
10. **Achieving product –quality leadership:** Some Companies aim at establishing product quality leader through premium price.

Methods of pricing.

1. Cost Plus pricing.
2. Target pricing.
3. Going rate pricing.
4. Customary pricing.
5. Follow up pricing.
6. Differential pricing.
7. Marginal cost pricing.
8. Barometric pricing.

1. **Cost plus pricing:** This is the most common method used for price. Under this method, the price is fixed to cover all costs and a predetermined percentage of profit, i.e., the price is computed by adding a certain percentage to the cost of the product per unit. This method is also known as margin pricing or average cost pricing or full cost pricing or mark up pricing. The business firm under oligopoly and monopolistic market are following this pricing policy.

2. **Target pricing:** This is variant of full cost pricing. Under this method, the cost is added with the predetermined target rate of return on capital invested. In this case the company estimates future sales, future cost and calculates a targeted rate of return on capital invested. This is also called as rate of return pricing.

3. Marginal cost pricing: Under the marginal cost pricing, the price is determined on the basis of marginal cost or variable cost. In this method, fixed costs are totally excluded.

4. Differential pricing: Under this method, the same product is sold at different prices to different customers, in different places, and at different periods. This method is called discriminatory pricing or price discrimination. Examples, Cinema theater, telephone bills etc..

5. Going rate pricing: under this method, prices are maintained at par with the average level of prices in the industry. I.e., under this method a firm charges the prices according to what competitors are charging. Firm accepting the price prevailing in the industry in order to avoid price war. This method is also called acceptance pricing or parity pricing.

6. Customary pricing: in the case of some commodities the prices get fixed because they have prevailed over along period of time. Examples, the price of cup of tea or coffee. In short the prices are fixed by custom. The price will change only when the cost changes significantly. It is also called conventional pricing.

7. Follow up pricing: this is the most popular price policy. Under this, a firm determines the price policy according to the price policies of competitors. If the competitors reduce the price of the product, the firm also reduces the price of its product. If the competitors increase the price, the firm also follow the same.

8. Barometric pricing: this is the method of leadership pricing. In this type of price leadership, there is no leader firm. But one firm among the oligopolistic firms announces a price change first. This is followed by other firms in the industry. The barometric price leader need not be a dominant firm with the lowest cost or even the largest firm in the industry but they responds to changes in business environments rapidly. On the basis of a formal or informal tacit agreement, the firms in the industry accept a firm as price leader who may act firstly upon the environmental or market changes.

Pricing of a new product. (Methods and strategy)

In pricing a new product, generally two types of strategies are suggested. They are;

1. Skimming price strategy

This is done with a basic idea of gaining a premium from those buyers who always ready to pay a much higher price than others. Accordingly a product is priced at a very high level due to incurring large promotional expenses in the early stages. Thus skimming price refers to the high initial price charged when a new product is introduced in the market. Reasons for charging this price are;

- A. When the demand of new product is relatively inelastic.
- B. When there is no close substitutes
- C. Elasticity of demand is not known.
- D. When the buyers are not able to compare the value and utility.
- E. To attract the high income customers.
- F. To recover early the R&D and promotional expenses.
- G. When the product has distinctive qualities, luxuries etc..

2. Penetration price strategy

This is the practice of charging a low price right from the beginning to stimulate the growth of the market and to capture large share of it. Since the price is lower, the product quickly penetrates the market, and consumers with low income are able to purchase it. Reasons for adopting this policy are:

- A. Product has high price elasticity in the initial stage.
- B. The product is accepted by large number of customers.
- C. Economies of large scale production available to firm.
- D. Potential market for the product is large.
- E. Cost of production is low.
- F. To introduce product into market.
- G. To discourage new competitors.
- H. Most of the prospective consumers are in low income class.

Kinds of pricing (pricing strategies)

Pricing policy means a policy determined for normal conditions of the market. Pricing strategy is a policy determined to face a specific situation and is of temporary nature. Simply pricing policies provide guidelines to carry out pricing strategy. Following are the important pricing strategies.

1. **Psychological pricing:** Here manufacturers fix their prices of a product in the manner that it may create an impression in the mind of consumers that the prices are low. E.g. Prices of Bata shoe as Rs.99.99. This is also called odd pricing.
2. **Mark up pricing.** This method of pricing is followed by whole salers and retailers. When the goods are received, the retailers add a certain percentage of the whole saler's price.
3. **Administered pricing:** Here the pricing is done on the basis of managerial decisions and not on the basis of cost, demand, competition etc.
4. **Other pricing strategies:** Geographical pricing, base point pricing, zone pricing, dual pricing, product line pricing etc. are some other pricing strategies.

Role of Cost in Pricing

Most of the wholesale and retail organizations add some percentage of profit or mark up total cost per unit to arrive at selling price. According to Hall and Hitch, business firms under the conditions of oligopoly and monopolistic competitive market do not determine price and output with the help of the principle $MC=MR$. they determine price and output on the basis of full average cost of production. Cost of production consists of fixed and variable costs. In the short run the firm may not cover the fixed cost but it must cover at least variable cost. In long run all costs must be covered. if the entire cost is not recovered, the firm will incur losses, and the firm must stop their production. Thus costs provide the basis for pricing. If the cost increase price also increases. Cost represents a resistance point for lowering of price, i.e., below which pricing should not be done. Cost also determines the profit margin at various level of output.

Role of Demand factor in pricing

In the case of pricing of a product, demand plays a significant role. In some cases demand occupies a vital role than cost. The demand is the factor which determines the sales and profit. We know as per law of demand, demand and price have inverse relationship. To increase the demand, the firm has to reduce the price. Similarly to decrease the demand the firm has to increase the price. the elasticity of demand is to be considered in determining the price of the product. If the demand for the product is elastic, the firm can fix lower price. If the demand is inelastic, the firm can fix a higher price.

Consumer Psychology and Pricing

While fixing the price of product, the management should give importance to consumer psychology. Actually demand of the product is based upon the behavior of consumers. Some consumer may buy a product of high quality even though the products are highly priced. Consumers think that highly priced products are of high quality. If the price of product is less, consumer will think that such product is of low quality. If the price is too high, the consumer may boycott the product and they will go for substitute product of low price. If the price is too low the consumers think that the goods are of inferior quality. They will not buy it. The important elements that influence the consumer psychology are; price of the product, after sales service, advertisement and sales promotion, personal income, fashions. So consumer are many types, they follow different approaches to firms product. So in case of price determination, the consumer psychology must given due weightage.

MODULE V (B)

BUSINESS CYCLE

Introduction

The economic progress the world has been achieved is not a steady and continuous movement forward. Economic activities faced fluctuations at more or less regular intervals. There were upward swings and downward swings. A period of prosperity was generally followed by a period of depression. These ups and downs in the economic activity moving like a wave at regular intervals is known as business cycle. Business cycle simply means the whole course of business activity which passes through the phases of prosperity and depression. Generally there are two broad phases, viz. prosperity and depression.

The movement is like the swing of a pendulum. A movement in one direction tends automatically to generate a movement in the opposite direction. The period of business prosperity alternate with period of depression. The period of business prosperity contains within itself the seed of the coming period of depression. Once depression reached the through, recovery starts and soon grows into boom or prosperity. At the peak of the boom recession grips the economy which soon slides into depression. To be specific, there are four phase's .viz .recovery, boom recession and depression.

The Business cycle influence business decision. The cycles affect not only the economy in general, but each individual business firm. The period of prosperity promotes business. It provides new investment opportunities. Likewise, a period of depression slackens business. A manager who is always confronted with the problem of forward planning takes into consideration the phase of the business cycle. This helps to take advantage of the chance ahead or to reduce the chance of heavy losses to the firm

Phases of business cycle

Boom

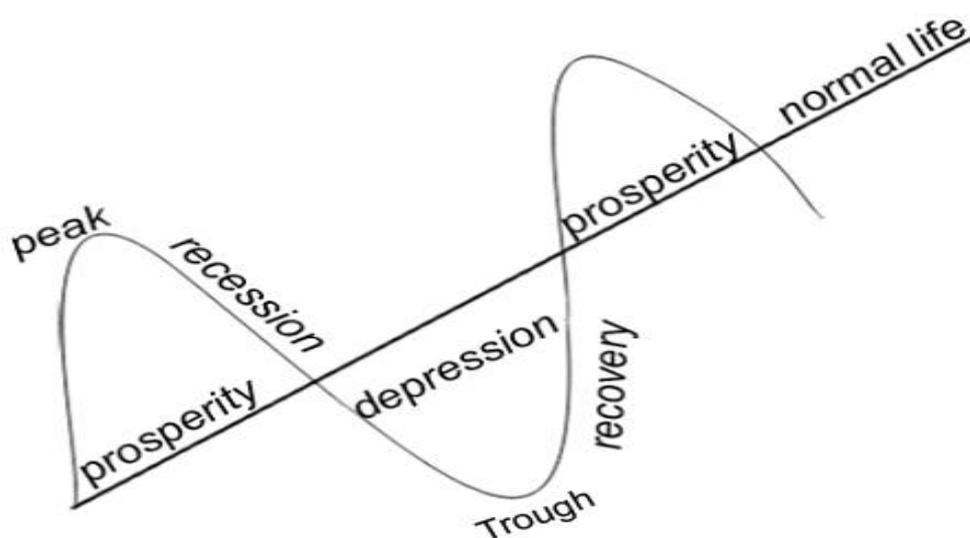
This is also known as prosperity phase. The products in this phase fetch an above normal price which is above higher profit. This attracts more and more investors. The existing production capacity is utilized at its full capacity. More and more new machines are made use of the business of the capital goods industry also shoots up. The price of the factors of production increases. Additional workers are employed at higher wage rate. The increasing cost tendency of the factors of production leads to a continuous increase in product cost. The fixed income group on the salaried class find it difficult to cope with this increase in prices. The income does not increase accordingly and they are now compelled to reduce consumption. The demand is now more or less stagnant or it even decreases. Thus boom or prosperity reaches its peak.

Recession

Once the economy reaches the peak- the course changes. A downward tendency in demand is observed but the producers who are not aware of it goes on producing further. The supply now exceeds demand. Now the producers come to notice that their stock piling up. They are compelled to give up the future investment plans. The order for new equipments and raw materials are cancelled. A business even cuts down its existing business. Workers are retrenched Capital goods producers who lose orders. Bankers insist on repayment. stock accumulate and Business failure increase investment ceases and unemployment leads to fall in income, expenditure, prices, profits and industrial and trade activities. Desire for liquidity increase all around producers are compelled to reduce price so that they can find money to meet their obligations Consumers who expect a still further decline in prices postpone their consumption Stock goes on piling up. Some firms are forced into bankruptcy. The failure of one firm affects other firm with whom it has business connections. There is a general distress. This phase of the business cycle is known as the Recession. It is the period of utmost -suffering for a business.

Depression

Underemployment of both men and material is the characteristics of this phase. General demand falls faster than production. Producers are compelled to see their goods at a price which will not even cover the full cost. Manufactures of both producer's goods and consumers goods are forced to reduce the volume of production. As a result workers are thrown out. The remaining workers are poorly paid. The demand for bank credit is at its lowest which results in idle funds. The interest rates also decline. The firms that cannot pay of their debts are wound up. Prices of shares and securities fall down.



Pessimism prevails in the economy the less confident investors are not ready to take up new investment projects The aggregate economic activity is at its bottom.

Recovery

Depression phase does not continue indefinitely. Depression contains in itself the seeds of recovery. The rule workers now come forward to work at low wages. As the prices are at its lowest the consumers, who postponed their consumption expecting a still further fall in price, now starts consuming. The banks, with accumulated cash reserves, now come forward to give loans at easier terms and lower rates. As demand increases the stock of goods become insufficient. The economic activity now starts picking up. Investment pick up. Employment and output slowly and steadily begins to rise. Increased income increases demand, resulting in rise in prices, profits investment, employment and incomes. The wave of recovery once initiated soon begins to feed upon itself. Stock markets become live thus hastening the revival. Optimism develops among the entrepreneurs. Bank loans and demand for credit starts rising. The depression phase at its through then given way to recovery.

Characteristics of a business cycle

1. The cycle is synchronic. The upward and downward movements tend to occur at all the same period in all industries. The wave of prosperity or depression generate a wave in other industries. When industry pick up to provides more employment, more income etc. to workers and it gives new orders for raw materials and capital goods. This help other firms also to prosper.
2. A business cycle is a wave-like movement. The period of prosperity and depression can be alternately seen in a cycle.
3. Cyclical fluctuations are recurring in nature. The various phases are repeated is followed by depression and the depression again in followed by a boom.

4. Business cycles are cumulative and self –reinforcing in nature. Each movement feeds on itself and keeps up the movement in the same direction. Once booms starts it goes on growing till forces accumulate to reverse the direction.
5. There can be no indefinite depression or eternal boom period .Each phase contain in itself the seed for other phase. The boom, when it reaches its peak, turns to recession.
6. Business cycles are pervasive in their effects . The cyclical fluctuations affect each and every part of the economy..Depression or prosperity felt in one part of the economy makes its impact in other part also . The cyclical movements are even international in character . The mechanism of international trade makes the boom or depression in one country shared by other countries also.
7. Presence of a crisis. The up and down movements are not symmetrical. The downward movements are not symmetrical .The downward movement is more sudden and violent than the upward movement.

Types of Business Cycle

Prof .James Arthur classified business cycle into 3 parts as follows:

1. **Major and Minor Trade Cycles:** Major trade cycles are those the period of which is very large . Minor trade cycles are those which occur during the period of a major cycle. Prof. Hanson determines the period of a major cycle between 8 years and 33 years. Two or three minor cycles occur during the period of a major cycle . Period of a minor cycle is 40 months.
2. **Building Cycle:** Building Cycles are those trade cycles which are related with construction industry . period of such cycle range from 15 to 20 years
3. **Long Waves:** Period of a long wave is of 50 years . It was discovered by a Russian economist Kondratief. One or two major trade cycle occur during the period of a long wave.

Schumpeter distinguished 3 types of trade cycle as follows:

1. **Short Kitchin Cycle:** The period of this cycle is very short, approximately 4 months duration.
2. **Longer juglar cycle:** This cycle has an average 9.5 years duration.
3. **Very long Kondratief Wave:** It takes more than 50 years to run its course.

Causes of Business Cycle

Two kinds of element or forces bring about business cycle. They are internal and external. Internal forces are elements within the very sphere of business activity itself and include such things as production ,income,demand, credit, interest rates, and inventories. External forces are elements outside the normal scope of business activity and include population growth ,wars, basic changes in the nation's currency and national economic policies. As well as floods, droughts and other catastrophes that have effect on business activity.

Important causes giving birth to business cycle may be summarized as follows:

1. Expansion of loans and contraction of loans by banks:
2. Monetary disequilibrium
3. Change in the volume of investment or decrease in the marginal efficiency of capital
4. Under consumption or excessive saving
5. Lack of adjustment between demand and supply
6. Dealings of entrepreneurs
7. Innovation
8. Seasonal fluctuations

Control of Business Cycle

The business cycle leads to greater unemployment and poverty. The various steps that can be taken to achieve economic stability are (i) monetary policy and (ii) fiscal policy.

Monetary Policy

Monetary policy refers to the programs adopted by the central bank to control the supply of money. The central bank may resort to open market operations, changes in bank rate or changes in the variable reserve ratio. The open market implies the purchase and sale of government bonds and securities. In the boom period the central bank sells government bonds and securities to the public which helps to withdraw money from the public. During periods of depression the central bank purchases government securities which increase the cash supply in the economy. This helps to increase investment. The central bank purchase government securities which increase the cash supply in the economy. This helps to increase investment. The central bank may change the bank rate or rediscount rate. The bank rate is the rate at which commercial banks borrow from central bank. When the central bank increases the bank rate the commercial banks in turn will raise their discount rates for the public. This discourages public borrowing and it reduces investment. During the depression the bank rate is lowered which will end up the increased investment. The central bank can regulate the money supply by changing the variable reserve ratio. When the central bank wants to reduce the credit creation capacity of commercial banks, it will increase the ratio of the deposits to be held by the commercial bank as reserve with the central bank.

Fiscal Policy

This implies the variation in taxation and public expenditure programme by the government to achieve certain objectives. Taxation helps to withdraw cash from the public. An increase in tax results in reduction of private disposable income. Taxes should be reduced during the depression will stimulate private sector. During boom periods public expenditure must be curtailed, so that cash flow can be reduced. The fiscal policy of the government to regulate purchasing power to control business cycle is known as counter the cyclical fiscal policy. Counter-cyclical fiscal policy in the boom period implies a reduction in the public expenditure and heavy taxes and a surplus budget. The budget surplus can be used to eliminate previous deficits. This implies an increase in public expenditure, reduction in taxation and deficit budgeting during the depression. The monetary policy proves more effective to control boom than to depression. A proper mix of fiscal and monetary policy will be more fruitful in the control of business cycles.

Business Forecasting

A forecast of sales depends upon economic forecasts. This is because the sales of almost every firm is affected by the state of general business. Periods of depression and boom have an influence on the sales value. Sales may be at an increase during the prosperity but might decline during the depression. The businessman should take into consideration the business cycle he is facing so that he can have an effective forecast of sales. The important methods of forecasting are (1) Trend Projection (2) Leading Indices, and (3) Econometric Models.

Trend projection

A graph showing the actual movement of a series is constructed and the apparent trend of the data on future is projected (extrapolated). This is based on the assumption that those forces which contributed past will continue to have the same effect.

Leading Indices

The 'Leading Indices' refer to certain sensitive series which tend to turn upward or downward in anticipation of other series. If one knows a series which would reliably lead say, commodities, price indices etc. It would not be difficult to purchase raw materials in advance if prices are expected to rise.

Certain important Leading Indices are (1) New orders for durable goods; (2) Building contracts; (3) Number of new incorporations; (4) Wholesale prices of basic commodities. New orders placed with manufacturers, building contractors etc have early reflection of the coming demand for products, raw materials, labour loans, and capital.

Econometric Models

Econometrics combines Economics and mathematics. It is the science of economic measurement. Econometrics explains past economic activity by deriving mathematical equations that will express the most probable inter-relationship between assets of economic variables. By combining the relevant variables, econometricians proceed to predict the future course of one or more of these variables on the basis of established relationships.

Techniques of Economic Forecasting

There are several methods or techniques of economic and business forecasting. Important methods may be briefly discussed as follows:

1. **Naïve Method:** This is one of the oldest and crudest methods of forecasting business situations. This method is not based on any scientific approach. Projections are made purely by guesswork and sometimes by mechanical interpretation of historical data. This method includes such techniques as tossing the coin, simple correlation and even some other simple mathematical techniques.

Advantages of Naïve Method

- a) It is a simple method.
- b) It is less costly.
- c) It is suitable for small firms.

Disadvantages of Naïve Method

- a) It is not a scientific method.
- b) It is not always reliable.

2. Survey Techniques:- One of the simplest forecasting devices is to survey business firms or individuals and to determine what they believe will occur is survey techniques. Under survey techniques, interviews and mailed questionnaires are used for forecasting tools. These are helpful in making short-term forecasts. These techniques may be used for forecasting the overall level of economic activity or some special portion of it or they may be used within the firm for forecasting future sales.

Advantages

- a) This method is simple and less costly.
- b) These techniques provide a substantial amount of qualitative information that may be useful in economic and business forecasting.
- c) These techniques are usually used to supplement other quantitative forecasting methods.

Disadvantages

- a) When the opinions differ, it will create a problem.
- b) Not useful for long-term forecasts.

3. Expert opinion method

It is a qualitative technique. Under this method an expert or informed individual uses personal or organizational experience as a basis for developing future expectations.

4. Trend Projection method

Under this method historical data is used to predict future business activity. Here actual data are presented on a graph paper and forecasts for the future are prepared on the basis of analysis of trend of this data.

Advantages

- a) Very simple and less expensive
- b) More reliable

Disadvantages

When sudden fluctuations in data occur, this method will not be suitable. Similarly it requires considerable technical skill and experience.

Smoothing techniques (Exponential smoothing)

Under this method smoothed average of several past observations are considered say, moving average, exponential smoothing average etc. This method is very cheap and inexpensive. But it cannot provide accurate forecasts.

Barometric Techniques

In this method present events or developments are used for predicting the future. Further, here we apply certain selected economic and statistical indicators in time series to predict variables. They are leading, lagging and coincident indicators. If changes in one series of data consistently occur prior to changes in another series-leading indicators can be shown, If changes in one series of data consistently occur after changes in another series- there is lagging indicators, If two series of data frequently increase or decrease at the same time and one series may be regarded as a coincident indicator of the other-there is coincidental indicators. This method is the most complex and scientific one.

Econometric Methods.

Econometrics is the combination of “*econo*” and “*metrics*” which means measurement of economic variables. This method combines the economic theory, statistical tools and mathematical model building to analyse economic relations. It predicts the future activity on past economic activity by using mathematical and statistical techniques

- a) These methods are more reliable.
- b) It is possible to compare forecasts with actual results. The model can be modified to improve future forecasts.
- c) These methods indicate both direction and magnitude of change in the variables.
- d) These methods have the ability to explain economic phenomena.

Input Output Table Method:

This is another approach of economic forecasting. This method enables the forecaster to trace the effects of increases in demand for one product to other industries. An increase in the demand for automobiles will first lead to an increase in the output of the auto industry. This, in turn, will lead to an increase in the demand for steel, glass, plastics, rubber and upholstery fabric. In addition, secondary impact will occur as the increase in the demand for upholstery fabric.

Self check questions

Fill in the blanks. (Weightage-1/4)

1. In.....pricing fixed cost are excluded.
2. Fixing high price during the introduction is called.....
3. The firm charges price in tune with the industry's price is called.....
4. Method of charging low price initially called.....
- 5.....pricing is done on the basis of managerial decisions, not on the basis of cost, demand etc.....

Short answer type (Weightage -1)

1. What is pricing policy?
2. What is cost plus pricing?
3. What is target pricing?
4. What is marginal cost pricing?
5. What is price discrimination?
6. What you mean by skimming price?
7. What is penetration price strategy?
8. What is psychological pricing or charm pricing?

Short essay type (Weightage -2)

1. Mention various method of pricing?
2. What are the objectives of pricing policy?
3. What is the role of cost and demand factors in price determination?
4. Explain the pricing strategies of new products?
5. What is the role of consumer psychology in pricing?

Essay type (Weightage -4)

1. Define pricing policy? What are the factors to be considered while making pricing decision?
2. Explain important methods of pricing?