Economic Analysis for Business Decisions

MBA – 1 semester

(2021)

Unit -1

MANAGERIAL ECONOMICS

1. Economy

The Economic system is composed of people, firms/organizations and government. It addresses the problems such as allocation of limited resources.

Economic system is an organised way where people, a state or a nation allocate available resources and distribute goods and services to society, the national community.

Economics is a social science that deals with production, distribution and consumption of goods and services.

It is a system where decisions are taken related to what to produce, how to produce and how to distribute in a particular society.

There are three types of Economy:

a) Capitalist Economy
b) Socialist Economy
c) Mixed (Capitalist and Socialist) Economy

a. Capitalist Economy

It is an economic system where the means of production are owned privately and operated for profit. Such an economy exists in the countries like U.S.A., U.K and many other countries.

A country's trade and industry are controlled and owned by private owners and their aim is to get profit. All the decisions are made by every owner for earning profit.

Decisions related to production, distribution of goods and price for products are based on competition in market. The Profit motive is the main objective of all economic activity.

Land, capital, machinery, technology etc. are owned by few people. It is called as capitalist class. Most of people work in the companies owned by capitalist class and receive wages or salaries.

b. Socialist Economy

It is an economic system where the means of production like land, capital, technology, etc. are owned by state and operated for the welfare of society. Such an economy exists in the countries like U.S.S.R., China. There is no private ownership.

A country's trade and industry are controlled and owned by the public sector enterprise and their aim is towards the interest of general people & their welfare. Decisions related to production, distribution of goods and price for products are based on general welfare.

The prime objective of socialist economy is 'social equality' and distribution of wealth according to the contribution to society, hence it can be said that the benefit to society is the main objective of all economic activity.

All profit goes to the State, welfare of the people and economic development.

Land, capital, machinery, technology, etc. are owned by the State. Every citizen is employed. The available resources are distributed by a central authority with an intention to the overall interests of the State. It is also called as 'market socialism'. There exists a public sector.

c. Mixed Economy

It is an economic system where the Public sector enterprises as well as private sector enterprises both exist. Means of production are owned by both. Such an economy exists in India and many other countries.

A part of country's trade and industry are controlled and owned by private owners, but they have to work under the prevailing law and follow the guidelines given by government. The government of country intervenes to avoid undue concentration of economic power and exploitation of people by monopolists. Whereas some enterprises are controlled and owned by Government.

Decisions related to production, distribution of goods and price for products are determined according to market structure but under the prevailing rules. Profit motive along with the development of society are the main objectives of all economic activity.

Some companies are private and some companies are owned by the government.

Resources like land, capital, machinery, technology, etc. are owned by both i.e. private individuals and government. Market forces exist, but are closely monitored by government.

1.1: ECONOMICS

The origin of the term 'economics' lies in the Greek word 'oiken and nomos. It means 'laws of households'. It means significance of economics to households.

Economics is a social science, which deals with the study about the behaviour of people, where wants are unlimited and means are scares which have alternative uses.

It is the study of how people make choices from the available resources. As the resources are scarce and wants are unlimited, there is a need to make choices from scarce resources.

Definition of Economics

Adam Smith

Adam Smith, the father of modern economics, defined economics as a subject, which is mainly concern with the study of nature and causes of generation of wealth of nation."

Alfred Marshall

Alfred Marshall defined economics as the study of mankind in the ordinary business of life. He explained that economics is not a natural science, such as Physics or Chemistry but it is a Social science.

Prof. Lionel Robbins

Robbins described 'Economics is a social science concerned with allocation of scares resources among competing ends'.

From the above definitions, we can understand that, economics is a science which studies human behaviour as a relationship between ends and scarce means which have alternative uses.

It is a study of human behaviour and how he uses the scare resources and make a choice for his use.

1.2: Managerial Economics is described as an economics applied to decision making. It has two main branches micro-economics and macro-economics.

I) MICRO ECONOMICS:

'Micro' means small. Microeconomics is the branch of economics that deals with the individual units, companies or consumer. These individual units may be either a person or a firm or a group of persons or firms. Thus, micro-economics gives a microscopic view of the economy.

It is the study of individual consumers and producers in specific markets. The micro economics is the study of an economic behavior of a particular individual, firm or a household. It studies

- Supply and demand
- Pricing of output
- Production processes
- Cost structure
- Distribution of income and output

II) MACRO ECONOMICS

Macroeconomics is the study of the economy as a whole, i.e. not a single unit but the combination of all, firms, households, nation, etc. It is the study of a national economy as a whole. It is the study of the aggregate economy such as:

- National Income
- Unemployment
- National output
- Inflation
- Economic growth
- Fiscal and Monetary policy

1.2.1 Difference between Macro and Microeconomics

Table no 1: Difference between Macro and Microeconomics

Points	Micro economics	Macro economics
Meaning	Microeconomics is the study of individual economic behavior. It's the study of economics at an individual, group or company level. Eg. Income of an individual	Macroeconomics is the study of entire economic systems. It is the study of a national economy as a whole Eg. National Income
Origin	Mikros	Makros
It deals with	Individual product, firm, household, industry, wages, prices, etc.	Aggregates like national income, national output, price level, etc.
Focus	Individual unit	Economic aggregates
Vision	Microscopic	Telescopic
View	Worms eye view	Birds eye view
Study	Tree	Forest
Scope	Limited. It Covers various issues like demand, supply, product pricing, factor pricing etc.	Broad. It covers various issues like, national income, general price level etc.
Popularity	Alfred Marshall	J.M. Keynes
Significance	Individual level	National level

1.3: MANAGERIAL ECONOMICS

Meaning

Managerial economics is a branch of economics which deals with the application of economic theory to solve the business problems and decision making. It deals with the use of economic theories, tools, techniques and principles for business decision making.

Managerial Economics is a study of economic theories, tools, techniques and methodology which are generally applied to seek solutions to the practical problems of business. It is an applied microeconomics.

Definitions

According to Haynes, Mote and Paul,

"Managerial Economics is economics applied in decision making. It is a special branch of economics bridging the gap between abstract theory and managerial practice."

Salvatore

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

Mansfield

"Managerial economics is concerned with the application of economic concepts and economic analysis to the problems of formulating rational managerial decisions."

From the above definitions, we can understand that that Managerial economics is an application of managerial theories, tools and techniques in critical business decisions. Some people call it as Business economics and others as applied economics. Some like to say it as economics for managers.

1.3.1Nature of Managerial Economics:

Decision making is the prime function of managers it is a process of selecting one best alternative from available alternatives. The problem of choice arises because resources are limited and the firm has to make the optimum use of these resources. Managerial economics help in decision making and planning.

The aim of every business is to maximize profit. Managerial economics gives a road map for making decision regarding the particular output, pricing, capital, raw-materials etc. Forward planning and decision-making thus go on at the same time.

A business manager's job is to take decisions in day to day business activities and for future which is uncertain. Nobody can predict business conditions in future. The Manager has to take the best possible plans for present and future depending on past experience and using theories and tools of managerial economics. Managers are thus engaged in a continuous process of decision-making for an uncertain future and the overall problem confronting them is one of adjusting to uncertainty.

Managerial economics provide economic theory, concepts, tools and principles which can be used to solve the problems of business management. The economic analysis can be used towards solving business problems, constitutes the subject-matter of Managerial Economics.

Managerial Economics is an application of that theory, concepts, tools and principles that focuses on demand, production, risk, cost, pricing, revenue, market structure etc. Studying these principles will help to make rational decisions and will also improve the analytical skill that the manager or entrepreneur must have to get success. The main role of economics in management is enhancing decisions making ability where limitations exists. It will help manager to confirm that resources

are allocated efficiently within the firm and that the firm makes suitable decisions during the fluctuations in the economic environment.

Managerial Economics is concerned with application of economic concepts and theories so that rational managerial decision can be taken.

Thus, in brief it can be explained that Managerial Economics is both a science and an art.

1.3.2 Characteristics of Managerial Economics

It is Microeconomic in Nature: Microeconomics is the branch of economics that deals with the individual units, companies or consumer. These individual units may be either a person or a firm or a group of persons or firms, hence it is microeconomics in nature.

It is Pragmatic: Managerial economics is a practical subject. It is not static. It does not provide rigid and immaterial theoretical frameworks for managers. It is applied science.

It is Positive and Normative: Economics can also be classified as positive or normative. Positive economics describes what is, i.e., observed economic phenomenon, whereas Normative economics explains what ought to be, i.e. it distinguishes the ideal from the actual. Thus positive economics is concerned with "what' and normative economics with "what ought to be.

It Utilizes Some Theories of Macroeconomics: When all consumers or firms are added up and it becomes a matter of examining the problems of the economy or the nation as a whole, which is called as macroeconomics. In order to arrive at logical results for consumers/firms it takes the help of some macroeconomic theories to understand the environment in which the firm operates.

It is Problem Solving in Nature: It studies the problems of managers in business units, goal of managerial economics is to find out optimal solutions to the business problems and help entrepreneurs and managers.

1.3.3 Scope of Managerial Economics:

The scope of managerial economics is vast. It covers the following fields

- Demand Analysis and Forecasting
- Cost Analysis
- Production Analysis
- Pricing Decisions
- Profit Management
- Capital Management

Demand Analysis and Forecasting: Demand analysis is very important for the production function. It helps in analyzing the current and expected demand for the product. Demand forecasting helps managers for production schedule and requirement of employees.

Production analysis: Conversion of inputs into outputs is known as production function. As resources are scares with many alternative uses, decision makers tries to make optimum utilization

of factor of production such as labour, land, capital, technology and machinery. Factors of production should be combined in such a way that it an organization must get maximum output.

Cost analysis: A firm's profitability is directly related to its cost of production. A manager would try to find the factors causing variations in cost estimates and choose the best combination so that a firm gets maximum output in minimum cost. The concepts such as Cost concepts, cost-output relationships, economies and Diseconomies of scale and cost control are discussed in Managerial Economics.

Pricing decisions: Price is the origin of the revenue for a firm and the success of a business firm largely depends on the effective pricing policy. Managerial economics covers price determination in various markets and pricing methods and helps in preparing pricing policy.

Profit management: Economics explains that profits are the reward for uncertainty bearing and risk taking ability of an entrepreneur. A successful business manager or an entrepreneur is one who can form more or less correct estimates of costs and revenues at different levels of output.

Capital management: Capital management helps in capital budgeting and control of capital expenditure because it involves a large amount. The main topic deals under capital management are cost of capital, rate of return and basis for selection of projects.

1.3.4: Tools in Managerial Economics/ Basic principles

Economic theory offers a variety of tools and theories which assist managers and entrepreneurs in their decision making process. These tools and theories are helpful for them in solving their business related problems. These tools are taken as a guide in making decision.

Following are the basic economic tools for decision making:

- Opportunity cost
- Incremental principle
- Principle of the time perspective
- Discounting principle
- Equi-marginal principle

1) Opportunity cost principle:

Opportunity cost is the foregone cost of choosing next best alternative. In simple words we can say that when we sacrifice something to get next best alternative in that condition, the cost of the thing which is sacrificed is known as opportunity cost.

For example

1) A farmer who is producing tea can also produce coffee with the same factors. Therefore, the opportunity cost of a ton of tea is the amount of the output of coffee which he gives up.

2) If an entrepreneur work in his own company then the salary that he could get from working somewhere else is his opportunity cost.

3) If a person uses his own land in his business in that case the rent he could get from that land will be his opportunity cost.

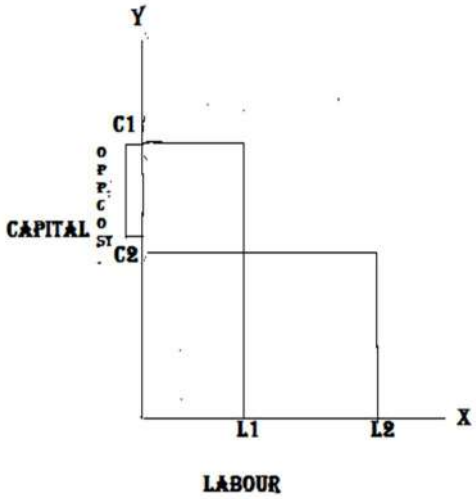
4) Mr. Akash has 10000 Rs. He has two options for investment

a) Invest in bank and get 6% interest.

b) Invest in his own business and earn profit. Now he decides to invest his money in business and earn profit.

In the above case he has lost or sacrifice of 6% interest, which he might have earned instead of investing in business. Here loss of 6% interest is his sacrifice and is called opportunity cost.

In economics the concept of opportunity cost is very important because the opportunity cost should always be less than the cost of the alternative which we have chosen, otherwise the decision regarding that will be considered as wrong decision.



Opportunity cost Graph

For example, in a firm there are two inputs, labour and capital. If we sacrifice the capital from C1 to C2 for getting more labour L1 to L2, then the amount of sacrificed capital (between C1 and C2) will be considered as an opportunity cost. Now if, with this new combination of inputs the total production increases the decision will be considered as right decision.

2) Incremental principle:

The main objective of Incremental principle is to get or earn maximum profit. It can be done by increase in the production, but at the same time cost and profit also increases.

Incremental cost may be defined as the change in total cost resulting from a particular decision being made by manager or entrepreneur. Incremental revenue is the change in total revenue resulting from a particular decision made by manager or entrepreneur.

There are two basic components of incremental concept

1. Incremental cost
2. Incremental Revenue

The incremental principle explains that:

"A decision is obviously a profitable if

It increases revenue more than costs

It reduces cost more than revenues"

3) Principle of Time Perspective

The time perspective concept explains that while taking decision short run and long run both should be considered. Time perspective has short run and the long run effects on revenues as well as costs.

In a short period, some factors are fixed (land, building, machinery) and some factors are variable (labour, raw material etc). Hence, in the short run, the firm can change its output, by changing only variable factors.

During a long period, variable factors such as labour, raw material etc. As well as fixed factors such as land, machinery, building are changed. Hence, in the long run, the firm can change its output, by changing all the factors.

In the long period, the output of the organization increases more because the organization has enough time to increase their factors of production and sizes of the firm.

Decision maker must give due consideration both to the short run and long run consequences of his decision.

4) Discounting Principle:

One of the fundamental principle in economics is that a rupee tomorrow is worth less than a rupee today or the value of rupee today will not remain same in future. Suppose a person is offered a choice to make between a gift of Rs.500/- today or Rs.500/- next year. Naturally, he will chose Rs.500/- today. This is because of two reasons-

- The value of 500 will not remain same after 1 year.
- The future is uncertain and there may be uncertainty in getting Rs. 500/- .

Even if he is sure to receive the gift in the future, today's Rs.500/- can be invested so as to earn interest say as 6% so that one year after he will get more than 500/-.

5) Equi – marginal Principle:

The principle of equi-marginal utility describes the behavior of a buyer in allocating his limited income among various goods and services. This law states that how a buyer/purchaser distributes his income between various products and services so that he should get maximum satisfaction.

A buyer has unlimited wants so he tries to spend his income on different things in such a way that the marginal utility of all things should be equal. This is called principle of equi-marginal utility.

According to this principle, during production process inputs should be allocated in such a way, that the value added by the last unit is the same in all cases. This generalization is called the equi-marginal principle.

Optimization Concept

Optimization means selecting the best alternative out of all the available ones it describe how decisions or choice among alternatives are taken or should be made to get maximum benefit. It helps in optimum utilization of resources.

Marginal Analysis

Marginal means the additional output or output that we get from the last unit. Similarly, a decision about additional investment has to be taken in view of the additional return from that investment. Hence, additional is stated as marginal.

For example, we often use terms like the marginal output of labor (means the output of last additional labour), marginal revenue of output sold (the revenue received from last unit sold), marginal profit by producing additional output and so on One should be clear about the marginal analysis before an attempt is made to use such concepts of marginalize.

Economic Model

An economic model is a mathematical or logical statement of economic theory. It is a method of analysis which presents an over-simplification of the real world. The situation in the real world is composed of a variety of major and minor factors and less important factors are omitted, and most essential factors are considered. The purpose of a model could be to explain the extent of decline in a particular organizations sale during an economic downturn with specific reference to income factor.

1.4: Managerial Economics in Decision-Making

Decision making is an important part of today's business organizations .Making a decision is one of the most difficult tasks faced by entrepreneurs and managers.

Managers has to take decision regarding allocation of available scare resources. Decision regarding for production, inventory, cost, revenue, marketing and investment etc.

1. Useful in Business Organization: It helps to solve the basic problems such as what to be produces, how to be produce and how to distribute..

2. Business economics helps in making Business Policies to maximize the profit of any organization and at the same time minimize cost. It is very useful for every firm and business to get the maximum benefit.

3. It helps managers in production planning for the successful operation and production. It acts as a balance bridge between the production tools and operating systems and where to go.

4. Managerial economics helps managers to consider short period and long period for planning and in cost control decisions

5. Tools explained in managerial economics like demand forecasting techniques, which helps managers to forecast demand for their products. The managerial economic helps in anticipating risk in advance and provide strategies so that any firm can be protected against future risks.

6. Managerial economics helps managers to decide on the planning and control of the risk. Investment planning can be done effectively.

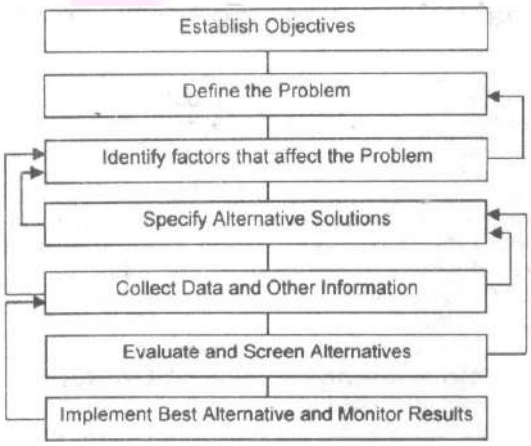
Managerial Economics provides tools by using Price Discrimination technique a businessman can quote different price for same product in different market and gets maximum profit. Economics gives the necessary guidance in managing the pricing of products in various markets.

Managerial Economics is useful in understanding the complex structure of the entire economy. The entire economy is very complex but business economics solves it and helps in smooth running of business by making effective decision making process.

Managerial economics guides us how to distribute the profits and invest in where to make the business more profitable in the coming year and more growth in the business field.

It helps in preparing pricing policy as per the elasticity of goods and services. If the demand of commodity is inelastic, high price can be imposed or vice versa.

Decision process includes following decisions:



1) **Setting Objectives: F**irst step in the decision process is to establish objectives or to define the objectives clearly.

Objectives should be stated in a concrete, clear and precise, because if they are stated in a very general form, it becomes difficult to take a decision and find whether a particular decision brings us closer to the stated goal.

2) **Defining the Problem:** Once the objectives have been established, the next step is to define the problem that generates need for a decision. Specific questions about the problem should be stated. What factors are involved? Who is affected by problem area? What are the critical factors? etc. By finding the answer of what, who, where, when, why, and how questions, we can identify the real problems

3) **Identifying essential factors:** The next step is to identify factors and variables that creates problem. Collect all relevant data. Find pros and cons of problems and find the alternatives.

4) **Finding Alternative Solutions:** The next step is to identify possible alternative courses of action. It would be useful to have several people sit around a table and have brainstorming session so that a list of alternatives.

5) **Gathering Information:** For framing alternatives, we must have the necessary information to do so. Thus, data related to the important variables creating the problem must be gathered.

6) **Evaluating Alternatives:** The alternatives found should be evaluated and screened.

The evaluation of alternatives must be done with the prescribed objectives kept closely in mind. The best alternative is the one that achieves the goals determined or brings the firm closest to those goals.

7) **Implementing and Monitoring the Results:** Once the alternatives have been evaluated and screened we **begin the** final phase **of** the decision process, to implement and monitor the appropriate decision.

1.5 FIRM

Concept of Firm: A firm in economics, refers to a commercial or business institution aiming at the attainment of economic objectives. A firm is a commercial enterprise, a company that buys and sells products or services to consumers with the aim of making a profit.

A firm may be of various types such as sole proprietorship firm, Partnership firm, Public Limited companies, private limited companies. The public or government enterprise indicates all firms owned by society or government, strive to achieve their goal.

1.5.1 MARKET

Concept of market: In economics market is a place, or kind of an arrangement whereby buyers and sellers interact to exchange goods, services, shares, contracts and so on. Sellers determine the prices and quantities to be sold . Some markets are located on physical place whereas

some take place on telephone or online via internet. Now a days transactions takes place between countries where physical contact is not possible, transaction takes place due to latest technology. In economics, arrangement of all such exchange of goods and services is called market.

Markets are classified on the basis of the place (domestic, national, international market), commodity (timber market, gold market and so on), competition (perfect, monopolistic, monopoly etc), period etc. Details are given in chapter no 4.

1.5.2 Objectives of firm:

The neo- classicle theory of firm assumed that the sole objective of the firm is profit maximization.

- A new firm entered in market can not think of profit, or sales or share maximization.Its immidiate concern has to be penetarte the market and sale some of its units of product.After entring into market , it can switch over to maximization of profits or sales as its objectives.
- Firms face uncertainity and lot of risk in decision making hence it can not concentrate only on one objective. Firms has to achive many targets or multiple obectives to achive under different conditions.
- Most of the firms plan short- run objectives in detail and long run objectives are mostly related to growth and diversification so it is focussed on purchasing land, machinery, equipments etc.

Most important objectives of firms are

- Profit maximization
- Sales maximization
- Market share maximization
- Wealth of firm maximization
- Growth and development of a firm
- Minimization of accidents, loss, damages
- Penetration into market
- Acquiring broader market
- Revenue maximization

- Safisfying shareholders and stakeholders
- Attainment of objectives

1.6: Profit Maximization Model of a firm

The well-organized management of an organization needs an efficient managerial skills so that they can take correct decision. This efficient decision making process requires setting the objective to be achieved.

Whether a management decision is correct or not it can be assessed against the objective that the organization wants to achieve.

Profit Maximization Model:

In the neo-classical theory of an organization, the main objective of a entrepreneur or manager is to get maximum profit.

An organization maximizes its profits when it satisfies MC = MR and the MC curve cuts the MR curve from below.

It is the amount left with the businessmen after he has made payments to all factors of production such as rent, wages, interest etc. In other words, it is a residual income over and above his normal profits.

The profit maximization model of an organization has given decision makers/ managers/entrepreneurs an advantageous outline with regard to effective administration and distribution of available resources.

The difference between total revenue and total cost is called as profit. The concept of cost used in managerial economics for decision making is diverse from the concept of accounting cost used in accounts.

In Managerial profit is calculated as total revenue minus economic costs.

Thus, π=TR-TC

π = total economic profits

TR = total revenue

TC= total economic costs

It is economic profits the firm try to maximize decision for maximum level of output to be produced and highest price to be charged for its commodity.

It is explained in the following figure

Here, TR curve show total revenue earned from output of a commodity.

TC curve shows total economic costs of output.

We can see that, total revenue equals total economic costs at point OM output, we see point 'B' at which TR curve intersect TC curve and at this point we can say that it is a breakeven point of an organization.

Beyond this break-even point, an organization starts getting profit. Profits go on increasing till output reaches at OQ level. At point OQ, the difference between total revenue and total cost is maximum, we can see distance between point 'J' and point 'H' is maximum and it is the profit.

Hence, JH is the maximum profits that can be received by an organization.

Profits are highest at OQ level of output, it can be expressed as:

π = TR – TC

We can observe from the following figure that slope of the TR and TC curves corresponding to output level OQ are the same as the slope of the tangents drawn to these curves are the same at this output level.

It can observe from the figure no 2. That TP is the total profit curve, which initially goes up and then beyond point N (corresponding to output level OQ) it starts falling down , which shows that profits are maximum at output level OQ.

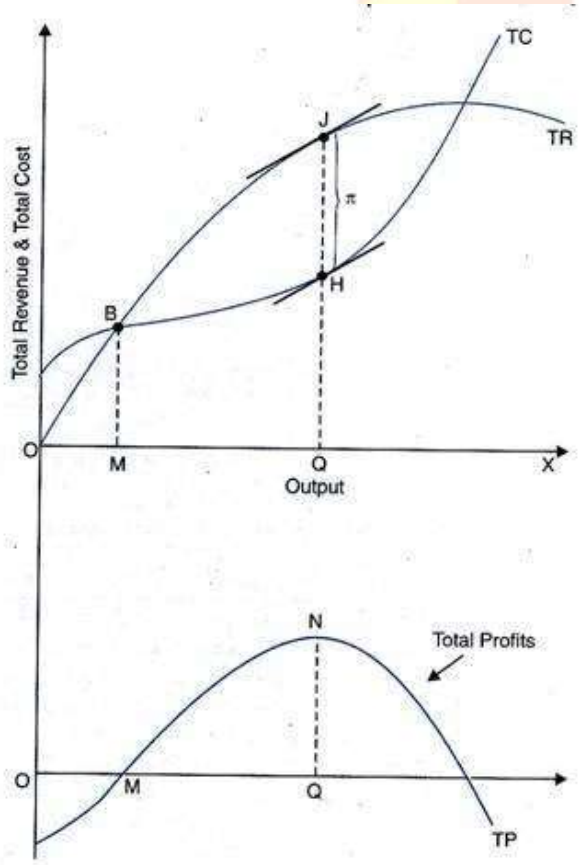


Fig. 2.1. *Profit-Maximising Model of the Firm*

We can observe that from the upper part of the diagram that profits start decreasing as output is increased beyond OQ. Therefore, an organization which aims to maximize is profits will produce output level of OQ, and will charge a price of its commodity which buyers are willing to pay as per the demand.

The profit-maximizing model of an organization gives important guidelines for the decision makers to generate maximum profit by efficient management of available resources.

Profit Maximization Theory:

In the neo-classical theory of an organization, the main objective of an entrepreneur or manager is profit maximization.

An organization maximizes its profits when it satisfies when MC = MR and the MC curve cuts the MR curve from below and Maximum profits refer to pure profits which are a surplus above the average cost of production.

It is the amount left with the businessmen after he has made payments to all factors of production such as rent, wages, interest etc. In other words, it is a residual income over and above his normal profits.

The profit maximization condition of an organization can be expressed as:

Maximized profit p (Q)

Where p = R – C

Where p is profit, R is revenue, C are costs, and Q are the units of output sold . The two marginal rules and the profit maximization condition explained above are applicable both to firms in a perfectly competitive and monopoly.

Assumptions:

The profit maximization theory is based on the following assumptions:

1. The objective of an organization is to maximize its profits where profits are the difference between revenue and costs.

2. The entrepreneur is the sole owner of an organization.

3. There is no change in taste, preference and habits of consumers.

4. There is no change in the techniques of production.

5. A firm produces a single and perfectly divisible commodity.

6. A firm has full and detailed knowledge about the number of output which can be sold at each price.

7. Entry of firms in the short run is not possible.

9. A firm maximizes its profits over some time-horizon.

10. Profits are maximized both in the short run and the long run.

Assuming the above assumptions, the profit maximizing model of the organization can be shown under perfect competition and monopoly.

1.8 The Behavioral Model of Cyert and March

. The theory has been explained by Cyert and March. The writers conducted case studies experiments and studied the process of making decision making under uncertainty.

This theory focuses on internal decision making structure of the firm. It try to answer the following questions:

1. How does the allocation of resources within a firm's budget relate to the Organizational goals?
2. How do objectives change as per change in time?
3. What happened to information as it flows through the organization?
4. Are there biases in the information?
5. How these biases do affects the decisions that are finally made?
6. What is the relationship between decisions made by the management and the final form of the decision as it is implemented by the organizations?

Following are the assumptions of Behavioral Model of Cyert and March

- A firm has a combination of groups (management and Owners both are different) with conflicting goals (their goals are different)
- A firm has to develop the multi goals for multi groups for various departments
- Goals of the firm are set by the top management for satisfying the expectation of stakeholders.
- Means for the resolution of the differing demands and interests of the several groups of the firm-coalition.
- A firm has to develop the overall environment of the firm
- A firm has to develop the overall treatment of uncertainty

The Firm as a Coalition of Groups with Conflicting Goals: The behavioral theory of the firm, as developed by Cyert and March, focuses on the decision-making process of the 'large multi-product firm where the management is different than ownership, under uncertainty in an imperfect market. Each group existing in a firm has its own goals or expectations. For example, workers want high wages and managers want high salaries, status and power, excellent pension plans and proper conditions of work. The shareholders want high returns on their investment.

A firm has multi goals and multi decision organization. A firm is considered as an association of different groups such as shareholders, managers, workers, suppliers, customers, bankers, and so on.

The Process of Goal-Formation: This theory explains that on the one side there are employees and on the other side management.

Goals of the Firm. There are five main goals of the firm:

(1) Production goal: There should be smooth functioning of production of goods. There should be optimum utilization of production capacity. Frequent breakdowns of machinery and wastes of raw materials should be avoided.

(2) Inventory goal: There must be appropriate quantity of finished goods to be available for sales department and raw material for the production department.

(3) Sales goal: Effective sales strategies should be planned in advance.

(4) Share-of-the- market goal: Effective advertising campaigns and the market research should be conducted for acquiring market.

(5) Profit goal: Set by top management to fulfil the requirements of stakeholders. It helps in capital budgeting and ploughing back of profit for the growth of firms.

d) Uncertainty and the Environment of the Firm: This theory explains two types of uncertainty:

a. Market uncertainty: Market is uncertain. Uncertainty may be due to change in consumer preference, liking, change in government policy, introduction of new technology etc..

b. Uncertainty of competitors' reactions: This theory states that there is uncertainty in competitors' actions and reactions. This theory supposes that existing firms have arrived at some form of implicit collusion.

A Simple Model of Behaviorism:

Cyert and March described a model, shows decision-making process within the modern large corporation.

In this model, under duopoly market, output of both the firms is homogeneous, here decision process includes the determination of output, and hence we can say that there is only one price i.e. In this market single price prevails. Each firm in this market, in fixing its output automatically induces price changes in the market.

When both firms finally decide their outputs, price will be determined by the market. Firms cannot change in their stock or inventories in this model.

The steps may be outlined as followed for profit maximization:

1. Forecast of Competitors' Reactions:

The forecast is basically a study and knowing of the past observed reactions of competitors.

2. Forecast of Firm's Demand:

This is based on an assessment of the demand for a product from past information and data. Future demand is thus an information of the past sales of the firm.

3. Estimation of Costs:

The cost in the current period is assumed to be the same as in the past period. However, if the profit maximization is to be achieved over the past two years, average unit costs are increased by a certain percentage to allow for slack payments.

4. Goals of the Firm:

In this model profit is the only goal of the firm.

5. Evaluation of Results by Comparing Them to the Goals:

From the information obtained in steps 1-3 we obtain a solution, i.e. an estimation of the level of output, price, cost and profits. These are compared to the target level of profits and necessary decision should be taken.

6. Evaluation of decision:

Evaluation starts with costs because this variable is under the direct control of the firm. It usually involves a cut down in other expenses.

7. New solution should be taken in case of any deviation from goal

1.9: MARRIS' GROWTH MAXIMIZATION MODEL:

Robin Marris in his book The Economic Theory of 'Managerial' Capitalism (1964) has developed a growth maximizing model of the firm.

The model explains the "growth" of firm under managerial constrains.

The theory is built on the tangents 'separation of ownership and management' and the conflict of the interest of the owners and managers.

The managers tries to maximize growth rate of the firm and the shareholders tries to maximize of their dividends and share prices. But the Marries's managers work to establish a link between such a growth rate and the share prices of the firm.

If the manager chooses a higher growth rate, he will have to pay out more money on advertisement and on R & D in order to create more demand and new products. He will, therefore, keep hold of a higher part of profits for the expansion of the firm. Hence the dividend will be reduces and share prices will fall. Consequently there will be threat of take-over of the firm.

As the managers are worried about their job security and growth of the firm, they will choose a growth rate which maximizes the market value of shares, give suitable dividends to shareholders, and avoid the take-over of the firm.

On the other hand, the owners also want growth of their firm because they will get attractive return on their investment. Thus the goals of the manager's matches with that of owners of the firm and both try to achieve balanced growth of the firm.

Balanced Growth

Balanced growth is achieved when the growth of demand for product is equal to supply for capital. Growth of demand for product maximizes managerial utility and the growth of supply for capital maximizes the entrepreneurial utility, and their equilibrium satisfies both.

Balanced rate of growth of the firm(g) requires thet :

gb=gc

gb=growth of the demand for firms product

gc= growth of supply for capital

But there are two constrains:

There is a limit to efficient managerial expansion as they need some time to be familiar with working condition and contribute efficiently.

Job security constraint which reflected on manager's performance, pension schemes and policies that dislike risks.

Factor determining demand:

Rate of diversification (d)

Proportion of successful new product (K)

Advertisement (a)

Expenditure on Research & development (R/D)

K=f (P, D, A, R&D, intrinsic value)

P=Price

A=Advertisement

R&D=Expenditure on R&D

K=f (P, D, A, R&D)

The Marris model is based on the following assumptions:

1. It assumes a given price structure.

2. Production costs are given.

3. Factor prices are constant.

5. Firms are assumed to grow through diversification.

6. All major variables such as profits, sales and costs are assumed to increase at the same rate.

According to Marris, there are two different utility functions for the manager and the owner of the firm.

The utility function of the manager consists of his status, power, job security, etc. On the other hand, the utility function of the owner includes profits, capital, output, market share, etc.

Thus the manager of a firm aims at maximizing his utility, and his utility depends upon the rate of growth of the firm. Though promoting the growth of the firm is the main aim of the manager, yet he is also motivated by his job security. The manager's job security depends upon the satisfaction of shareholders in keeping the share prices and dividends as high as possible.

Hence Morris finds the means by which the firm can achieve its growth-maximization goal. The firm may grow in size through the creation of new products which create new demands. Morris calls it differentiated diversification. The introduction of new products depends upon the rate of diversification, advertising expenses, R&D expenditures, etc.

As new products are introduced, the firm grows and profits increases. With the extra increase in the growth rate due to diversification into new products, the growth-profits relationship becomes negative. This is because there is the managerial limitation which sets a limit on the rate of managerial growth that restricts the growth of the firm.

The higher rate of diversification requires higher expenditures on advertising and R &D. As a result, after a certain growth rate, the higher growth rate leads to a lower rate of profit.

As explained in the following figure. It shows that GD curve first rises, reaches the highest point M and then starts falling.

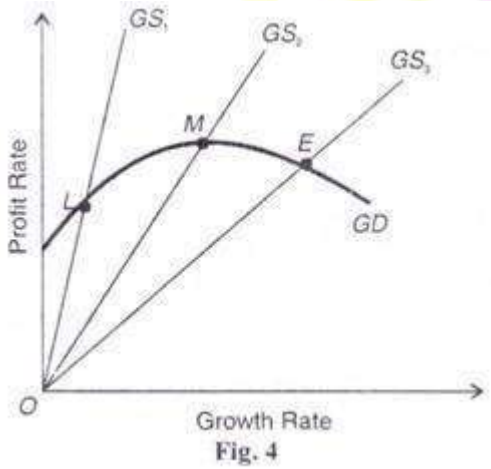


Fig. 4

It can be seen in the above diagram that GD curve first rises, reaches the highest point M and then starts falling.

This is because the firms' managerial ability to manage with a great number of variations at once is limited. The higher rate of diversification requires higher expenditures on advertising and R &D. As a result, beyond a certain growth rate, the higher growth rate leads to a lower rate of profit.

Factor determining growth of capital supply

Fixed assets, stock, short term assets and cash.

According to Marries the main source of capital supply is profit, which itself determined by profit and diversification, that is ,

Ge =a [f(m,d)]

Factor determining growth of capital is determined by 3 factors

- Financial policies of the managers
- Average rate of profit
- Rate of diversification

EQUILIBRIUM OF THE FIRM

A firm reached equilibrium when

gb =gc

g (m,d)= a [f2 (m,d)

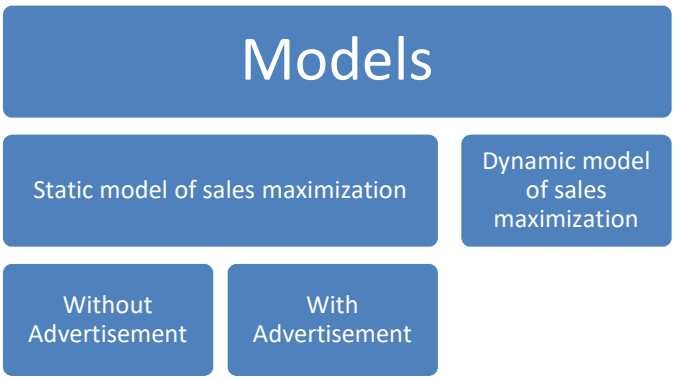
Here a is exogenously determined. Both gb and gc for different levels of m and a balanced growth canbe foundout as shown in given figure. The curve WXYZ, are at equilibrium points between gb and gc as functions at d at different level of m, indicates the balanced growth og firm.

Write WXYZ in place of ABCD

1.10: Baumol's Static and Dynamic Models

Bumal's model highlights that the prime objective of a firm is to maximize its sales rather than profit maximization. Baumol describes that the goal of a firm is maximization of sales revenue subject to a minimum profit constraint.

According to Baumol, sales revenue maximization is the most important goal of managers.



Prof. Baumal has developed and described it in two models:

First is Static Model

Second is Dynamic model

The Static Model is explained as follows:

This model is based on some assumptions,

The model is applicable to a particular time period and the model does not operate at different periods of time. In other words, the time horizon of the firm is a single period.

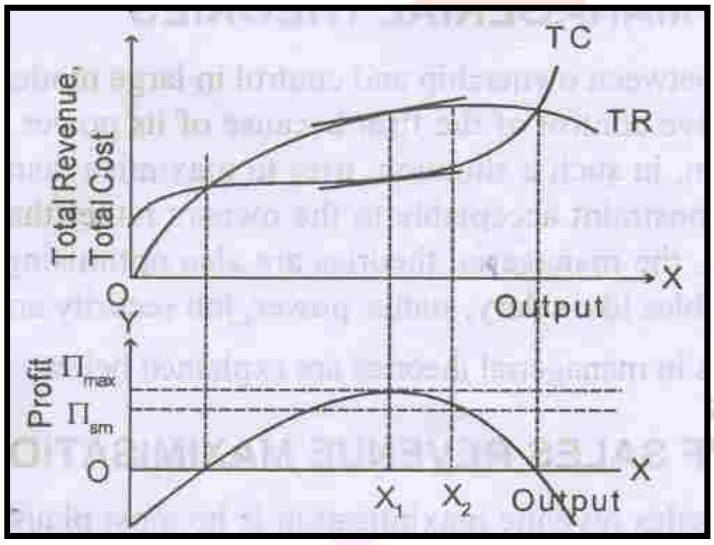
The firm is aiming for only a particular period, it does not consider the things will happen in the subsequent year as a result of decision taken in current period

The firm aims at maximizing its sales revenue subject to a minimum profit constraint.

The demand curve of the firm slope downwards from left to right.

The average cost curve of the firm is U-shaped one.

STATIC MODEL WITHOUT ADVERTISEMENT



In the above diagram

TC = Total Cost,

TR = Total Revenue

∏= Profit.

X1= Output level where profit level is maximum.

X2= Output level where profit is less than at X1 but sales are more.

Sales maximizer sells at price lower than profit maximizer.

Firm will not increase its sales beyond X2, because if profit is less than ∏ SM , It will not be acceptable to share holder, managers , banks and other financial institutions .

STATIC MODEL WITH ADVERTISMENT

This model is based on some assumptions,

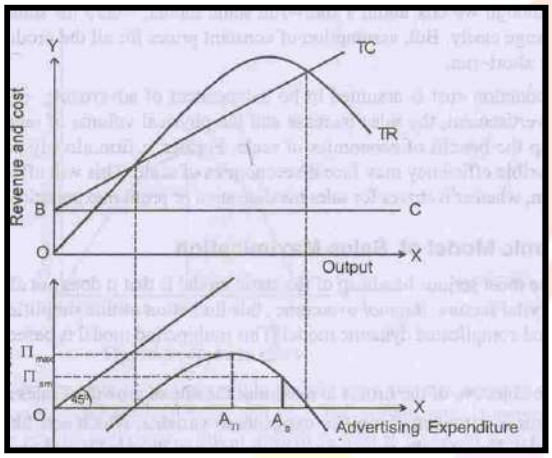
It is assumed that sales revenue increases with advertising expenses.

An Oligopolistic firm will prefer to go for sales maximization via an increase in advertisement rather than a price cut.

The sales maximizer decides on optimal advertisement by examining its effect on sales revenue.

In this model, the firm maximizes sales revenue subject to a minimum profit constraint. He explains that revenue rises with advertising. The price remains constant and production costs are independent of advertising.

It is explained in the following diagram



In the above diagram

TC = Total cost (CC1+AC),

BC = Production cost,

TR = Total Revenue,

∏ = Profit (TR-TC),

∏max = Maximum Profit,

∏SM =Sales maximization profit,

A ∏ = Advertisement expenditure incurred by a profit maximizer,

AS = Advertisement expenditure incurred by a sales maximizer.

We can see from the above diagram that when there is an increase in advertisement expenditure, total cost, sales revenue and profit also increases in proportion.

Production cost shown by BC line is assumed to be independent of advertising cost.

If price is such as to enable the firm to sell an output yielding profit above the minimum acceptable profit level, firms will go for higher advertisement expenditure and earn greater revenue.

However, if profit falls below $\prod$ SM, the firms cost become too high and firm will reduce expenditure on advertisement.

Thus it shows that sales maximizer will spend more on advertisement than a profit maximizer.

There are some limitations of static model such as

Assumption of constant price for all product is not practical in real world.

Production cost is assumed to be independent of advertising expenditure. But with advertisement, the sales increases and units of output also increases, which can lead to economies of scale, a firm already producing at maximum possible efficiency may face diseconomies of sale. This will affect the production cost of the firm, whether it strives for sales maximization or profit maximization

Dynamic Model:

The dynamic model is an improvement of static single-period model. The limitations of the static model is the short time-horizon of the firm and the treatment of the profit constraint as an exogenously determined variable.

These weakness is solved in the dynamic model by including an extended time-horizon and endogenising the profit constraint.

This model explains how variations in advertisement expenditure, affects demand and sales revenue of a firm under severe competitions.

Few assumptions of this model are, 1. Higher advertisement expenditure would certainly increase sales of a firm. 2. Market price remains constant. 3. Demand and cost curves of the firm are conventional in nature.

The objective of the firm is to maximize the rate of growth of sales revenue over its lifetime. Sales revenue (R) grows at the rate of 'g' percent.

Profit is not taken as a given exogenous variable, which acts like a constraint in the static.

Demand and cost curves have traditional shapes as in the static model.

Assumptions

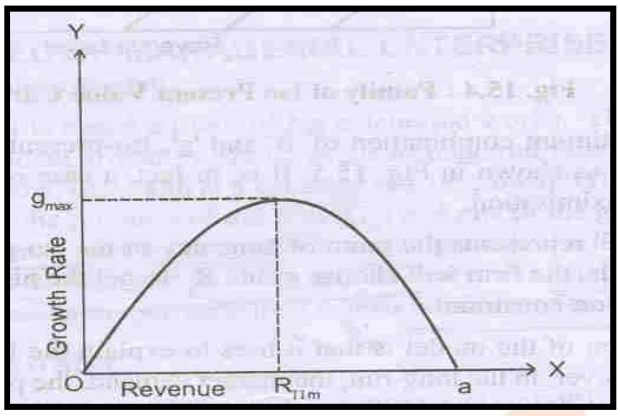
1) The firm maximizes the rate of growth of sales over its lifetime. Sales revenue (R) grows at the rate of 'g' percent.

2) Profit is the main source of finance for growth of sales. Profit is not taken as a given exogenous variable, which acts like a constraint in the static.

3) Demand is downward sloping and costs curves are U-shaped.

The growth function is derived from profit function, as growth of firm is mainly financed by retained profits.

Highest attainable growth rate is achieved when profit is maximized.

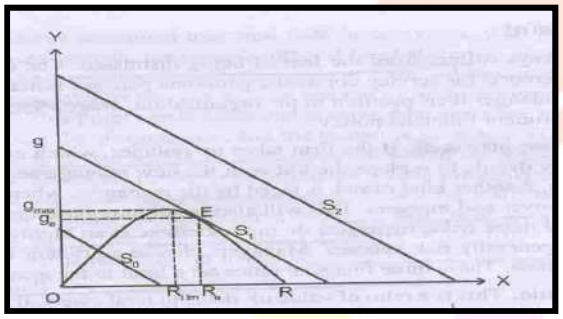


$$S = a_1 \ g + a_2 \ R$$

$$g = \frac{1}{a_1} S - \frac{a_2}{a_1} R$$

$$R = \frac{1}{a_2} S - \frac{a_1}{a_2} g$$

To find equilibrium a firm, we will use iso present value curve, which shows all present value of g & R which yield same value of S.



Point E in the figure represents the point of tangency of iso present value curve to the growth curve. Thus firm will choose ge & Re to get the highest possible level of S subject to the growth constraint

LIMITATIONS: It try to explain long run behaviour of sales maximising firm. However in long run market demand, prices of factors of production etc. change. This model does not take these changes into account

Baumol's Managerial Theory of Sales Revenue Maximization

I. Rationalisation of the Sales Maximisation Hypothesis:

Baumol has given several justifications of sales maximisation as a goal of the firm.

Baumol worked as consultant to large firms, he found from his experience that managers focus on maximisation of the sales rather than profits.

He pointed out that sales maximisation seems the most possible goal of managers. He described the following reason:-

Most of the time it is seen that salaries and earnings of top managers are correlated more closely with sales rather than with profits.

The investors and bankers keep a close eye on the sales of firms

Problems in companies or personal are solved more efficiently when sales are growing. All the employees are paid higher salary and better terms of work in general. If the sales goes down, will create problems and there may be reduction of salaries and the lay-off of some employees. Such measures create unhappiness and uncertainty among employees.

Large sales, for longer time, give prestige to the managers, higher dividends to shareholders and increase image of organisation.

Managers prefer a steady performance with 'satisfactory' profits in profit maximisation projects.

Growing sales give strength and power to adopt competitive tactics, face competition in national as well as international market.

The need for a steady performance with satisfactory profits, attached with the separation of ownership and management, tend to make the managers hesitant to adopt promising projects which are risky. If the top managers are risk- avoiders, hence this approach may act as a curb on economic growth. However, the need for steady performance has a stabilizing effect on economic activity.

Baumol explains that the risk-avoidance and the desire for steady growth of the large corporations-secure 'systematic markets', in the sense that they have stabilizing effects on the economy.

IMPACT OF ADVERTISING

Baumol recognises the interdependence of firms as the main feature of oligopolistic market. The policies of non price competition are better under oligopolistic market.

It is only when the firm makes 'more radical decisions, such as the launching of a major advertising campaign or the introduction of a radically new line of products, that management usually does consider the probable competitive response.

Advertisement would shift the demand curve to right, showing increase in demand without change in price.

As the advertisement expenditure increases revenue on the same price, a firm's revenue will continue to increase until a minimum profit constraint is reached. The advertisement expenditure under sales maximization will be higher than that under profit maximization.

Advertisement play an important role as it increases sales and market share. But at the same time it increases cost. As a result total profit at each unit decreases by the amount of advertising in comparison to that of non-advertising sales maximize.

II A MULTIPRODUCT FIRM

Under this situation, the level of output of sales maximize will be higher than profit maximised.

Equilibrium is achieved when the product transformation curve is tangent to ISO revenue curve.

The slope of the product transformation curve is tangent to ISO revenue curve indicate the ratio of marginal cost of two products, that is,

The marginal rate of product transformation = Marginal cost of 'X'

Marginal cost of 'Y'

The slope of ISO revenue curve shows the ration of marginal revenue f two products, that is slope of the ISO revenue curve

= Marginal revenue of 'X'

Marginal revenue of 'Y'

This means firm will be at equilibrium when, ratio of marginal cost is equal to ratio of marginal revenue.

If firm is advertising its product, one condition must be fulfilled, that is marginal revenue of two products should be equal.

1.11 Williamson's Managerial Discretionary Theory:

The theory of Managerial Utility Maximisation was developed separately by Berle-Means-Williamson. It is also known as Managerial Discretion Theory. This model explains how managers use their discretion to maximize their own utility.

The Theory is based on the concept that shareholders or owners of the firm and managers are (two separate groups).

The shareholders want high dividends so they are interested in maximising profits.

1. The managers have discretion in pursuing policies which maximize their own 'utility' rather than that of shareholders.
   Once the managers have achieved a level of profit that will pay satisfactory dividends to shareholders and still ensure growth.
2. The pursuit of managers is constrained by the minimum profit requirement of the stakeholders.
3. Managers derive their utility from their 'expense preference' because of two reasons, 1). It is a source of security for them .2). It reflects their power, status, prestige and professional achievements.
4. According to Williamson, "Managerial Utility function may be expressed as follows:

U = f (S, M. ID)

Here, U = managerial utility;

S = additional expenditure on staff;

M = managerial emoluments and

ID = discretionary investment.

This theory explains that, Managerial utility is a function (f) of additional expenditure on staff, managerial emoluments and discretionary investment.

Managerial utility function maximises the utility of the managers as compared to profits of the firm. The manager is expected to follow policies which maximise the following components of his utility function.

The manager would like to increase the quality and number of staff members. This will lead to an increase in the salary of the staff this will lead to the manager receiving more salary, more prestige and more security.

Managerial Utility also depends on managerial emoluments. It includes facilities like company car, Company phone, lavish office, attractive allowances, etc. This type of expenditure represents prestige, power and status of the manager.

Managerial utility also depends on the decision of the manager to invest beyond those required for normal operations. The manager has power and authority to invest in advanced technology and modem plants. Such investments may or may not be reasonable form the economic point. These investments may be undertaken for the self-satisfaction of the manager.

5. Minimum profit (πo) is defined as an amount of profit which will not result to large sales .After earning the minimum profit ,the additional profit can be used to increase managerial utility and is therefore termed as "discretionary profit"(π D) it is defined as : π D =π-πo

That is the difference between the actual profit (π) and minimum profit .Since the Discretionary profit can be used for various purpose say for expansion, new product development etc the managers gets greater satisfaction by larger discretionary profit.

Diag

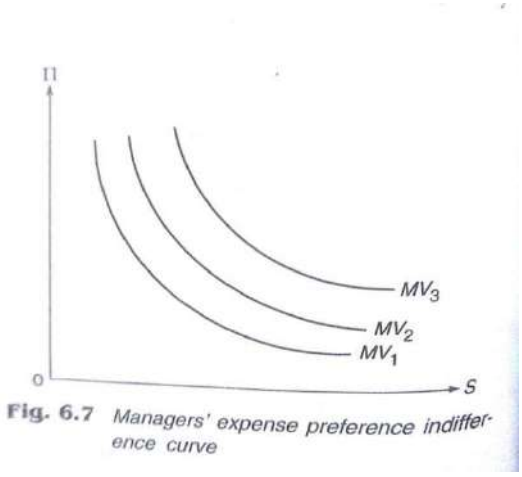


Fig. 6.7 Managers' expense preference indifference curve

6. There may be trade-off between the discretionary profit and staff expenditure. An increase in either will make the manager better off. It is explained in the above diagram.
7. Profit function determine the achievable combination of manager's preference for π D ans S. Profit depends on demand and cost function of the firm. Demand is normal and has inverse relationship with price(P) but it is direct function of staff(S) and of market environment(E)

   X=f (P,S,E)

   Profit π is a function of ourput: π = f (P,S,E)

At equilibrium, P and E are supposed to be given. In such case profit becomes a function of staff expenditure.

$$\pi = f(S), P, E$$

As π D) =π-πo, the discretionary function can be written as

(π D) = f(S)P, E − πo

Diagram 101

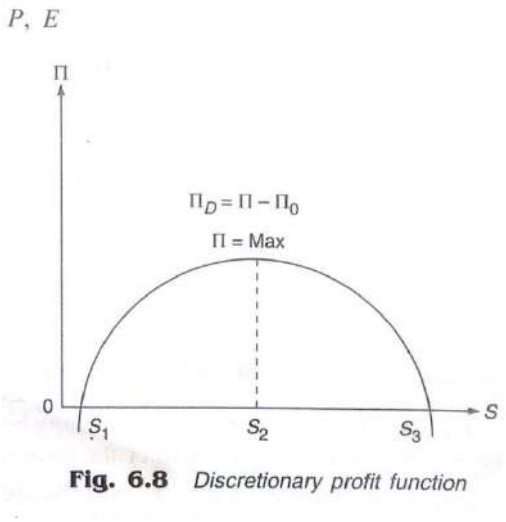


Fig. 6.8 *Discretionary profit function*

The diagram shows that as the π increases, bot πD and S increases.

When π ismaximum πD is maximumat S2.After that point discretionary profit start declining but staff expenditure continue to increase .The manager can not select staff expenditure below S1 and beyond S3 a s πD would then be negative. S1 and S3 is the limit for staff expenditure. The best position would be S2 where profit is maximum but it can not be so because of the manager's expense preference function, which maximize their own marginal utility.

8. Managers would try to maximaze their utility subject to minimum profit , that is,

Max U= f(S.M.Id)

Both the preference function and profit constraint (without taxes, T) have already examined in the aove diagrams showing the utility indifference curve and discretionary function.

A manager will maximize his utility, subject to profit constraint, at the point where his utility indifference curve is tangent to the discretionary profit function.
At last, Williamson's managerial discretion theory shows the utility function of a manager. In this theory, the firm will try to get maximum returns or maximum profit where as manager try to maximum utility satisfying function. They are in equilibrium or balanced when the utility has maximum amount.

Unit-2

Utility & Demand Analysis

2. Utility meaning and Function:-

A utility function is a descriptive statement that relates satisfaction with the consumption of goods and services. It is an ability of a commodity to satisfy want of a consumer.

A consumer buys a particular product, he derives some benefit from its use. He feels that his want is satisfied by the use or consumption of the product or service purchased. It is called as utility of that product for a consumer.

Utility is the source of consumer demand. A consumer thinks about his demand for a product or service on the basis of utility derived from the product or service.

Utility depends upon the intensity of want. When a want is more intense, there is a greater urge to demand a particular product or service which satisfies his wants.

In modern times utility has been called as 'expected satisfaction.' Expected satisfaction may be less or equal to or more than the real satisfaction.

Thus, the utility is wanting satisfying capacity of a product or service.

2.1 Definition of Utility:

According to Prof. Waugh: "Utility is the power of product or service to satisfy human wants."

2.1.2 **Characteristics of Utility:**

1. Utility is Psychological:

The utility of a product or service depends on a consumer's mental attitude and judgment regarding its power to satisfy his particular want. Thus, the utility of a product or service may differ from person to person. Psychologically, every consumer has his likes and dislikes and everyone determines his own level of satisfaction.

For instance:

A consumer who like mangoes may find a high utility in mangoes in comparison to the consumer who has no liking for mangoes. Similarly a strictly vegetarian person has no utility for fish or chicken.

3. Utility is always individual and Relative:

Utility of a product or service changes in different situations in relation to time and place. Even the same consumer may derive a higher or lower utility for the same product or service at different times and different places. For example—a person may find more utility in cotton clothes during summer than in winter or in Mumbai than in Kashmir.

4. Utility is not necessarily same as Usefulness:

Utility simply means the ability of a commodity or service to satisfy individuals want. A product or service may have utility, but it may not be useful to the consumer. For instance—Liquor has utility to the drinker but it is injurious to his health. However, demand for a product or service depends on its utility rather than its usefulness. Thus, many commodities like liquor, cigarettes etc. has demand because of utility, even though, they are harmful to human beings and not useful for them.

5. Utility cannot be expressed in numerical terms:

Utility being a subjective phenomenon or feelings of a consumer cannot be expressed in numerical terms. So utility cannot be measured numerically. It cannot be measured directly in a precise manner. Professor Marshall has, however, explained cardinal measurement of utility in his analysis of demand.

6. Utility Depends on the Intensity of Want:

Utility is the function of intensity of want. A want which is unsatisfied and greatly intense will have a high utility for the product or service for a person. But when want is satisfied in the process of utilization then a person practice a lesser utility of the product or service than before. This type of feeling is very common and it is explained as a tendency of diminishing utility experienced with an increase in the consumption of a product or service.

7. Utility is Different from Pleasure:

A product or service may have utility, but its consumption may not give any pleasure to the consumer, e.g., medicine or an injection is useful and create utility but an injection or medicinal tablet gives no pleasure.

2.4 TYPES OF UTILITY:

1. Form Utility:

This utility is created by changing the form or shape of the materials. For example—A chair turned out of wood and so on. Basically, form utility is created by the manufacturing of goods from raw material.

2. Place Utility:

This utility is created by transporting goods from one place to another. Thus, in marketing goods from the factory to the marketplace, place utility is created. e.g apples are transported from farms in Kashmir to Pune market, place utility is created.

3. Time Utility:

Preserving certain goods over a period of time may lead to the creation of time utility for such goods, e.g. Storing peas, at the time of a bumper harvest and releasing their stocks for sale at the time of scarcity, sellers derive the advantage of time utility and thereby charge higher prices for peas. Utility of a product or service has been always more at the time of scarcity.

4. Service Utility:

Service utility is created in rendering personal services to the customers by various professionals, such as beauticians, lawyers, doctors, teachers, bankers etc.

Can Utility be measured?

Utility is a psychological concept. It is not similar for all people. Therefore, it cannot be measured directly. Professor Marshall explained as "Utility can be measured. The price which we are ready to pay for a commodity is practically its price. Nobody will pay more than the utility which we derive from the commodity.

For example:

If Mr. Akash is ready to pay Rs. 500 for a belt and Rs. 1,000 for a leather purse. Then it can be said that he derives utility from that belt up to the value of Rs. 500; and from leather purse up to the value of Rs. 1,000. The above example shows that the price which Akash pay for any article is the utility which he derive from that article." But Prof. Hicks, Allen and Pareto have not supported Marshall's view of measuring utility.

They are of this opinion that measuring of utility is not possible because of the following reasons:

(i) Utility is personal and psychological which cannot be measured like goods.

(ii) Utility is different for different people. Utility changes according to time and place. Therefore, it is difficult to measure such things of changeable nature.

(iii) Further, measuring material 'money is not static. Value of money always changes, therefore, correct measurement is not possible.

2.5 KINDS OF UTILITY:

- MARGINAL UTILITY,
- TOTAL UTILITY,
- AVERAGE UTILITY

MARGINAL UTILITY:

Definition:

Marginal utility is the utility which is derived from the last unit of consumption. It refers to the extra utility which is derived from an extra unit of the given product or service purchased or consumed by the consumer.

It is the net addition to total utility. It has been said—as it is the last unit in the total stock of a product or service.

According to Prof. Boulding—"The marginal utility of any quantity of a product or service is the increase in total utility which results from a unit increase in its consumption."

For example:

Suppose Mr. Harish is consuming apples and he consumes five apples. By consuming first unit he derives utility up to 20; second unit 16; third unit 12; fourth unit 8 and from fifth 2. In this example the marginal unit is fifth apple and the marginal utility derived is 2. If we will consume only four apples, then the marginal unit will be fourth apple and utility will be 8.

TOTAL UTILITY: It is the sum of all the utility derived from all the commodities.

AVERAGE UTILITY: It is the average of all the utilities. It can be calculated by dividing the total utility by the number of units.

2.6 Meaning & Law of Marginal Utility:

Meaning

Marginal utility measures the additional satisfaction derived from an addition of one extra unit consumption of a particular commodity.

It refers to the extra utility which is derived from an extra unit of the given product or service purchased or consumed by the consumer.

The law of diminishing marginal utility describes a fundamental tendency of human behavior.

The law of diminishing marginal utility states that: "As a consumer consumes more and more units of a specific product or service, the utility from the succeeding units goes on diminishing".

DEFINITION

Mr. H. Gossen, a German economist, was first to explain this law in 1854. Alfred Marshal later on restated this law in the following words: "The additional benefit which a person derives from an increase of his stock of a thing diminishes with every increase in the stock that already has".

Explanation and Example of Law of Diminishing Marginal Utility:

This law can be explained by taking a very simple example. Suppose, a man is very thirsty. He goes to the market and buys one bottle of juice. The first glass of juice gives him immense pleasure or we say the first glass of juice has great utility for him. If he drinks a second glass of juice after that, the utility will be less than that of the first one. It is because the need of his thirst has been fulfilled to a great extent. If he drinks a third glass of juice, the utility of the third glass will be less than that of a second and so on.

The utility goes on diminishing with the consumption of every successive glass of juice till it drops to zero. This is the point of satiety. At this point consumer's satisfaction is maximum. If the consumer is forced to take one more glass of juice, it leads to dis-utility and total utility declines. The marginal utility will become negative. A rational consumer will stop taking juice at the point at which marginal utility becomes negative, even if the juice is free. In short, the more we have of a thing or commodity, the less we want.

As more units of a good are consumed, additional units will provide less satisfaction than previous units. It is explained in the following table and graph

Table no 1.The Law of Diminishing Marginal Utility

Units	Total Utility	Marginal Utility
1st glass of juice	20	20
2nd glass of juice	31	11
3rd glass of juice	40	9
4th glass of juice	43	3
5th glass of juice	43	0
6th glass of juice	40	-3

From the above table, it is clear that in a given period of time, the first glass of juice to a thirsty man gives 20 units of utility. When he drinks a second glass of juice, the marginal utility goes down to 11 units; When he consumes a fifth glass of juice, the marginal utility drops down to zero

and if the consumption of juice is forced further from this point, the utility changes into disutility (-3).

Here it may be noted that the utility goes down with consumption of every successive unit. It is assumed that all the units of a product or service consumed are exactly similar to each other. The utility of the successive units falls simply because they happen to be consumed afterwards.

Diagram of the Law of Diminishing Marginal Utility:

The law of diminishing marginal utility is represented by following diagram.

Diagram no 1.The Law of Diminishing Marginal Utility

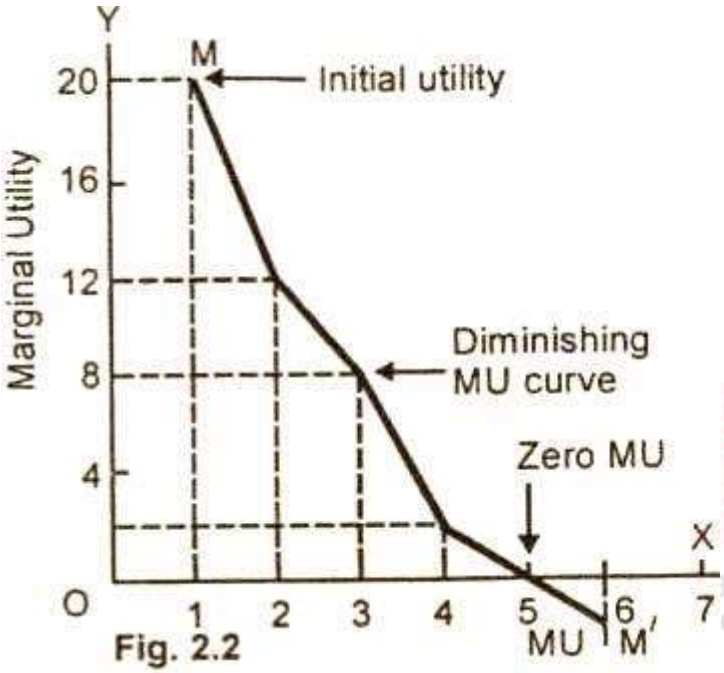


Fig. 2.2

MU=Marginal Utility

In the figure (2.1), OX represents the units of juice consumed and OY represents marginal utility derived from it. The marginal utility of the first glass of juice is 20 units. The marginal utility of the second glass of juice is 11 units and the MU goes down with consumption of every successive unit . The MU of the 5th glass of juice is zero. It is called satiety point. The MU of the 6thglass of juice is negative (-3). The MU curve here lies below the OX axis. The utility curve MM/ falls left, from left down to the right showing that the marginal utility of the success units of glasses of juice is falling.

2.7 Assumptions of the Law of Diminishing Marginal Utility:

The law of diminishing marginal utility is true under certain assumptions. These assumptions are as follows:

(i) Rationality: It is assumed that the consumer is rational. His aim is to maximize utility.

(ii) Consumption should be continuous: It is assumed in this law that the consumption of a product or service should be continuous. If there is an interval between the consumption of the same units of the product, the law may not hold good. For instance, if you take one glass of juice in the morning and the 2nd at noon, the marginal utility of the 2nd glass of juice may increase.

(iii) Marginal utility of money: It is assumed that the marginal utility of money remains constant. If the marginal utility of money changes with the increase or decrease in income, it cannot yield correct measurement of the marginal utility.

(iv) Diminishing marginal utility: Utility received from the successive units of a product or service diminishes in a given time period.

(v) Suitable quantity: It is also assumed that the product or service consumed is taken in suitable and reasonable units. If the units are too small e.g. if juice is consumed by using a spoon , then the marginal utility instead of falling may increase up to a few units.

(vi) Character of the consumer should remain same: The law holds true if there is no change in the character of the consumer. For example, if a consumer develops a taste for beer, the additional units of beer may increase the marginal utility to a drunkard.

(vii)There should be no change in fashion: Customs, tastes and habits should remain same. If there is a sudden change in fashion or customs or taste of a consumer, then the law does not hold true.

(viii) There should be no change in the price of the product or service: There should be no change in the price of that product or service as more units are consumed.

(ix) It is assumed that all the units of a product or service consumed are exactly similar to each other.

2.8 Limitations/Exceptions of the Law of Diminishing Marginal Utility:

(i) Hobbies:

In case of hobbies like collecting rare coins, stamps, etc. the person gets more utility from every additional unit. His satisfaction increases when he collects new rare coin. Hence the law of diminishing marginal utility is disrupted in case of hobbies.

(ii) Money: The law equally holds good for the money. The need and utility of money is never ending. It is true that the more money the man has, the more he try to get additional units of it.

However, the truth is that the marginal utility of money declines with richness, but never falls to zero.

(iii) Valuable goods: If there are only two diamonds in the world, the possession of second diamond will increase the marginal utility. Hence the Low of marginal utility doesn't hold true.

(iv) Case of intoxicants: Consumption of liquor defines the law for a short period. The more a person drinks, the more likes it. However, this is true only initially. A stage comes when a drunkard too starts taking less and less liquor and eventually stops it.

(v)Heterogeneous units: The law of marginal utility holds true, only if all the units consumed are homogeneous. If there is change in commodity's shape, taste, size, quality etc. the utility acquired from it can be increased. For example: If the 2nd mango is sweeter in taste than the 1st one, it will yield more satisfaction than the 1st mango.

(vi) Rationality: Low of marginal utility holds true only if the mental condition or behavior of person is normal throughout consumption process.

Concluding, we can say that the law of diminishing utility, like other laws of Economics, is simply a statement of tendency. It holds good if other factors remain constant.

2.9 Marginal utility is of three kinds:

(i) Positive Marginal Utility,

(ii) Zero Marginal Utility,

(iii) Negative Marginal Utility.

Generally, if a man is consuming a particular good, then consuming of the next unit of goods reduces the utilities of the goods and ultimately a situation comes when the utility given by the goods become zero and if the use of the goods still continues, then the next unit will be negative utility.

This can be studied better by the following table:

Table no 2. Marginal Utility Table

Marginal Utility Table

Number of bread	Marginal Utility	Kinds of Marginal Utility
1	20	
2	16	
3	12	Positive Utility
4	8	
5	4	
6	0	Zero Utility
7	- 4	Negative Utility

(please make necessory changes e.g. Marginal utility : unit 1 =20,unit 2=18, unit 3=14,unit 4=9,unit 5=4 , unit 6=0 and unit 7=-3)

From the table given above it is clear that up to the consumption of the fifth Samosa we receive positive utility; 6th unit is the unit of full satisfaction i.e., Utility derive from that unit is zero. From 7th unit the utility received will be negative utility.

The table can be represented in the shape of diagram as follows: In diagram No. 1 OX axis (line) shows unit of Samosa and OY line shows the Marginal Utility received. From the figure it is clear that from the first unit of Samosa utility received are 20 which has been shown on the top of the line.

Similarly 2, 3, 4, 5 Units of Samosa's utility is 18, 14, 9, 4 respectively All these have been shown on OX line which shows positive marginal utility. The Utility of the sixth Samosa is zero and that of the seventh Samosa is negative and negative rectangle has been shown below OX line.

Zero Utility:

When the consumption of a unit of a product or service makes no addition to the total utility, then it is the point of Zero Utility. It can be seen from the above table that the total utility, after the 6th unit is consumed. This is the point of Zero Utility. Total utility is maximum when the Marginal Utility is zero.

Negative Utility:

Negative Utility is that utility where if the consumption of a product or service is consumed in excess, then instead of giving any satisfaction, it causes dis-satisfaction. The utility is such cases is negative. It can be seen from the above table that utility is negative, after the 7th unit is consumed.

(ii) Total Utility:

Total Utility is the utility from all units of consumption. According to Mayers—"Total Utility is the sum of the marginal utilities associated with the consumption of the successive units."

2.10 Relation between Total Utility and Marginal Utility:

There is a close relationship between Total Utility and Marginal Utility.

- As there is increase in the unit of a particular product or service, the Marginal Utility goes on diminishing and Total Utility goes on increasing.
- Total Utility goes on increases until the Marginal Utility becomes Zero.
- When Marginal Utility is zero Total Utility is maximum.
- After zero when Marginal Utility is negative then there is reduction in Total Utility.

2.11 What is an Indifference Curve?

An indifference curve is a graphical representation which shows combination of two goods that give the consumer equal satisfaction and utility.

It is a curve, which represents or shows that the consumer gets equal satisfaction from all the combinations of goods and services. Here consumer chooses all the goods and services equally.

Properties of Indifference Curve

- The Indifference curve never intersects each other.
- They have downward sloping curve to the right.
- They are convex to the origin.
- The upper indifference curve gives the highest level of satisfaction.

An indifference curve is explained as follows:

E.g. Ajay has 1 apple and 12 units of bananas. Now, we ask Ajay how many units of bananas is he willing to give up in exchange for an additional one apple so that his level of satisfaction remains unchanged. Ajay agrees to give up 6 units of bananas for an additional unit of apple. Hence, we have two combinations of apple and bananas giving equal satisfaction to Ajay as follows:

Combination one: 1 apple and 12 units of bananas

Combination two: 2 units of apples and 6 units of bananas

By asking him similar questions, we get various combinations as follows:

Table no 3Indifference Curve

Combination	Apples	Bananas
A	1	12
B	2	6
C	3	4
D	4	3

Graphical Representation:

Diagram 2.Indifference Curve

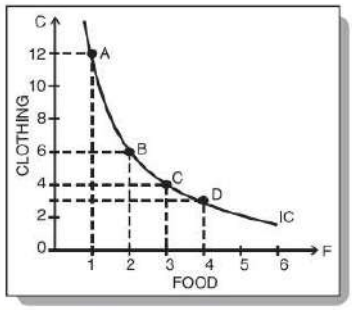


Fig. 1 : A Consumer's Indifference Curve

*(change clothing to apples and Food to Bananas)

The diagram shows an Indifference curve (IC). Any combination lying on this curve gives the same level of consumer satisfaction.

The graph shows a combination of two goods that the consumer consumes and gets equal satisfaction.

The above diagram of Indifference curve(IC) represents combination of apples and bananas. To the buyer, apples and bananas are the same as both of them give him the equal satisfaction.

In other words, point A gives as much utility as point B to the individual. The consumer will be satisfied at any point along the curve assuming that other things are constant.

Indifference Map

An Indifference Map is a set of various Indifference Curves. It gives the complete idea of a consumer's preference. In the diagram given below, we can see there are 3 indifference curves:

Diagram 3.Indifference Map

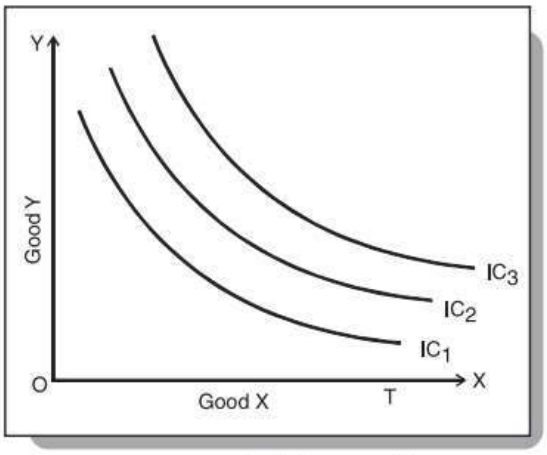


Fig. 2 : Indifference Map

Please make necessary changes in diagram - Good y = good A

Good X = good B

IC 1 is the Indifference curve at lower one and IC 3 is the Indifference curve at higher side. Generally an individual would choose the indifference curve, which gives him a higher satisfaction i.e ID3 as compared to the indifference curve, which gives him a lower ones. Because the a higher indifference curve gives a higher level of satisfaction.

Hence, all groups on IC1 offer the same level of satisfaction, but all combinations on IC3 give greater satisfaction than those on IC1.

Consumer's Equilibrium

A consumer equilibrium is a situation when he derives maximum satisfaction from the goods and services and he doesn't want reshuffle his purchases.

Assumptions

- There is an indifference curve that shows the consumer's preferences for different combinations of two goods A and B.
- There is no change in consumer's income and he wants to spend his total income on the goods A and B.
- Prices of the goods A and B remains unchanged.
- The goods are homogenous and divisible.

2.12 .Consumer's Equilibrium

In the, given Indifference map, we can see that consumer preference between various combinations of two goods at various quantities.

Budget Line – describes various combinations that a consumer can purchase with his money income and prices of both the goods.

In the following figure, We can see that there are various indifference curves like – IC1, IC2, IC3, IC4, and IC5 along with the budget line PL for good A and good B.

Diagram 4.Consumer's Equilibrium

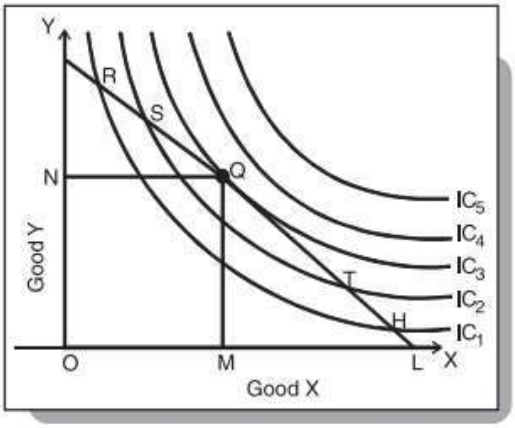


Fig. 1 : Consumer's Equilibrium

Goods X=Goods A

Goods Y= Goods B

In the above diagram we can see that the combinations R, S, Q, T, and H cost the same to the consumer. In order to maximize his level of satisfaction, the consumer will try to choose the highest indifference curve. Since we have assumed there is a budget constraint, he will be forced to remain on the budget line.

For e.g. if he chooses R. but it can be seen that R lies on a lower indifference curve – IC1. He can easily have the combinations S, Q, or T which lies on the higher ICs. Even if he chooses the combination H as it lies on IC1.

If he chooses combination S lies on the curve IC2. But again, he can reach a higher level of satisfaction within his budget by choosing the combination Q lying on IC3 – higher indifference curve level. The argument is similar to the combination T since T lies on the curve IC2 too.

If he chooses combination Q, He can choose R,S,T,H and get maximum satisfaction. Since Q is the best choice because it lies on his budget line and give him highest possible indifference curve IC3 because the IC4 and IC5 are beyond his budget line. Therefore, he gets the equilibrium at point Q on curve IC3.

Notice that at this point, the budget line PL is tangential to the indifference curve IC3. Also, in this position, the consumer buys OM quantity of A and ON quantity of B.

Q: Indifference curve should be convex to the point of origin at consumer equilibrium point. True or False? If true explain.

2.13 CONSUMER SURPLUS

Consumer surplus is based on the theory of marginal utility to calculate the benefit (i.e. Surplus) of what consumers are willing to pay for a good or service and actual price of it.

Consumer surplus is the difference between the consumers' willingness to pay for a commodity and the actual price paid by them, or the equilibrium price.

In other words, the difference between what a consumers is willing pay as compared to the actual price paid for a commodity or service determines the amount of surplus.

The theory explains that spending behavior differs with the preferences of individuals. Since different people are willing to spend differently on a given good or service, a surplus is created.

What Determines Surplus?

Consumer Surplus is based on the buyer's individual perception. It is the difference between what the buyer is willing to pay and what he actually pays, now it is important to understand what determines this difference.

This difference is determined by the value placed on the product, good, or service. The value could be associated with the, desire, enjoyment, happiness, security, or satisfaction received from the commodity or services. For example, buyer's willingness to pay over the actual price for a home theatre is based on the value of his enjoyment and liking.

Surplus is created by buyers. They drive the cost of goods based on their desires and demand. Producer finds the possibility of buyers' demand and expected range of how much money they may pay for it by various techniques such as survey etc. before launching his product.

For example, before launching of new face cream into market, the manufacturer has determined which demographics to market, type of sales promotion, advertisement and what should be the price of product. However, the value the buyer place on the product is what ultimately determines the surplus based on what they are willing to pay over the actual price.

Definition: Consumer surplus is defined as the difference between the consumers' willingness to pay for a commodity and the actual price paid by them, or the equilibrium price.

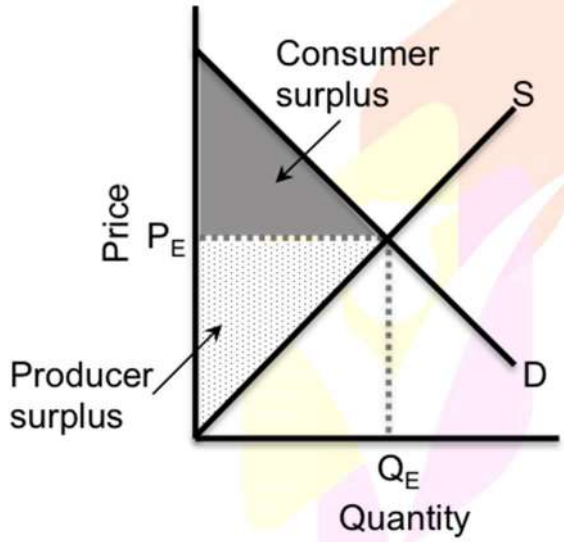
It is a measure of consumer satisfaction in terms of utility.

Graphically, it can be determined as the area below the demand curve (which represents the consumer's willingness to pay for a commodity at different prices) and above the price line.

- It reflects the advantage received from the deal based on the value the buyer places on the commodity.
- Consumer surplus is positive when what the consumer is willing to pay for the commodity is greater than the actual price.

  Consumer surplus is infinite when the demand curve is inelastic and zero in case of a perfectly elastic demand curve.
- Consumer surplus is calculated by taking the difference of the highest they would pay and the actual price they pay.

Diagram 5. CONSUMER SURPLUS



Consumer surplus and price elasticity of demand

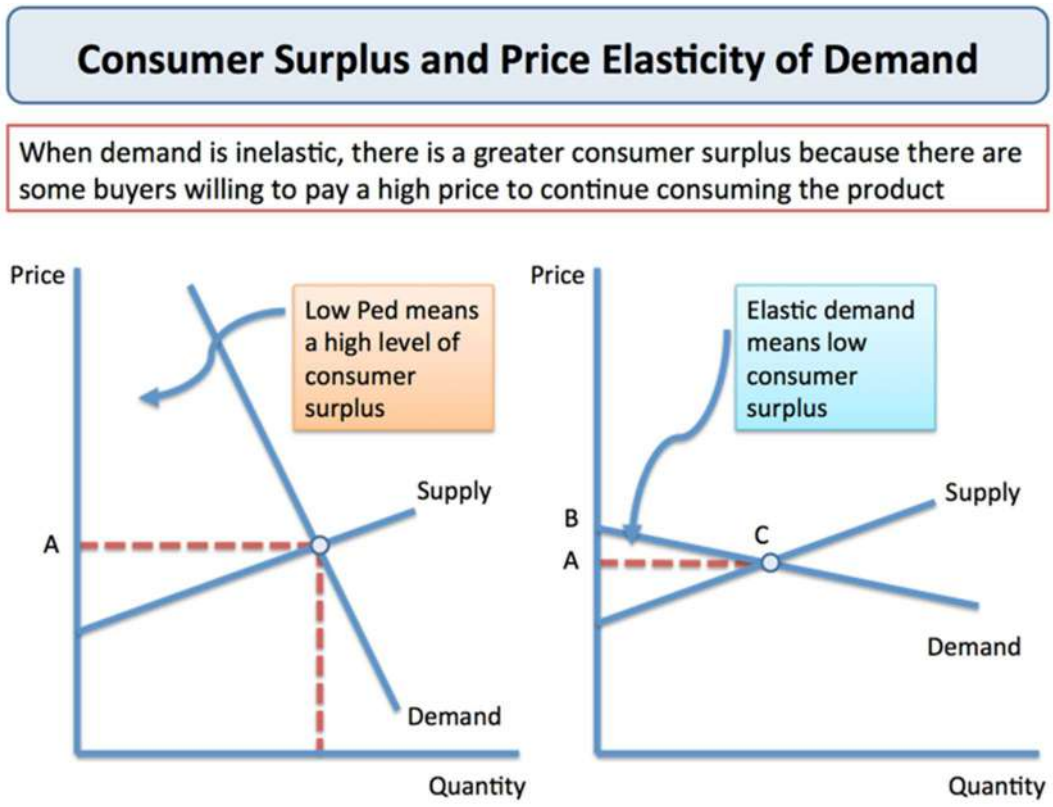
When the demand for a good or service is perfectly elastic, consumer surplus is zero because the price that people pay matches exactly what they are willing to pay.

When demand is perfectly inelastic, consumer surplus is infinite. In this situation, demand does not respond to a price change. Whatever the price, the quantity demanded remains the same. e.g in case of necessity things such as life-saving drugs. In this situation, consumers' willingness to pay will be extremely high.

The demand curves in markets are assumed to be downward sloping. When demand is inelastic, there is a greater potential consumer surplus because there are some buyers willing to pay a high price to continue consumption. Entrepreneurs or managers raise prices when demand is inelastic so that they can turn consumer surplus into producer surplus!

Consumer surplus with elastic and inelastic demand curves

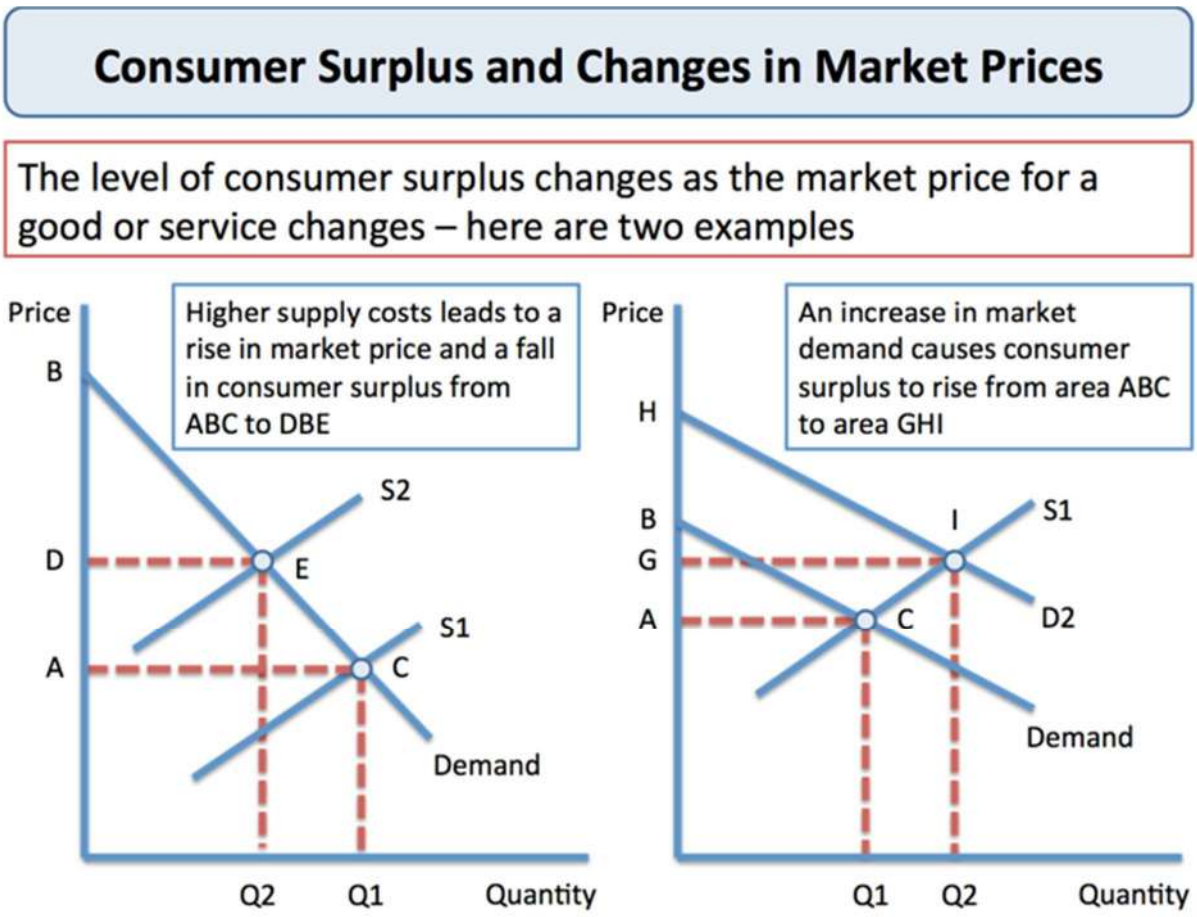
Diagram 6 Price elasticity of demand and consumer surplus



Price elasticity of demand and consumer surplus

When there is a shift in the demand curve leading to a change in the equilibrium market price and quantity, then the level of consumer surplus will also change.

Diagram 7. : Changes in consumer surplus



PRICE DISCRIMINATION AND CONSUMER SURPLUS

Manufacturers or service providers often take advantage of consumer surplus when setting prices.

If a manufacturer or service provider identifies groups of consumers within their market who are willing and able to pay different prices for the same products, then sellers use price discrimination – this is a way of turning the consumer surplus into producer surplus, puts simply to make higher revenues and profits.

Airlines and railways generally follow this strategy. They find the price which the consumers are willing and able to pay for flying to different destinations at various types of class at various times of the day, and charge different price to different consumers.

Consumers get air tickets at a cheaper price if they book ticket in advance. The airlines are happy to sell tickets more cheaply because they get the benefit of cash-flow together with the guarantee of a seat being filled. The nearer the time to take-off, the higher the price

If a businessman is desperate to go from Mumbai to Delhi, his or her demand is said to be price inelastic and the air ticket will be much higher.

2.14 Concept of Demand

Meaning

In economics, Demand is the desire which is backed by the ability and willingness to pay.

Demands refers to the quantity of a good or service that consumers are willing to buy and able to pay at various prices at given a period of time.

The demand in economics is something more than desire to buy, desire is one element of it

For e.g. if a beggar wants to buy an airplane, then what do you think? Is it demand?

No, it's not a demand. Why? Because He doesn't have money, i.e. ability to pay and willingness to pay. It is only his desire.

Hence demand refers to:

i) Desire,

Ii) Means to Purchase, and

Iii) Willingness to buy and pay for it.

In economics the word demand means the consumer's desire and ability to purchase a good or service.

So , Demand = Desire+ Ability to pay + Willingness to pay.

Consumers buy more goods when the price of goods falls and less when its price increases.

There is an inverse relationship between demand and price of a product.

If the price of the goods increases, the quantity demanded decreases, while if the price of the goods decreases, its quantity demanded increases.

Demand is a relative concept. It is always in reference to price and a specific time period.

2.15 Types of Demand

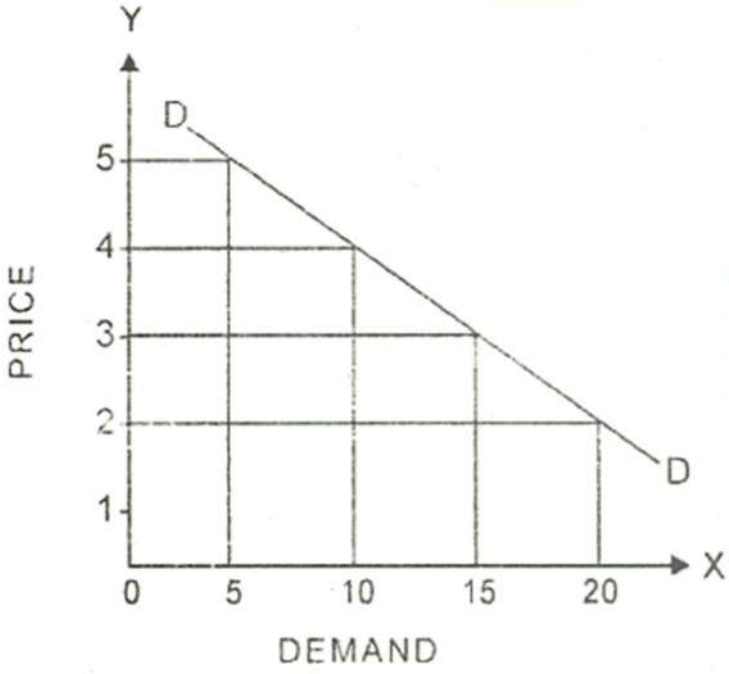
Individual and Market Demand:

A demand of a commodity by an individual is called as Individual Demand. But managers are not highly concerned with individual demand, but they are concerned with the demand of a commodity by all the individuals.

"The individual demand for a commodity is the amount of a commodity which the consumer is willing to purchase at any given price over a specified period of time".

The individual's demand for a commodity changes as the price of a product changes. As the price of a product goes up, the demand for product decreases and as the price falls, the quantity demanded increases, other things remaining the same.

Diagram 8: Individual Demand



In the above diagram 'Y' axis represent price and 'X' axis represents quantity demanded.

It depicts the demand from an individual at various price levels. When the price is Rs 2 per unit the demand is 20 units. As the price rise the demand for a commodity contracts. When the price goes up to Rs5 per unit, we can see that demand falls to 5 units and vice versa.

Hence Demand and Price has inverse relationship. DD is the demand curve, which slopes downward from left to right.

Market Demand:

A demand of all the consumers for a commodity is called as Market Demand. Managers or organizations are concerned about market demand.

When the demand from all the consumers, at various prices over a period of specified time in the market are added up it becomes market demand.

The market demand for a commodity is obtained by adding up the total quantity demanded at various prices by all the individuals over a specified period of time in the market. It is explained as the addition of the individuals demand for a commodity at various prices in market.

Table 4: Market Demand

MarketDemand
135
170
208
132

e.g.

Table-4: Demand Schedule for Product P

Price of P (per unit in ₹)	Individual Demand (per day)			
	Ram	Shyam	Sharad	Ghanshyam
15	2	3	1	3
10	4	5	4	4
8	6	8	6	6
4	7	9	9	8

Add one more column. i.e. Total demand.

Instead of name please use word consumer A,B,C

It can be seen from the above diagram that Market demand for a commodity id 135 kg per day when price is Rs 15, demand increases to 170 at Rs.10 and 132 Kg when price goes down to Rs 4. Per kg.

Market demand is the addition of demand from all the consumers in market.

Diagram 9: Market Demand

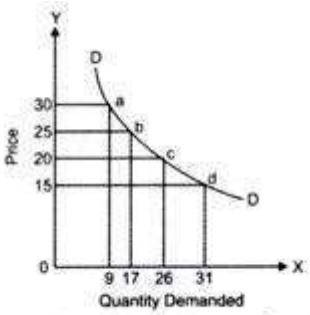


Figure-6: Market Demand Curve for Product P

In the above diagram 'Y' axis represent price and 'X' axis represents quantity demanded.

We can see market demand curve DD. It is an addition of demand from all individual i.e. demand from A,b,c and d.

- It can be seen that Market demand curve slopes downward from left to right.
- It has a negative slope.
- As the price goes down the quantity demanded increases and vice versa.

2.16 Determinants of demand:

Price of Product

Price of the products or services is the most important determinant of demand. We can say that when the price rise the demand goes down and when the price of goods or services decreases the demand for that product or services increases at a given period of time. Hence Price of Product is a determinant of demand.

Income of the consumer

Demand for goods or services also depends upon the income of a consumer. When there is an increase in Income, the consumption also increases and so do the demand. If income of a consumer increases, his consumption of goods and services also increases and ultimately his demand also increases.

Prices of related commodities

When there is a change in the price of the substitute commodity the quantity demanded of the commodity changes. e.g. if the price of Coca-Cola increases consumer buys other soft drink like Thumps up, so the demand for Thumps up increases.

Tastes and preferences

The taste of a commodity and preference of the consumer for a particular product is also determinants of demand. . Now a days companies, which sell their products with different brand names, to influence tastes and preferences of consumers in favor of their products (with the help of attractive advertisements, etc.) in order to bring about an increase in demand for their products.

Expectations

When consumer expects the rise or fall in price of a commodity in future, he/she will change the demand at present even when the present price remains the same.. E.g. If a consumer expects that price of petrol will increase at 12.00 pm. Most of consumers fill petrol in their vehicle before 12.00 pm. Hence it is observed that future expectations also determinants of demand for product or services.

Climate and weather

The climate and weather condition of a particular area has an effect on consumer demand. E.g. In cold areas, woolen clothes are more in demand during hot climate as compared to rainy season, ice cream is very much in demand.

2.17 Law of Demand

Law of demand explains the relationship between price and quantity demanded. It states that higher the price, the lower would be the quantity demanded, and lower the price, the higher would be the quantity demanded

In other words, the law of demand, explains that all things remaining constant, as the price increases the quantity demanded decreases and vise verse.

According to Marshall, "the amount demanded increases with a fall in price, and diminishes with a rise in price" Thus it shows an inverse relation between price and demand.

Demand Equation or Function

It states the relationship between the price of the commodity and quantity demanded.

Demand function is merely the mathematical relationship between the price and its determinants. The demand function can be put asunder:

D = f (P)

Where

D= Demand

P= Price

f = Functional Relationship

Demand for a product depends on various factors such as Income of consumer, price of a substitute product or services, future expectation, taste and preference of a consumer.

It can be expressed as:

D= f (Px, Py, I, T,E)

Where

D= Quantity demanded

Px= price of commodity

Py= price of a substitute product or services

I= Income of consumer

T= Taste

E= Expectation

f = it shows the functional relationship between quantity demand and its determinants

As the price of a commodity falls, the consumer buys more or when the price of a commodity rises, the consumer buys less & demand goes down.

Law of demand explains the functional relationship between the price of a product and its demand. "Other things remain same (ceteris paribus) when the price of the commodity increases the demand of commodity goes down. Thus, it shows a negative relationship between the price and demand.

The Law of demand can also be understood through demand schedule and demand curve:

Demand Schedule:

It is the tabular presentation of the Law of Demand. Let us take an example of commodity X.

Demand Schedule

Table 5. Law of Demand

Price of the commodity 'x' per unit (Rs.)	Quantity demanded of commodity 'x' (kg)
50	1
40	2
30	3
20	4
10	5

This demand schedule shows that how the demand of commodity 'x' is changing due to change in its price. There is an inverse relationship between price and demand.

The above table shows that when the price of a commodity say, X, is Rs 50 per unit, 1unit is demanded. If the price falls to Rs, 40, the demand increases to 2 units. Similarly, when the price declines to Rs. 10 the demand increases to 5 units per day. On the contrary, as the price increases from Rs 10 the demand continues to decline from 5 units.

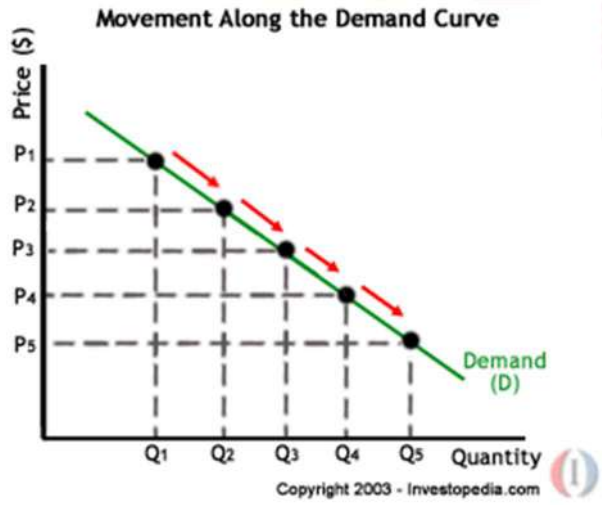
Demand curve:

The demand curve is a graphical representation of demand schedule

Demand curve shows the quantity of the commodity that an individual will buy at different prices at a given period of time.

The curve slopes downward. The whole demand curve DD, shows the quantity of commodity, say commodity 'X' that would be bought by an individual at different prices.

Diagram 10: Market Demand



(instead of P1,2,3,4,5 please mention-10,20,30,40,50)

(instead of Q1,2,3,4,5 please mention-1,2,3,4,5)

Here "Y" axis represents price and "X" axis represents Quantity demanded

Figure – (1)

Figure- points a, b, c, d, and e demonstrates the relationship between price and quantity demanded at different price levels.

It can be observed from the above diagram that as the price of commodity 'x' increases demand goes down. Demand curve slopes downward. It has a negative slope.

2.18: Assumptions of Law of Demand

There are following assumptions of law of demand

- Income level should remain constant: The law of demand operates only when the income level of the consumer remains constant. If the income increases while the price of the commodity does not fall, it is quite likely that the demand may increase. Therefore, stability in income is an essential condition for the operation of the law of demand.
- Tastes of the buyer should not change: The law of demand operates only if there is no change in the taste of the buyer.
- Prices of other goods should remain constant: The law of demand holds true only if there is no change in the price of other substitute goods. Changes in the prices of other goods affect the demand for a particular commodity.
- No new substitutes for the commodity: If a substitute of existing product is introduced in the market, some buyers will be attracted towards new product and the demand for the older product will fall even though the price remains unchanged. Hence, the law of demand works only when there is no substitute available in the market.
- No future expectation about the rise in price: If the buyers of a commodity expect that its price will rise in the future they buy more at prevailing price and demand increases. This behavior of buyers violates the law of demand. Therefore, the law of demand works only if there are no expectations of price rise in the future.

2.19 Exceptions to the law of demand

Generally, the quantity demanded of a product increases with a decrease in the price of that good and vice versa, but in some cases, this may not be true. Such situations are called as an exception to the law of demand. They are explained below.

- Giffen goods
- Giffin Paradox was given by Sir Robert Giffen, he classified goods into two catagories, i.e inferior goods and superior goods, generally these goods are called as Giffen goods. The inferior goods are those whose demand decreases with increase in consumer's income, such as cheap potatoes and vegetable ghee. These goods are of low quality; hence, the demand for these goods decreases with increase in consumer's income.
- For example, when the price of' Dalda' a vanaspati ghee decreases significantly, then a particular household may like to buy superior goods like pure ghee out of the savings which they can have now due to fall in price of inferior goods.

- Thus, a decrease in price of Dalda results in decrease in consumption of Dalda. Here the law of demand does not work.
- Commodities used as status symbols
  Some expensive commodities like diamonds, Mercedez car, etc., are used as status symbols to display own wealth. Hence it can be seen that the demand for these goods increase as the price of these goods increase. So we can see that expensive commodities are high in demand. The demanded of these commodities increases with an increase in their price and goes down when there is a fall in their price. These commodities are also known as a Veblen good.

- Necessity Goods:
  There are some goods which are necessary for the consumers, hence demand for these goods does not increase or decrease with increase or decrease in their prices. For eg. Salt is a necessary good whose consumption cannot be increased in if its price decreases . Hence the law of demand does not work.

- Expectation of change in the price of commodity in future
  If a consumer expects that the price of a product may increase in the future, it may start purchasing the more amount of the product even at the present increased price. In the same way, if the consumer expects the price of the product to decrease in the future, it may postpone its purchases. Thus, the law of demand does not work in such cases.

- Psychologically biased Customers:
  It is seen that different customers have different perceptions about the price of a product. Some customers have perceptions that low price means bad quality of a particular product, which may not be true in all cases. Therefore, if there is a fall in the price of a product, then the demand for that product decreases automatically.

- Ignorance Effect: Generally, it is assumed that consumers have perfect knowledge about price and quality of goods However, in practice, consumers may demand larger quantity of a commodity even at a higher price because it may be ignorant of the prevailing price of the commodity.
- Outdated Goods: Goods that is out of use due to new technology are called outdated goods. These are generally durable goods such as cell phones, radio, typewriter, etc. With the launch of Android cell phones the demand for the old handset has gone down though they may be available at lower prices. Seasonal goods, which are not used during the off-season, will also be subject to similar demand behavior For Example the sale of air conditioners may go down in winters even if they are sold at reduced prices.

2.20 **Movement along the Demand Curve and Shift in Demand Curve**

Increase and Decrease in Demand:

When demand for a commodity changes due to changes in other things like income, taste, preference erc. And price remains constant and vice versa. These effects are different from the law of demand. We refer to this as a change in demand.

E.g. if consumers' income rises, other factors including price remaining constant, his demand curve for a commodity will shift to the right.

Diagram 11: Increase and Decrease in Demand

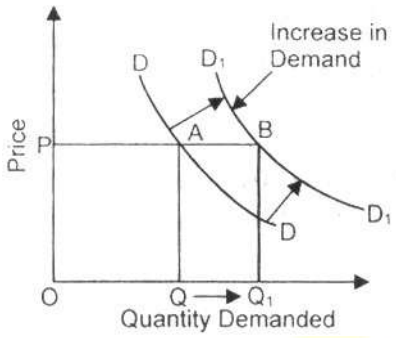


Figure 1

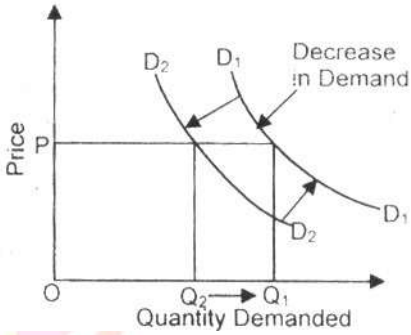


Figure 2

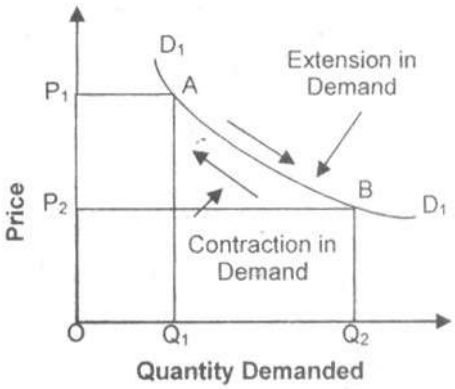
Figure 1. Explains that before the rise in consumer's income, the consumer is buying OQ quantity at OP price on the DD demand curve. With the increase in income, his demand curve shifts to the right as D_1 D_1. He now buys more quantity OQ_1 at the same price OP.

Figure 2. Explains that, if an income of a consumer falls, his demand curve will shift to the left. He will buy less of the commodity at the same price, this is called the decrease in demand. Before the fall in his income, and the consumer is buying OQ_1 quantity at OP price on the DD demand curve. With the decrease in income, his demand curve shifts to the left as $D_1$to D_2. He now buys less quantity OQ_2, at the same price OP.

Expansion and Contraction in Demand

Law of demand, explains that all other things remaining constant, as the price increases the quantity demanded decreases and when the price of a commodity falls its quantity demanded increases. In Economics, we say that there is an expansion of demand when demand increases due tofall in price, we say contraction of demand when quantity demanded decreases due to rise in price. We refer to this as a Variation in Demand.

Diagram 12: Expansion and Contraction in Demand



The above diagram explains that when the price is OP1, the quantity demanded is OQ1. With the fall in price, there has been a downward movement along the same demand curve D, D, from point A to B. This is known as extension in demand

Now, if we take B as the original price-demand point, then a rise in the price from OP2 to OP, leads to a fall in the quantity demanded from OQ2 to OQ1. The consumer moves upwards along the same demand curve D, D, from point B to A. This is known as contraction in demand.

2.21 Elasticity of Demand

Elasticity of demand represents the responsiveness of demand due to change in price.

According to Prof. Lipsey, "Elasticity of demand may be defined as the ratio of the percentage change in demand to the percentage change in price."

Elasticity of demand is defined as the percentage change in quantity demanded due to percentage change in its price. Elasticity of demand is symbolized as “Ed”.

In economics, elasticity is the measurement of how changing one economic variable affects others.

Measurement of Elasticity of Demand

Elasticity can be measured by the following formula

$$Ed = \frac{\text{Percentage change in Quantity demanded}}{\text{Percentage change in price}}$$

Or $\frac{\text{change in quantity demanded}}{} \div \frac{\text{change in price}}{}$

Original Quantity demanded original price

Or $\frac{\Delta Q}{Q} \div \frac{\Delta P}{P}$

Or $\frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$

Where

Q = Original Quantity Demanded

P = Original Price

Δ Q= Change in Quantity Demanded

Δ P = Change in Price

For example:

Price of commodity X is 10 Rs. /unit and on this price the quantity demanded is 100 units and when price increases to 20 Rs. /unit the quantity demanded goes down as 50units. Then the elasticity of demand will be

Solution:

Formula -

$\frac{\Delta Q}{Q} \times \frac{P}{\Delta P}$

$\Delta Q = 2-1 = 1$

$\Delta P=20-10=10$

Q= 100 units

P= 10 Rs.

By applying the above formula

$\frac{50}{} \times \frac{10}{}$

100 5

Ed (Elasticity of demand) = 1

Ans: answer is 1 which shows that the commodity is having unitary elasticity or in other words, we can say that the quantity is changing in same proportion to price.

The three main types of elasticity of demand are as follows

(1) Price Elasticity of Demand:

(2) Income Elasticity of Demand:

(3) Cross Elasticity of Demand:

Price Elasticity of Demand: The price elasticity of demand is explained as the percentage change in quantity demanded due to percentage change in price.

Income Elasticity of Demand: The income elasticity of demand is explained as the percentage change in quantity demanded due to percentage change in income of consumers.

Cross Elasticity of Demand: The income elasticity of demand is explained as the percentage change in quantity demanded of product 'X' due to percentage change in the price of product 'y' (which is substituted to product 'x')

INCOME ELASTICITY OF DEMAND

Income elasticity of demand is defined as the % change in the quantity demanded for a commodity due to percentage change in the income of the consumer.

Income Elasticity of Demand= Percentage change in quantity demanded

Percentage change in Income

Types of Income Elasticity of Demand

High-Income Elasticity: When the demand of the commodity increases by a larger percentage as compared with the income of the consumer, income elasticity of demand is high

Unitary Income Elasticity: When the percentage change in quantity demanded is equal to the percentage change in income, income elasticity of demand is unitary.

Low-Income Elasticity: When the demand of the commodity increases by a smaller percentage as compared with the increase in income of consumer, income elasticity of demand is low.

Zero Income Elasticity: When the demand of a commodity remains unchanged upon the change of income, income elasticity of demand is zero

Negative Income Elasticity: When demand of a commodity falls due to an increase in income, the income elasticity of demand is negative.

Cross Elasticity of Demand

Cross elasticity of demand measures the change in quantity demanded of a particular commodity due to changes in the price of another commodity.

A change in the demand for one good say 'Thums up' in response to a change in the price of its substitute good ' Coca-cola' represents cross elasticity of demand of the former good('Thums up') . It is defined as:

$$Ec = \frac{\text{Percentage change in quantity demanded of good A}}{\text{Percentage change in price of good B}} = \frac{\Delta Qx}{\Delta Py} \times \frac{Py}{Qx}$$

Where,

Ec stands for cross elasticity

Qx stands for the original quantity demanded of x

Py stands for the original price of good y

Qx stands for change in quantity demanded

Py stands for a small change in the price of y

The elasticity coefficients give significant results about the type of goods

Substitute Goods: If the cross elasticity of demand is positive, meaning that sales of 'A' move in the same direction as a change in the price of B, then 'A' and B are substitute goods. An example is Tajmahal Tea (X) and Brokebond Tea (Y), an increase in the price of Tajmahal Tea causes consumers to buy more Brokebond Tea, resulting in a positive cross elasticity. The larger the positive cross-elasticity coefficient, the greater is the substitutability between the two products.

Complementary Goods: When cross elasticity is negative, we know that A and B "used together"; an increase in the price of one decreases the demand for the other so, the two are complementary goods. For example, an increase in the price of cars will decrease the amount of petrol purchased. The larger the negative cross-elasticity coefficient, the greater is the complementary between the two goods

2. PRICE ELASTICITY OF DEMAND

It means the responsiveness of quantity demand to changes in the price of the product, ―Ceteris parables‖;

Elasticity can be measured by the following formula

$$Ed = \frac{\text{Percentage change in Quantity demanded}}{\text{Percentage change in price}}$$

It is the percentage change in quantity demand divided by a percentage in price

There are 5 types of price elasticity of demand:

Perfectly Elastic Demand (EP = ∞) ...

Perfectly Inelastic Demand (EP = 0) ...

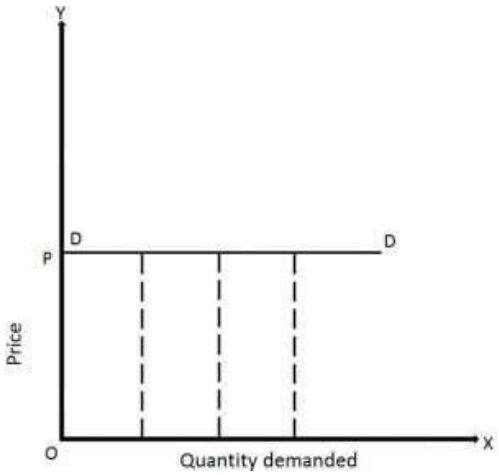
Relatively Elastic Demand (EP> 1) ...

Relatively Inelastic Demand (Ep< 1) ...

Unitary Elastic Demand (Ep = 1)

Perfectly Elastic Demand (EP = ∞): When the demand increases infinitely due to small fall or no fall in price. It is said to be perfectly Elastic Demand. It is also called as infinite elasticity.

Diagram 13: Perfectly Elastic Demand

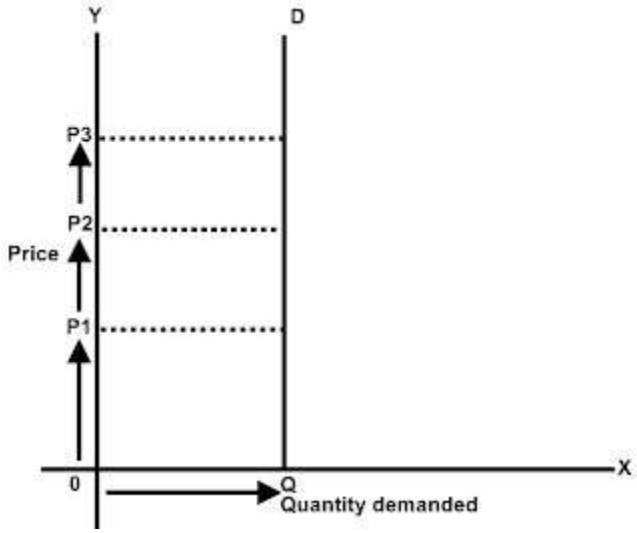


In the above diagram X- axis represents quantity demanded and Y- axis represents Price. The Demand curve is parallel to X axis. It can be seen that demand increases infinitely due to negligible or no change in price.

Perfectly Inelastic Demand (EP = 0)

When the demand for a product does not increase or decrease it remains same due to change in price. It is said to be a perfectly inelastic Demand. It is also called as zero elasticity.

Diagram 14: Perfectly Inelastic Demand



In the above diagram X- axis represents quantity demanded and Y- axis represents price. It can be seen that if the price increases from p1 to p2 or p2 to p3, Demand remains same. It shows that the

demand remains remain the same whatever may be the change in price. The Demand curve is parallel to Y axis. E.g. demand for medicine, salt etc.

Unitary Elastic Demand (Ep = 1)

When the percentage change in quantity demanded is equal to the percentage change in price of a product. It is also called unitary elasticity of demand.

E.g. suppose that price of a commodity falls by 10% and the demand increases by 10%, then it is called as unitary elastic demand

E.g. suppose that price of a commodity falls by 10% and the down from Rs.5 to Rs.4 per unit and due to this, the quantity demanded of the commodity increased from 100 units to 120 units. What is the price elasticity of demand?

As per the formula

Mathematically, it can be expressed as:

$$\text{Price elasticity of demand} = \frac{\%\text{change in quantity demanded}}{\%\text{change in price}}$$

Symbolically, it can be expressed as:

$$E_p = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Change in q (120-100) =20 × 5 = 1

Chang in p (5-4) =1 4

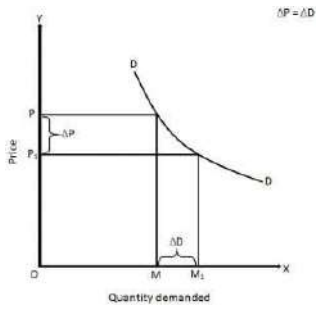
Where, EP= Price elasticity of demand

q= Original quantity demanded

Δq = Change in quantity demanded

p= Original price

Diagram 15: Unitary Elastic Demand



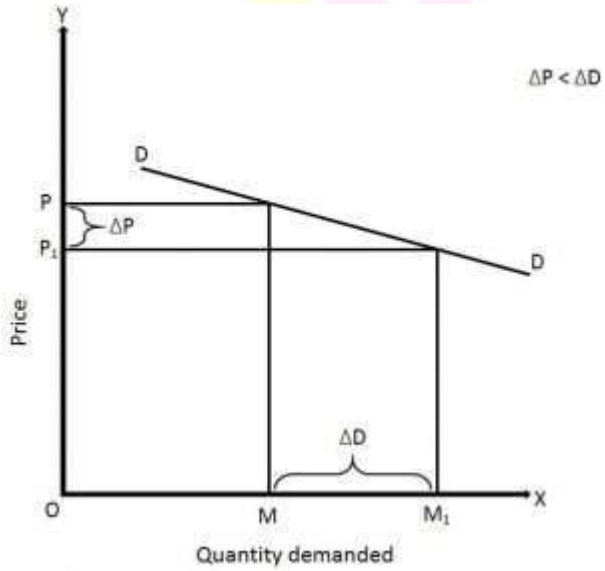
In the above diagram X- axis represents quantity demanded and Y- axis represents Price. It can be seen that the fall in price from OP to OP1 has caused an equal proportionate increase in demand from OM to OM1. So it shows that when price increases by 10%, the demand decreases by 10 % (in the same proportion). It is called as unitory elastic demand.

3. Relatively Elastic Demand (EP> 1)

In some commodities, when the percentage change in demand is greater than the percentage change in price i.e. if there is a greater change in demand as compared to a small change in price. It is called highly elastic demand. For example:

If the price falls by 10% and the demand rises by 20% (more than 10%), then it is a called as elastic demand. The demand for goods such as air cooler, luxurious car, television, etc. is considered to be elastic demand.

Diagram 15: Relatively Elastic Demand



In the above diagram X- axis represents quantity demanded and Y- axis represents Price. It can be seen that the fall in price from OP to OP1 has caused a greater increase in demand from OM to OM1. Here the demand increases more than the fall in the price of the product.

It is called elastic or relatively elastic demand.

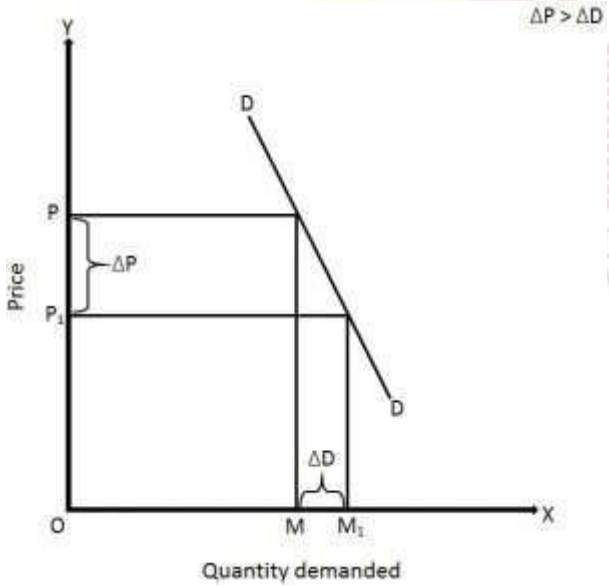
Relatively Inelastic Demand (Ep< 1)

In some commodities , when the percentage change in demand is less than the percentage change in price i.e. if there is a relatively less change in demand as compared to change in price. It is called highly inelastic demand.

For example:

If the price falls by 10% and the demand rises by only 5% (less than 10%) then it is a called as an inelastic demand. The demand for daily consumption goods such as rice, salt, wheat, etc is considered to be inelastic demand.

Diagram 16: Relatively Inelastic Demand



In the above diagram X- axis represents quantity demanded and Y- axis represents Price. It can be seen that the fall in price from OP to OP1 has caused less increase in demand from OM to OM1. Here the demand increase less than the fall in price of a product.

It is called an Inelastic or relatively inelastic demand.

2.23: Uses and Importance of Elasticity of Demand

1. Importance for Finance Minister: - Before preparing tax structure Finance minister consider the elasticity of demand of various goods. If the demand is inelastic, he can increase the tax and thus can collect large revenue.

2. Importance for the Monopolist:- When a monopolist finds that the demand for his product is inelastic, he can fix the price at a higher level, otherwise he fixes lower price for his product.

3. Fixation of wages:- If a demand for specific skilled labour is inelastic, it is easy to increase their wages otherwise not.

4. International Trade:- If the demand of commodity is inelastic, heavy duties can be imposed on its import and export.

6. Terms of Trade:- The terms of trade between two countries are based on the elasticity of demand of the traded goods.

8. Importance for the Businessman and Manufacturers:- When the demand of a particulargood is elastic , businessman increases his sale by lowing the price. If the demand is inelastic then he fixes high prices. Manufacturers also studies elasticity of demand before fixing the price for their product.

2.24: Methods of measurement of price elasticity of demand

a) Percentage Method

Percentage method is one of the commonly used method of measuring price elasticity of demand. In this method price elasticity is measured in terms of rate of percentage change in quantity demanded to percentage change in price.

According to this method, price elasticity of demand can be mathematically expressed as

Elasticity can be measured by the following formula

$$Ed = \frac{\text{Percentage change in Quantity demanded}}{\text{Percentage change in price}}$$

Or

$$\frac{\text{change in quantity demanded}}{\text{Original Quantity demanded}} \div \frac{\text{change in price}}{\text{original price}} \times 100$$

For example, in case of oranges,if there is 5% rise in price the demand falls by 15%. With this information we can infer the price elasticity of demand of oranges:

Ed= 15%/5%= 5%

b) Total Outlay Method Or Total Expenditure Method

Total outlay method, also known as a total expenditure method of measuring price elasticity of demand was developed by Professor Alfred Marshall.

Under this method, price elasticity of demand can be measured by comparing total expenditure on a commodity before and after the price change. It helps us in categorizing the commodity in different types of elasticity.

e.g. 1) when total expenditure increases with fall in price and decreases with a rise in price, the value of Price elasticity of demand will be greater than 1. Here, rise in price and total outlay or expenditure move in opposite direction. In this case the Elasticity of demand will be greater than unity (Ep > 1)

2) If total expenditure decreases with fall in price and increases with rise in price, the value of Price elasticity of demand will be less than 1. Here, price of commodity and total outlay move in same direction. Elasticity of demand will be less than unity (Ep < 1)

It shows the relationship between the price and the expenditure /outlay by customer after and before change. It can be explained as follows:

Table no.6 : Toal Outlay and Expenditure Method

Price	Demand	Total outlay	Relationship
10	120	1200	Original State

Unitary Elastic Demand

6	200	1200	P↑↓ and To ↔
12	100	1200	

Inelastic Demand

6	130	780	P↓ and To ↓
12	100	1320	P↑ and To↑

Elastic Demand

6	250	1500	P↓ and To ↑
12	85	1020	P↑ and To ↓

1. We can see from the above table that Total outlay is 1200 which is unchanged even if the price rise (12)or fall(6).It is Unitory elastic Demand.

In the second case we see from the above table that price falls and total outlay also falls and when price rise the total outlay also falls. It is called Elastic demand.

In the third case we see from the above table that price rises, total outlay also rises and when price falls and total outlay also falls. It is called inelastic demand.

We can see from the above table that Total outlay is 1200 which is unchanged even if the price rise (12)or fall(6).

a. Point Method

This method is used to measure the price elasticity of demand at any given point in the curve.

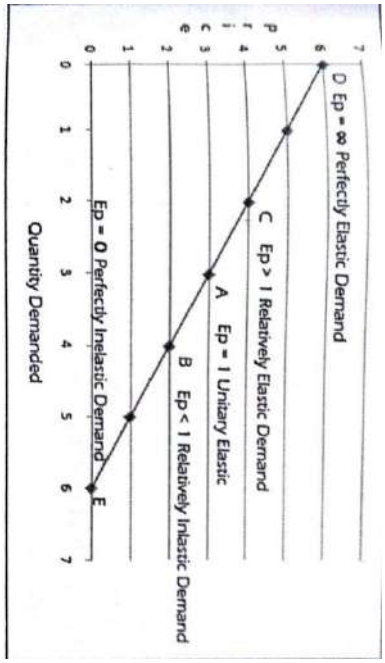
According to this Marshall, elasticity of demand will be different on each point of a demand curve. Thus, this method is applied when there is small change in price and quantity demanded of the commodity.

According to this method, price elasticity of demand is mathematically expressed as

PED = Lower segment/ Upper segment

With the help of the following diagram it can be explained easily

Diagram 17: Point method



In the above diagram the liner Demand curve DE we see five points A, B, C, D, E and let us assume that length of curve is 6 cm long. We can find out elasticity at each point with the help of point elasticity method.

Table 7. Point method

Elasticity at point A= DA/EA= 3/3 =1 =(Unitary Elastic)
Elasticity at point B= DB/EB= 2/4 =0.5 =(Relatively Inelastic)
Elasticity at point C= DC/EC= 4/2= 2 =(Relatively Elastic)
Elasticity at point D= DD/0=6 /0 = (Perfectly Elastic)
Elasticity at point E= 0/ED= 0/6= 0= (Perfectly Inelastic)

Hence we can find out the elasticity of demand by using point method.

Arc Method

Any two points on a demand curve make an arc, and the coefficient of price elasticity of demand of an arc is known as arc elasticity of demand.

This method is an alternate method of calculation .It is used to find out price elasticity of demand over a certain range of price and quantity.

Thus, this method is applied while calculating Price elasticity of demand when price or quantity demanded of the commodity is highly changed.

There were certain limitation of using percentage method e.g.

Initial price of commodity (P1) is Rs.10 and quantity demanded (D1) is 100.now if the price (P2) increased to 11/- and demand (D2) changes 80 units .Price elasticity by percentage method is –

$Ep=80-100/11-10 \times 10/100$

$= \frac{-20 \times 1}{1 \quad 10}$

$Ep= -2$

If we reverse back this condition .Same commodity will show different elasticity

$Ep=100- 80 /10 – 11 \times 11/80$

$= - 20 /-1\times 11/80$

$Ep= -11/4$

$Ep= -2.75$

The same commodity shows different elasticity when movement between two points is done is to and fro. To avoid this Arc method, this method considering midpoint was introduced i.e. Arc method was used.

Instead taking P1 and Q1, we will take their midpoint. Thus new formula will be

$Ep= Q2-Q1/P2-P1 \times P1/Q1$

$Ep= \frac{Q2-Q1}{P2-P1} \times \frac{P1+P2/2}{Q1+Q2/2}$

Further it could be modified as

$$Ep = \frac{Q2-Q1}{P2-P1} \times \frac{P1+P2}{Q1+Q2}$$

Now let us calculate the price elasticity by using this Arc formula

$$Ep = \frac{80-100}{11-10} \times \frac{10+11}{100+80}$$

$$Ep = \frac{-20}{1} \times \frac{21}{180}$$

$$Ep = \frac{-21}{9}$$

$$Ep = 2.33$$

Now let's consider the movement because of change from 11 Rs and 80 units to 10 Rs and 100 Units

$$Ep = \frac{100-80}{10-11} \times \frac{10+11}{100+80}$$

$$Ep = \frac{20}{-1} \times \frac{21}{180}$$

$$Ep = \frac{-21}{9}$$

$$Ep = 2.33$$

2.15 DEMAND FORECASTING:

Demand forecasting is an estimation of the future demand. Manufacturers or sellers try to find out the expected demand for their products or services in future, given the present state of demand determinants.

When a company produces new product or finds an attractive market it try to estimate the current scope of the market and future demand. Similarly, in order to plan demand for next year managers try to find out the potential consumers and demand for its product. It is essential for a manager or an entrepreneur to find the future potential demand for their product accurately. The forecast is mostly used for planning, production schedule, budget, pricing and so on. The entrepreneurs or managers take effort to forecast demand as precisely as possible.

Demand forecasting is a very critical process that helps in determining what products are needed at what place, at what time in what quantity, etc. There are a number of factors that influence demand forecasting. Such as availability of substitute goods and competition in the market, the price of product, Technology used etc.

Importance of Demand Forecasting:

- Fulfilling objectives of the business
- Preparing the budget
- Taking the production decision
- Taking the pricing decision

2. Methods of Demand Forecasting:

The future is uncertain, hence there is no simple formula which helps a manager to take the accurate decision. There are many techniques for demand forecasting, they are explained as follows:

(i) Survey method:

Consumer Survey Method: In this method, a survey is conducted. Existing or the potential buyers of the product are contacted, their opinions regarding new product are asked, information regarding quantity to be purchased in the future are asked.

A company can collect a list of all potential buyers and meet them face to face to ask whether they are interested in buying a particular product in certain given conditions. Their opinions regarding existing and new product are asked, information regarding quantity to be purchased in the future is asked. Sales forecasts of the new product are based on these opinions and estimates.

Complete Enumeration

Sample survey

a. Complete Enumeration: In this method survey of all consumers or we can say that population those consuming a particular product is conducted. It is generally done by the government during census survey.

A company can collect a list of all buyers and meet them face to face to ask whether they are interested in buying a particular product in certain given conditions. Their opinions regarding existing and new product are asked, information regarding quantity to be purchased in the future is asked. Sales forecasts of the new product are based on these opinions and estimates.

b. Sample survey: In this method few consumers (as a sample) are selected by using various methods from all the consumers and questions are asked to only selected consumers.

3. Sales Force Opinion Method:

Where buyers contact and interviewing is difficult, the company may ask the consumers need, requirement, opinion about products to its sales representatives as they are in direct contact with customers for estimates of demand in their area. There are some limitations like salesmen may be biased, some salesmen purposely underestimate the demand and give a low figure so that they can get low sales quota, some are careless etc.

Expert Opinion/ Delphi method:

Companies can also obtain information by asking or taking opinion from experts. Experts include wholesalers, dealers, distributors, suppliers, marketing consultants and trade associations. Auto companies survey their dealers periodically for their forecasts of short term demand. Many companies subscribe economic and industry journals, newsletters, where they get an experts opinion regarding demand for products. Companies get more data and more forecasting expertise from these journals and magazines. There are also some limitations of using this method, similar to sales force estimates.

MARKET EXPERIMENT

Market test method:

Sometime buyers do not plan their purchases carefully and experts are also not good guessers that time a direct market test can be done for demand forecasting. A direct market test is especially desirable in forecasting the demand of a new product or of an established product in a new area.

In this method the product is distributed for the first time in a small number of selected areas. e.g. Nirma Powder was tried in Bombay and Brooke Bond Green Label Coffee was tried in Bombay & Pune.

The manufacturer tries to find the customers reaction, opinion, buying pattern etc. by using this method.

Controlled experiment:

Time Series Analysis:

Many companies prepare their demand forecasting based on the past sales. The assumption is that past data give information about expected future sales for the product.

It shows the pattern of growth or decline in sales due to basic developments in population, capital formation, change in technology etc.

Companies can get weekly, monthly or quarterly sales pattern. It also gives information about changes in sales during seasonal change. It is a good method to depend on past data if the parameters are constant.

Seasonal variation: When demand changes due to change in season, managers collect current data and predict demand for that particular product in the future. e.g increase in demand for ice creams during summers, umbrella during the rainy season or increase in demand for woolen clothes during winter. Managers considers the change in demand during season al change and predict demand for their product.

Cyclic variation: Cyclical trends are neither constant nor seasonal in nature. An example of cyclical trend is change in business cycle

(vi) Statistical Demand Analysis:

Statistical demand analysis is a set of statistical procedures designed to discover the most important factors that affect sales and their relative influence. The factors most commonly analyzed are prices, income, population and promotion. Statistical demand analysis consists of expressing sales (Q) as a dependent variable and trying to explain sales as a function of a number of independent demand variables X1 X2 Xn that is

$$Q = f(X_1 \ X_2 \ \& \ X_3 \ldots\ldots\ldots Xn)$$

Using a technique called multiple regression analysis, various equation forms can be statistically fitted to the data in the search for the best predicting factors and equation.

With the development of computers, this method is becoming more and more popular. Statistical Methods can be of four types:

Trend Projection Method: Trend projection is a method of business forecasting. In this method, a large amount of reliable data is collected for forecasting demand. In this method, past few or one year data is collected from previous year's registers. It is assumed that all the factors shall continue in the future in the same fashion and to the same extent as they used in the past year. Decision maker tries to find the trend from past sales and predict future demand. e.g increase in sales for cotton blazers due to increase in temperature during summer due to global warming.

An established company can collect such data from its sales department or other relevant department. Whereas the new firms can acquire data from the established companies in the same industry.

Barometric Techniques: This barometric method of forecasting is used by the meteorologists in weather forecasting. The weather conditions are forecasted on the basis of the movement of mercury in a barometer. Based on this, Decision makers use economic indicators as a barometer to forecast the overall trend in the business activities.

In this method an index of relevant economic indicators are found and forecasting is done about future trends by analysing the movements in these indicators. E.g. by finding the numbers of tender passed in municipal corporations for the construction of buildings, bridges a managers of cement company can forecast demand for cement for next year.

Regression Method: It is the algebraic expression of the regression lines. Decision makers study the relationship between two variables where one is independent variable and the other is dependent variable and predict future demand for their product. e.g managers can find the relationship between customer satisfaction and sales by using this method

Potential Consumer's Survey Method: In this method, a survey is conducted and the potential buyers of the product are contacted, their opinions regarding new product are asked, information regarding quantity to be purchased are asked. Sales forecasts of the new product are based on these opinions and estimates.

Market test method: In this method, samples of the new product is offered for sale in a selected market. The sales of the product during a given time are considered to be the base of forecasting the demand for the new product. The results of sales of the product are analysed and demand is forecasted.

Unit-3

Meaning of Supply

Price of a commodity depends on two forces one is demand and other is supply. Supply means quantity offered for sale by producer at a particular price in particular time period.

Determinants of Supply

Price is not the only factor which is responsible for supply. There are so many factors which affect the supply. These factors are as follows**:**

1. **Production technology:** Production technology means the set of techniques applied for production. Whenever producer improve the production techniques, it leads to the reduction in cost of production. And because of this reduction producer is able to supply more in given price.
2. **Cost of factors of production:** Factors of production means the resources which are used for producing the commodity for example – labour, capital, raw material etc. Cost of production may affect by increase or decrease in the cost of these factors. And cost of production is directly related with supply. More cost less supply and less cost more supply.
3. **Climatic conditions:** Production of agricultural goods depends on climatic conditions like- good Monsoon, flood, drought etc. Theses climatic conditions directly affect the supply of these agricultural goods.
4. **Means of transport:** Improved means of transport like railways, air or water transport can increase the supply of a particular commodity in a particular area. For example – proper road connectivity from urban to rural area can increase the supply of many goods in villages.
5. **Political Disturbance or War:** These situations can change the channel of supply in a county like in war time, supply of goods is diverted towards the border area**.** That can create the scarcity in country's other areas.
6. **Agreement among the producers:** If producers of a particular commodity sign the agreement in that condition they control the supply in their own way. For example, if the oil producing countries sign the agreement in that condition they can reduce the supply of oil to increases the oil prices in market. So by this the supply of oil will be affected.
7. **Price of substitute:** A substitute good is a good that can be used in place of others. For example tea and coffee. In case of manufacturing tea, if the price of substitute (coffee) goes up then the firm will divert its resources to produce coffee and as a result the supply of tea will go down.
8. **Sellers' price expectations**: If the seller expect that the price of a particular commodity will go high in near future then they hoard (illegal storage) the commodity and because of this supply will reduce in the market.
9. **Taxation:** Higher taxation on input of a particular commodity can increase the cost of product and which leads to decrease in supply of that commodity. Because supply is inversely related to the cost.
10. **Objective of the firm:** The objective of the firm also affect the supply of the goods which the firm is producing. Some firms have the objective to maximize the profit and to attain this objective the firms can go for high sales (supply) with lower profit margin.

Supply Function

The supply function identifies the immediate determinants of supply of all the goods. Supply function is merely the mathematical relationship between the supply and its determinants. The supply function can be put as under:

$$Q_x = F(P_x, P_y, P_i, T, Tax)$$

Where

Q_x = quantity supplied
P_x = price of commodity
P_y = price of substitute
P_i = price of factor of production
T = technology
Tax = rate of taxation
F = it shows the functional relationship between quantity supply and its determinants

Law of Supply

Law of supply explains the functional relationship between the supply and the price. According to this Law "if other things remain same (*ceteris paribus*) when price of the commodity will increase the supply of commodity will also increase. Thus it defines a positive relationship between the supply and price.

The base of law of supply is that the higher price leads to higher profit and this motivates the producer to produce more. This result in increase in supply.

The Law of supply can also be understood through supply schedule and supply curve:

Supply Schedule

It is the tabular presentation of Law of Supply. To explain the Supply schedule we are taking the example of cold drink.

Supply Schedule

Table 3.1: Supply schedule

Price of the Cold Drink (`)	Quantity Supplied of Cold Drink (Number of Bottles)
5	20
6	35
7	45
8	53
9	60
10	66

This supply schedule showing that how supply of cold drink is changing due to change in price of cold drink.

Supply Curve

It is the Graphical presentation of Law of Supply.

In supply curve we take price on "Y" axis and Quantity supplied on "X" axis.

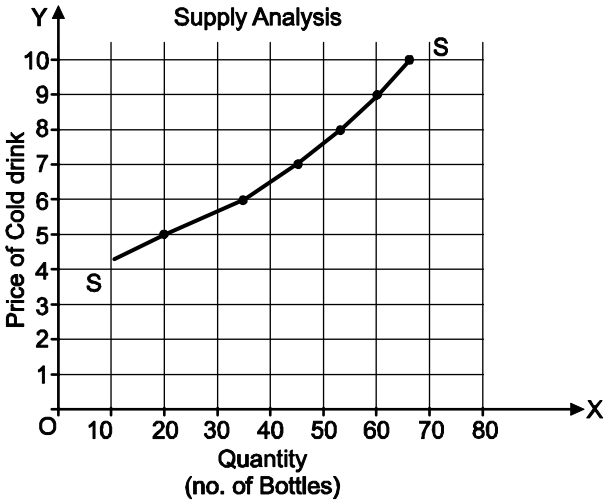


Fig. 3.1 : Supply Curve

Here price of cold drink is taken on Y axis and quantity supplied is taken on X axis. You can see the supply curve it is upward to the right. It indicates the positive relationship between price and supply.

Assumptions of Law of Supply

There are following assumptions of law of supply:

1. No change in the state of technology.
2. No change in the price of factors of production.
3. No change in the number of firms in the market.
4. No change in the objective of the firm.
5. No change in the seller's expectations regarding future prices.
6. No change in the taxation policy of the products.
7. No change in the price of substitute goods.

Extension or Contraction of Supply

When supply of a commodity changes due to the change in its price, it is known as Extension or contraction of supply and it is shown on the same supply curve. When the price of the commodity increases the supply also increases and we call it extension of supply and when price decreases the supply also decreases and then we call it contraction of supply. It is shown through the following figure-(3.2).

In the following figure 3.2 on price P1 supply is Q_1 and as the price increases to P_2 the supply becomes Q_2. When we show this movement of supply on supply curve it is known as extension or contraction of supply. When supply increases it is known as extension of supply and when supply decreases it is known as contraction of supply. And both extension or contraction are because of change in price only.

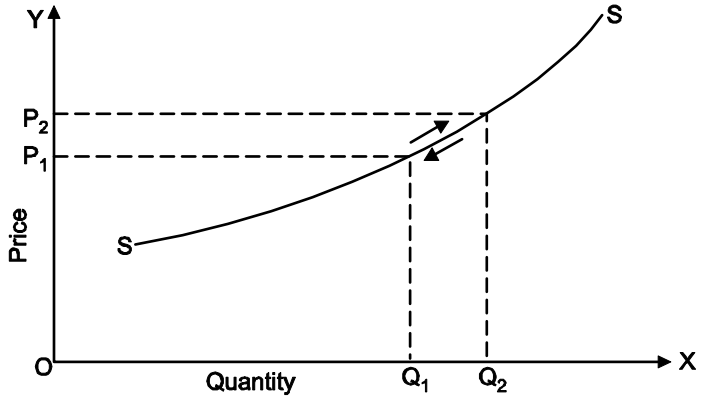
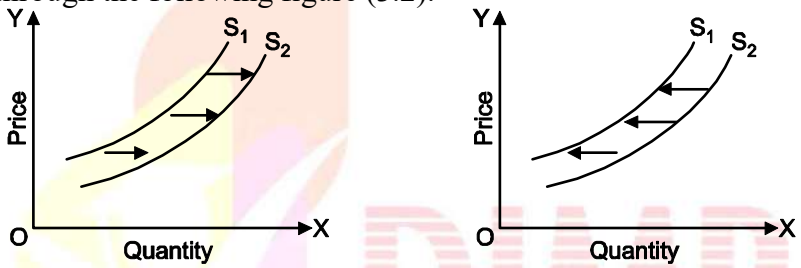


Fig. 3.2: Movements on the Supply Curve

Increase or Decrease in Supply (Shift in Supply)

When supply of commodity changes due to change in non-price factors we call it "increase or decrease" in supply and this we show on different supply curve. When other factors (other than price) changes supply also changes and this change results in shifting of supply curve either right or left. This shift in supply curve is known as increase or decrease in supply. This concept can better understand through the following figure (3.2).



(Please ignore the figure no. as it will be given the right no. when this graph will be redrawn by your team member) **

Fig. 3.3: (a) Rightward Shift of Supply Curve
(b) Leftward Shift of Supply Curve

In above figure when the supply curve moves from S1 to S2 or from S_2 to S_1 it is known as shift in supply curve. This shift is not due to change in price rather this shift is due to change in other determinants of supply.

Exceptions to the Law of Supply

Exceptions of law of supply mean the case where the law of supply will not apply. The law of supply states that "the supply of a commodity increases with increase in price and decrease with a fall in price, if other things remain constant". These other things are the exceptions to the law of supply.

1. **Expectation of a fall in price:** If the firms anticipate that the price of the product will fall further in future, in order to clear their stocks they may dispose it off at a price that is even lower than the current market price.
2. **Sellers who are in need of cash:** If the seller is in need of hard cash, he may sell his product at a price which may even be below the market price.
3. **When leaving the industry:** If the firms want to shut down or close down their business, they may sell their products at a price below their average cost of production.

4. **Agricultural output:** In case of agricultural production, climatic conditions play a dominant role. Due to the influence of these conditions supply may not be responsive to the price changes.
5. **Cost of factors of production:** The rise in the price of a good or service sometimes leads to a fall in its supply. The best example is cost of labour. A higher wage rate increases the cost of production and due to which producer decreases his production even though the price remain same
6. **Perishable goods:** Perishable goods are those goods which have very short life-time and they become useless after a certain period for example - vegetable, biscuits, fruits etc. Those goods must be made available in the market at its right time whatever be its price. So in this case even the prices falls the supply can increase.

All above are the exceptions of law of demand and in all above cases the supply curve will be in backward sloping.

Elasticity of Supply

Elasticity is a measure which shows the responsiveness of one factor due to change in other factor. In Elasticity of supply we show the responsiveness of supply due to change in price. Elasticity of supply is defined as percentage change in quantity supplied because of percentage change in price. Elasticity of supply is symbolized as "Es".

Measurement of Elasticity of Supply

Elasticity can be measured by the following formula

$$E_s = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$

Or $$\frac{\text{Change in quantity supplied}}{\text{Original quantity supplied}} \div \frac{\text{Change in price}}{\text{Original price}}$$

Or $$\frac{DQ}{Q} \div \frac{DP}{P}$$

Or $$\frac{DQ}{Q} \times \frac{P}{DP}$$

Where,

Q = Original Quantity supplied

P = Original Price

ΔQ = Change in Quantity Supplied

ΔP = Change in Price

For example:

Price of commodity X is 10 `/unit and on this price the quantity supplied is 100 units and when price increases to 20 `/unit the quantity supplied also increases to 200 units. Then the elasticity of supply will be:

Solution:

Formula: $$\frac{DQ}{Q} \times \frac{P}{DP}$$

$\Delta Q = 150 - 100 = 50$

$\Delta P = 15 - 10 = 5$

$Q = 100$ units

$P = 10$ `

By applying the above formula,

$$\frac{50}{100} \times \frac{10}{5}$$

E_s (Elasticity of supply) = 1

Ans. Answer is 1 which shows that the commodity is having unitary elasticity or in other words we can say that the quantity is changing in same proportion to price.

Types of Elasticity of Supply

1. Zero elasticity of supply:

This means no change in supply due to change in price. In other words quantity of supply remains same even after change in price. Symbolically

$E_s = 0$

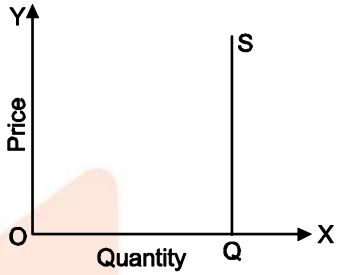


Fig. 3.4: Inelastic Supply Curve

In this above figure, we can see that the price is increasing but the supply is constant (Q). it is known as zero elasticity or inelastic supply.

2. Perfectly Elasticity of supply:

If there is no change in price but supply still get change then this case is known as perfectly elastic supply. In this case, supply change due to change in other factors like production technology, government policy, future expectations etc. but not in price will remain same. Here price will remain same but quantity will change. Symbolically

$E_s = \infty$ (infinite)

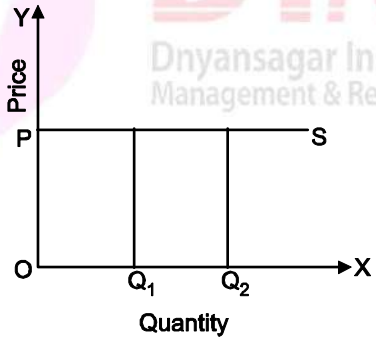


Fig. 3.5: Infinite elasticity of supply

In the above figure it can be seen that the price is constant but still the supply is increasing. Here supply is changing because other determinants are affecting the supply. This is known as infinite elasticity of supply

3. Unitary Elasticity of supply:

If the supply changes in the same proportion of price then it is known as unitary Elasticity of supply. In other words we can say that if percentage change in supply is equal to the percentage change in price it is known as unitary elasticity of supply. Symbolically

$E_s = 1$

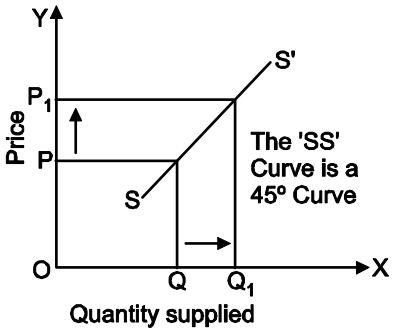


Fig. 3.6: Unitary elastic supply

In the above figure ΔP is equal to the ΔQ. That's why it is known as unitary elasticity of supply.

4. Elasticity of supply or Elastic Supply:

If change in supply is more than the change in price then it is known as highly elasticity of supply. In other words, percentage change in supply will be more than percentage change in price. Symbolically

$E_s > 1$

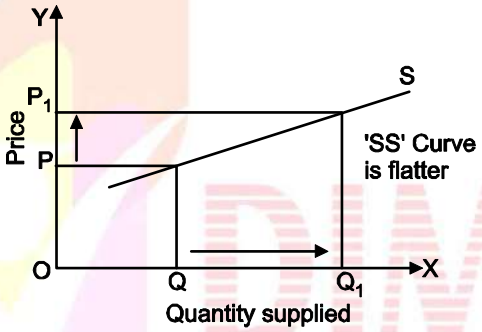


Fig. 3.7: Elastic supply

In this above figure the supply curve is flatter. It shows that ΔQ is more than the ΔP.

5. Inelasticity of Supply or Inelastic supply:

If change in supply is less than the change in price then it is known as relatively less Elasticity of supply. In other words percentage in change in supply will be more than percentage change in price is known as relatively less Elasticity of supply. Symbolically

$E_s < 1$

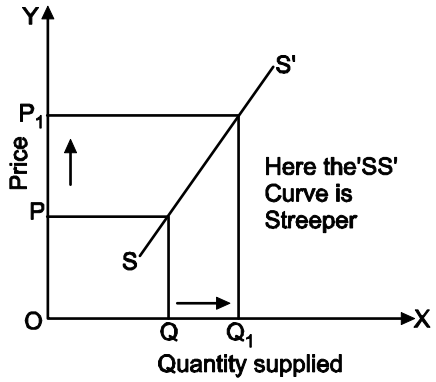


Fig. 3.8: Inelastic supoly

In the above figure, the supply curve is steeper which shows that ΔQ is less than the ΔP.

Determinants of Price Elasticity of Demand

1. **Nature of the commodity:** The elasticity of supply depends upon the nature of the commodity. If the commodity is perishable (vegetable, fruits etc.) it cannot be stored for long period and hence supply will be relatively inelastic. And if the commodity is the durable commodity it can be stored for a longer time period and hence the supply will be relatively elastic
2. **Cost of production:** As a firm looks to expand production, it needs to employ more factors of production. As a result of this, the cost of production rises. If the cost of adding more factors of production rises rapidly then the firm will not be able to expanding its supply.
3. **Technique of production:** If the production of commodity involves the complex technology the supply will be inelastic because this technology would need time to install and it would be difficult to response immediately to price change.
4. **Future expectations regarding price:** If the firm expects that the price will increase in future then the firm can hold the supply and the supply of the product will decrease in the market.
5. **Time period:** As already discussed, in market period supply is inelastic; in short, time period supply is less elastic whereas in a long time period supply tends to be more elastic.

Practical Importance of Elasticity of Supply

These are the following areas where Elasticity of supply is having importance:

1. **Housing property:** Inelastic supply of new houses in response to rising demand can push up the prices of the property.
2. **Oil industry:** OPEC cannot increase the supply of oil in response to increase in demand because the oil supply is inelastic**.**
3. **Commodity price:** Inelastic supply of many commodity can make the price more volatile.
4. **Labour Market:** Elasticity of labour supply decides the wage price in labour market.

Production Analysis

Meaning

Production in simple language is transformation of input into output. Inputs are the firm buy for transformation or for further process and outputs are goods and services that satisfy human wants.

Production can also be defined as creation of value. Because man cannot create the matter, he can only create the value.

Factors of Production

Resources which are required for the production are known as factors of production. For example: labour, capital, raw material, land etc.

Production Function

Production function refers to the technical relationship between the quantity produced (inputs) and the resources which are used for producing (inputs.)

- According to **Prof. Koutsoyiannis.** *"The production function is purely a technical relation which connects factor inputs and output."*
- According to **Prof. Watson.** *"Production function is the relation between a firm's physical production (output) and the material factors of production (inputs)."*

The relationship between inputs and outputs is summarized in what is called the production function. This is a technological relation showing for a given state of technological knowledge how much can be produced with given amounts of inputs." **Prof. Richard J. Lipsey.**

Mathematically, production function can be expressed as :

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

where,
Q = Quantity of output
L = Labour
C = Capital
La = Land.
R = Raw material

Features of Production Function

1. **Substitutability:**

The factors of production or inputs are substitutes of each other. And because of this it is possible to vary the total output by changing the quantity of one or a few inputs, while the quantities of all other inputs are held constant. It is the substitutability of the factors of production.

2. **Complementarily:**

The factors of production are also complementary to each other. It means two or more inputs should be used together, if one inputs become zero, nothing will be produced.

3. **Specificity:**

It reveals that the inputs are specific to the production of a particular product. Machines and equipment's, specialized workers and raw materials are a few examples of the specificity of factors of production. The specificity may not be complete as factors may be used for production of other commodities too. This reveals that in the production process none of the factors can be ignored. And if the factors or inputs are perfectly specific then we cannot ignore even the slightest amount of it for production process.

Cost of Production

Opportunity cost:

Opportunity cost is the forgone cost of taking next best alternative. In simple words we can say that when we sacrifice something to get another thing in that condition the cost of the thing which we sacrificed is known as opportunity cost. For example:

1. If we employ our own capital in business then the interest that we could have if we employ this capital in bank then the interest of bank is opportunity cost which we forgone.
2. If entrepreneur work in his own company then the salary that he could get from somewhere else is his opportunity cost.
3. If person uses his own land in his business in that case the rent he could get from that land will be his opportunity cost.

In above three cases the interest, salary and rent is the opportunity cost.

In economics the concept of opportunity cost is very important because the opportunity cost should always be less than the cost of the alternative which we have chosen, otherwise the decision regarding that will be considered as wrong decision. For example, in a firm there are two inputs labour and capital. If we sacrifice the capital from C_1 to C_2 for getting more labour L_1 to L_2, then the amount of **sacrificed capital** (between C_1 and C_2) will be considered as opportunity cost. Now

if, with this new combination of inputs the total production increases the decision will be considered as right decision.

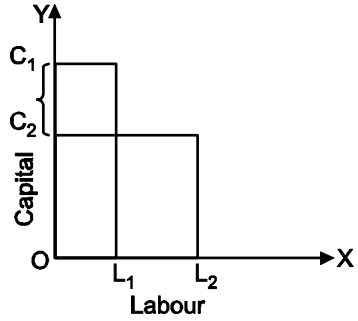


Fig. 3.9: Opportunity cost graph

Private cost and social cost:

Private cost are the cost which are incurred by business or person who are directly involved in economic activity. When goods or services are produced cost is incurred like: cost of raw material, labour, etc. even if a person is involved in any activity he also pay some cost. For example, if a person driving a car he will pay the cost of petrol, cost of car maintenance etc. These are the private cost.

Social costs refer to the total costs to society on account of a production or consumption activity. Whatever the things while producing (in business) or while consuming (by person) affect the society are considered as social cost. For example in case of business the pollution created by the firm and in case of person while driving car he contribute in traffic congestion, pollution, using traffic signals. These are the costs which are considered as social cost.

Thus private costs are usually less than social costs. Because social cost includes private cost and external cost (cost to society). If external cost is zero then the private cost will be equal to social cost.

Accounting cost and Economic cost:

Accounting costs is the cost which includes all direct expenses related to the business like cost of raw material, wages, electricity expenses, administrative expenses etc. These direct cost are also known as explicit cost. Since these are expenses for which bills or receipts are available, such costs can be objectively verified. Accountant considers only explicit cost for accounts purpose.

Accounting cost = Explicit costs

On the other hand, Economic costs include both explicit and implicit costs. Implicit costs is the opportunity cost in terms of revenue lost by forgoing the next best alternative, say renting out premises instead of conducting the business there. Implicit costs do not appear on the financial statements and are not verifiable, since there can be a number of alternative to any given course of action. Implicit costs are forward looking, since they include the "what if" (say, we rented out the premises for next year instead of using it to conduct the business) scenario.

Economic cost = Explicit cost + Implicit cost

For example:

A person running his business which includes following costs

Raw material = ` 200000/month
Salary = ` 20000/month
Administration expense = ` 10000/month

Additional information: Person is running his business in his own building and if he could rent out this land the rent could be ` 10000/ month. Then find out the accounting and economic cost.

Ans.

Accounting cost = Explicit cost (all direct cost)
= 200000 + 20000 + 10000
= 230000
Economic cost = explicit cost + implicit cost
= (200000 + 20000 +10000) + (10000)
= 240000

Cost Output Relationship

Cost output relationship shows how the cost changes if output level change. Every cost shows different type of behaviour with change level of output. Here we are showing the cost output relationship in short run and long run. Here 3 types of cost has been taken for showing relationship with output i.e. Total cost, fixed cost, variable cost, average fixed cost, average variable cost and average total cost.

Short run and Long run Cost Short Run Cost

Short run is the period where firm can vary its output by varying its variable cost only. Firm cannot change its fixed cost in short run. In other words we can say that in short run the production capacity is fixed it cannot be vary. In short run the costs fall in two categories: fixed and variable.

Short run Total cost

Total cost is the cost which incurred in production process. In short the Total Cost (TC) comprises total fixed cost and total variable cost. Fixed cost is the cost which does not vary with level of production. Variable coat is the cost which varies with the level of production. In the following figure we can see that on zero production level there is the cost which incurred in business. This cost is known as Total Fixed Cost, which is showing on Y axis on point F. For example rent of building. The total variable cost curve (TVC) starts from the origin, because such cost varies with the level of output and hence are avoidable. Examples are electricity tariff, wages and compensation of casual workers, cost of raw materials etc.

TC = TFC + TVC

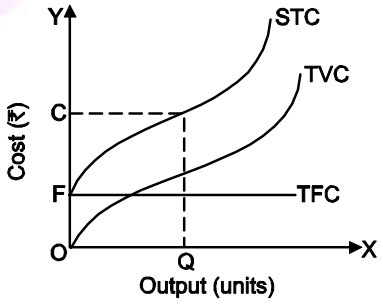


Fig. 3.10: Short-run costs

In the above figure, the total cost (OC) of producing Q units of output is total fixed cost. (OF plus total variable cost (FC)). Clearly, variable cost and, therefore, total cost must increase with an increase in output. We also see that variable cost first increase at a decreasing rate (the slope of STC decreases) then increase at an increasing rate (the slope of STC increases)

(b) Short run Average cost:

1. **Average fixed cost**:

Average fixed cost is total fixed cost (TFC) divided by output (Q),

$$AFC = \frac{TFC}{Q}$$

Since total fixed cost does not vary with output average fixed cost is a constant amount divided by output. Average fixed cost is relatively high at very low output levels. However, with gradual increase in output, AFC continues to fall as output increases, approaching zero as output becomes very large. In following figure, we observe that the AFC curve takes the shape of a rectangular hyperbola.

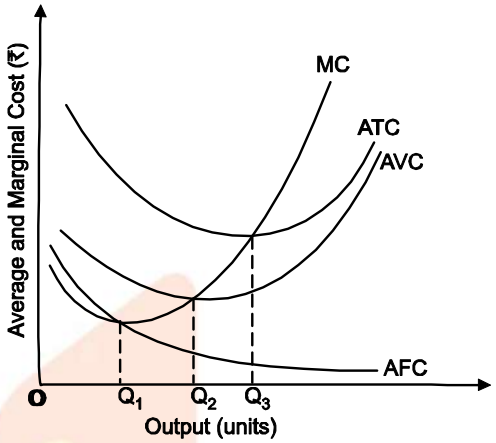


Fig. 3.11: Short-run average and marginal cost curves (AC is also known as ATC)

2. Average variable cost

Average variable cost (AVC) is found by dividing total variable cost (TVC) by output (Q)

$$AVC = -TVC/Q$$

3. Average Cost

Average total cost (AC) is found by dividing total cost (TC) by output (Q).

$$AC = TC/Q$$

We can also say that with the help of all above cost formula

$$TC = FC + VC$$

Or $$AC = AFC + AVC$$

(c) Short run marginal Cost

Marginal cost (MC) is the cost of producing additional units of output.

$$MC = \text{Change in total cost /change in total quantity}$$

Relationship between average cost and marginal cost can be stated from the following graph.

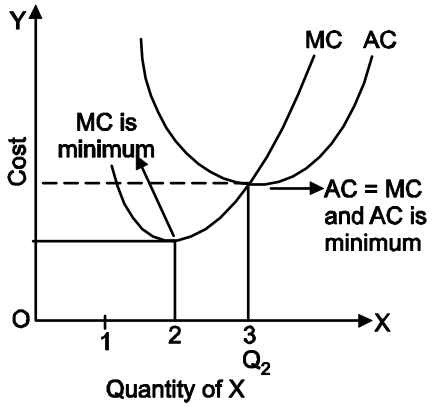


Fig. 3.12: Average and marginal cost

In above graph, we can see that average cost (or average total cost) and marginal cost both initially decreases up to a certain minimum level and then start increases. But it can be seen that marginal cost decreases at faster rate then start increases before average cost. Marginal cost cuts average cost at its minimum. In comparison to marginal cost average cost decrease at slower rate and also increases at slower rate.

Short run cost and output relationship can be understood with following numerical illustration.

Table 3.2

Units of output	Total fixed cost	Total variable cost	Total cost (2) + (3)	Average fixed cost (2) ÷ (1)	Average variable cost (3) ÷ (1)	Average cost (5) + (6)	Marginal cost
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
0	30	0	30	–	–	–	–
1	30	10	40	30	10	40	10
2	30	18	48	15	9	24	8
3	30	24	54	10	8	18	6
4	30	32	62	7.5	8	15.5	8
5	30	50	80	6	10	16	18
6	30	72	102	5	12	17	22

In above table, the hypothetical figures are shown of a firm.

Column (2) is showing fixed cost which is remaining same in all the level of output.

Column (3) is showing variable cost which is increasing with the increasing level of output.

Column (5) is showing average fixed cost which is decreasing with the level of output.

Column (6) is of average variable cost which is initially decreasing and then starts increasing.

Column (7) is of average cost or average total cost which is initially decreasing up to a certain level and then start increasing because of diseconomies in the business.

Last column (8) is showing marginal cost which is decreasing at faster rate up to a certain level and then start increasing.

Long Run Costs

Long run is the period where all the costs can vary. In other words in long run, no cost is fixed cost. In long run period the firm can increase its capacity. In other words we can say that in all run all inputs are variable there no fixed inputs in long run.

(a) Long run total cost

As we know the total cost is the cost of production. In long run total cost is all variable.

(b) Long run average cost

1. **Average cost:** In long run average cost can be identified by dividing total cost (TC) to output(Q)

$$AC = TC/Q$$

2. **Average variable cost:** In long run average variable cost can be identified by dividing variable cost (VC) by output (Q)

$$AVC = VC/Q$$

(c) Long run marginal cost

Marginal cost in long run can be calculated by the following formula

$$MC = \text{Change in total cost /change in output}$$

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

Long run cost and output relationship

To understand the relationship between long run costs and output the following cost curves will be taken into consideration.

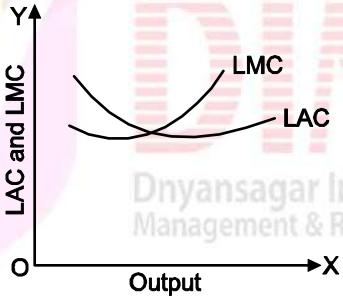


Fig. 3.13: LAC and LMC curves

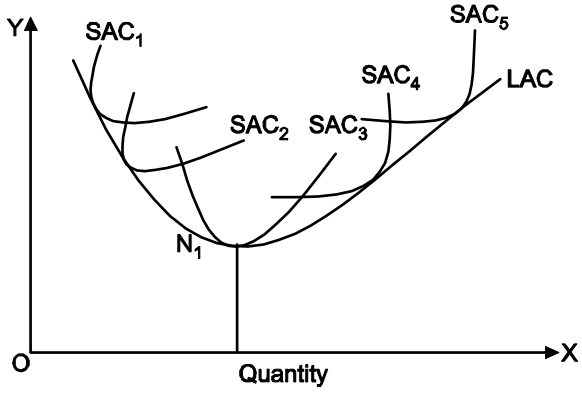


Fig. 3.14: Envelope curve (Long run cost curve)

Above cost curves are showing how the long run cost are changing with the changing level of output. For better understanding the short run average cost and long run average cost are shown together in Fig. 3.14.

In connection with Long run average cost curve following points are to be noted:

1. The LAC curve is tangential to the various SAC curves. It is said to envelop them and is often called as the "envelope curve" since no point on an SAC curve can ever be below the LAC curve.
2. The LAC curve is U-shaped or like a "dish." The U-shape of the LAC curve implies lower and lower average cost in the beginning until the optimum scale of the enterprise is reached. And successively higher average costs thereafter, i.e., with plants larger than that of the optimum scale.

Economies of Scale

In long run, due to bulk production some cost advantages come to the firm and these advantages are known as economies of scale. Economies of scale are an important concept for any business in any industry and represent the cost-savings and competitive advantages which larger businesses have over smaller ones.

Economies of scale are the results of the operation of laws of return to scale in long run. They are of two types:

(1) Internal economies of scale

(2) External economies of scale.

(1) Internal Economies:

Internal economies of scale are those economies which are on account of the size and operations of an individual firm itself and not from the outside factors. Internal economies are available exclusively to an expanding firm.

These economies may be of following categories:

(a) Managerial economies.

(b) Marketing economies.

(c) Specialization economies.

(d) Technical economies.

(a) Managerial Economies:

Managerial economies arise from (i) specialization in management and (ii) mechanization of managerial functions. Managerial economies means with the expansion of the firm whole expanded scale is looked after by the specialized personnel in the organization and this makes possible for the firm to divide the firm into specialized department. In case of economies, administrative cost decreases with the increase in output.

(b) Marketing Economies:

Marketing economies are concerned with the bulk purchases of raw material while producing on the large scale leads to decrease in the cost of production. Marketing economies arises due to (i) economies in advertisement cost (ii) economies in large scale distributor through wholesaler. With the expansion of the firm the production cost increases but the advertising expenditure does not increase proportionately.

(c) Specialization Economies:

When firm expands more and more workers of specialized skills and qualifications are employed. With the increase in number of labour it is easy for the firm to divide the labour according to their specialization. This is known as division of labour which provides more

efficiency to the firm production. And cost of production also reduces due to division of labour in a business firm.

(d) Technical economies

Technical economies arise on account of large scale production in the use of plant, machinery and work processes. Advanced technology is used which reduces the cost of production when the production is carried on a large scale.

(2) External Economies:

External economies arise on account of the external factors and they are enjoyed by all the firms in the area or industry as a whole. When an area is industrially well developed then there will be development of labour market, banking, insurance, financial institutions, means of communication and transportation, social overhead and cheap water, electricity and ancillaries. When a new firm or new industrial unit is set up all these benefits will be available in that area. All these facilities will reduce the cost of production of all the industrial units in that area. These advantages are known as external economies.

As a result of all the internal and external economies the unit cost of production falls and the LAC and LMC will also fall.

Diseconomies of Scale

Diseconomies of scale are the advantage that arise due to the expansion of production scale and leads to rise in cost of production. Like economies, diseconomies may be internal and external.

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

(1) Internal Diseconomies:

Like every other thing the economies have a limit too. This limit reached when the advantages of division of labour and potential personnel are fully exploited, expanded capacity of plan fully used. Then diseconomies begin and to overweigh economies and cost begins to rise.

These diseconomies are concerned with the size and operation of individual firm or industry.

These diseconomies are of the following categories:

(a) Managerial diseconomies.
(b) Technical diseconomies.
(c) Marketing diseconomies.
(d) Specialization diseconomies.

(a) Managerial Diseconomies:

When the size of operation of a firm increases the span of control becomes large and thereby the employer-employee relations are adversely affected leading to increase in the cost of production. It is resulted into managerial diseconomies.

(b) Technical Diseconomies:

Under technical diseconomies when the output is taken on large scale after a given point the break down rate may increase in the cost of production.

(c) Marketing Diseconomies:

Marketing diseconomies arise on account of the adverse effect on the control and coordination over marketing activities because of the large scale production and it increases the cost of production.

(d) Specialization Diseconomies:

Specialization diseconomies are concerned with the division of labour and specialization introduced by a firm with the operation of the large scale production. But after a point due to

monotony, fatigue and lack of coordination between different layers of personnel administration the cost of production increases that gives birth to these diseconomies.

(2) External Diseconomies:

External diseconomies are incurred by business firms or industrial units in an area. Concentration and localization of industries adversely affect the industrial peace in that area and strikes, lockouts, go slow tactics, industrial accidents, emergence of dirty colonies, water pollution, air pollution, etc., increase the cost of production of all firms and industrial units. Means of communication and transportation are overburdened.

Hence, the internal and external diseconomies will increase the LAC curve and LMC curve upward and the cost will increase.

Unit-4

Introduction

Revenue is the income that a business has from its normal business activities, usually from the sale of goods and services to customers. Revenue is also referred to as sales or turnover. Some companies receive revenue from interest, royalties, or other fees. Revenue may refer to business income in general, or it may refer to the amount, in a monetary unit, earned during a period of time. By 'revenue' of a firm is meant the total sale proceeds or the total receipts of a firm from the sale of the output. Revenue is calculated by multiplying the price at which goods or services are sold by the number of units or amount sold.

Revenue = (Price of goods) × (Units sold)

The various kinds of revenue will be discussed here under three heads:

(i) Total Revenue, (ii) Marginal Revenue, (iii) Average Revenue

Total Revenue (TR)

Total revenue of a firm is the total amount of sale proceeds or the total receipts of the firm.

Total revenue is expressed as follows:

$$TR = P \times Q$$

Where,
TR – Total Revenue,
P – Price,
Q – Quantity of the commodity sold.

For example:

A firm sells 100 units of particular goods for ` 10 each. If we calculate the amount realized by the firm, the answer is simple:

The Total Revenue for the firm = ` 1,000 (100 × 10).

Hence, the total revenue refers to the amount of money realized by a firm on the sale of a commodity.

Average Revenue

Average revenue is simply the revenue earned per unit of the output. In simpler words, it is the price of one unit of the output. Average revenue is expressed as follows:

$$AR = TR/Q$$

Where, AR – Average Revenue,
TR – Total Revenue,
Q – Quantity of the commodity sold.

For example, a firm sells 100 units of a commodity and realizes a total revenue of ` 1,000. Therefore, its average revenue is

AR = 1000/100 = ` 10

Hence, the firm sells the commodity at a price of ` 10 per unit.

Marginal Revenue

Marginal revenue (MR) is the change in total revenue resulting from the sale of an additional unit of a commodity.

$$MR = \Delta TR/\Delta Q$$

where, MR = marginal revenue
ΔTR = change in total revenue
ΔQ = change in quantity of the commodity sold

For example, a firm selling 100 units of a commodity and realizing a total revenue of ` 1,000. Further, it realizes total revenue of ` 1,200 after selling 101 units of the same commodity. Therefore, the marginal revenue is ` 200.

Table 4.1: Relationship between TR, AR and MR

No. of units sold (1)	Total Revenue (TR) (2)	Average Revenue (AR) (3)	Marginal Revenue (MR) (4)
1	22	22	22
2	42	21	20
3	60	20	18
4	76	19	16
5	90	18	14
6	102	17	12
7	112	16	10
8	120	15	8
9	126	14	6
10	130	13	4

In the above table column 2 is showing TR, column 3 is showing AR and column 4 is MR. MR has been derived from the total revenue. Thus, in going from two to three units the marginal revenue is 18 which is found by subtracting 42 from 62, and so on. This table also indicates that marginal revenue is less than the AR.

AR and MR revenue curves:

1. **Under perfect competition:** When competition is perfect the average revenue curve of the firm is horizontal straight line. It is so because individual firm under perfect competition cannot influence the price. And as the next unit will sale out on the same price the MR curve will also be at horizontal line. AR and MR curves of a firm under perfect competition are shown in Fig. 4.1.

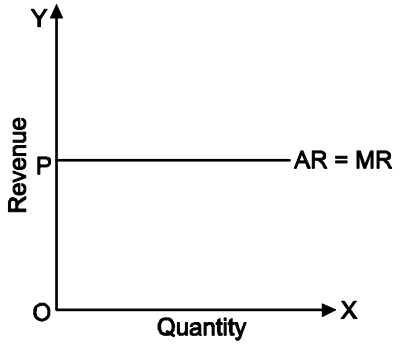


Fig. 4.1 : AR and MR curves under perfect competition

2. **Under Imperfect Competition:** Under imperfect competition the firm can influence the price and due to this price variation the AR curve and MR curve have downward sloping. In table 4.1 we can see that MR revenue fall down at a faster rate than the AR. The MR must always be less than the AR. That is why MR curve lies below AR curve. AR and MR curves of a firm under imperfect competition are shown in Fig. 4.2.

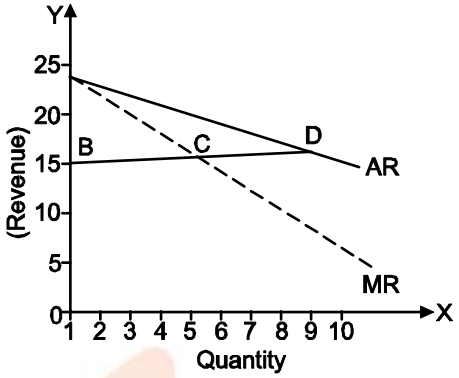


Fig. 4.2 : AR and MR curves under imperfect competition

Elasticity of Demand, Average Revenue and Marginal Revenue

There is very useful relationship between elasticity of demand, average revenue and marginal revenue at any level of output. This relationship is very much important when a firm determine its price in any competition. Marginal Revenue, Average Revenue and Price Elasticity of demand are related to one another through the following formula:

$$MR = AR\left(\frac{e-1}{1}\right)$$

where, e = price elasticity of demand

Further,

If $e = 1$, then $MR = 0$.

If $e > 1$, then MR is positive.

If $e < 1$, then MR is negative.

Behavioral Principles

Principle 1:

"A firm should not produce at all if total revenue from its product does not equal or exceed its total variable cost."

Explanation: A firm produces products for profits. Therefore, if a firm does not better by producing certain products, then it should rather not produce them. Remember, a firm always has an option of not producing anything. In a zero production scenario, the firm will have an operating loss equal to its fixed costs. If the production adds more cost than revenue to the firm, then it increases the loss of the firm.

Principle 2

"It is profitable for the firm to increase the output whenever the marginal revenue is greater than the marginal cost. Ideally, the firm must continue expanding until the marginal revenue equals the marginal cost. Also, apart from being equal, the marginal cost curve must cut the marginal revenue curve from below."

Explanation: According to this principle, if a unit of production adds more to the revenue than to the cost, then the said unit increases the profits of the firm. On the other hand, if it adds more to the cost than to the revenue, then the unit decreases the profits of the firm. The firm has maximum profits at the point where the additional revenue from a unit equals its additional cost.

Pricing Polices

Pricing policy refers to method companies use to price their products or services. Almost all companies, large or small, base the price of their products and services on production, labour and advertising expenses and then add on a certain percentage so they can make a profit. There are several different pricing policies, such as Cost plus pricing, Marginal cost pricing, Cyclical pricing, Penetration Pricing, Price Leadership, Price Skimming, Transfer pricing etc.

4.6.1 Objectives of Pricing Policy

The pricing policy of a firm may vary from firm to firm depending on its objective. In practice, we find many prices for a product of a firm such as wholesale price, retail price, published price, quoted price, actual price and so on.

Pricing decision of a firm in general will have considerable effect on its marketing strategies. This implies that when the firm makes a decision about the price, it has to consider its entire marketing efforts. Pricing decisions are usually considered a part of the general strategy for achieving a broadly defined goal.

There may be following objectives while deciding the price by a firm:

(i) Price-Profit Satisfaction:

The firms are interested in keeping their prices stable within certain period of time irrespective of changes in demand and costs, so that they may get the expected profit.

(ii) Sales Maximization and Growth:

A firm has to set a price which assures maximum sales of the product. Firms set a price which would enhance the sale of the entire product line. It is only then, it can achieve growth.

(iii)Making Money:

Some firms want to take the advantage of their brand name by charging the premium price of the product and make quick profit as much as possible.

(iv) Market leadership:

Some firms want be the leader in the market and for this the firm need to secure a large share in the market by following a suitable price policy. It wants to acquire a dominating leadership position in the market. Many managers believe that revenue maximization will lead to long run profit maximization and market share growth.

(vi) Survival:

In these days of severe competition and business uncertainties, a firm must set a price which would safeguard the welfare of the firm. A firm is always in its survival stage. For the sake of its continued existence, it must tolerate all kinds of obstacles and challenges from the rivals.

(vii) Market Penetration:

Some companies want to maximize unit sales. They believe that a higher sales volume will lead to lower unit costs and higher long run profit. They set the lowest price, assuming the market is price sensitive. This is called market penetration pricing.

(viii) Marketing Skimming:

Many companies favour setting high prices to 'skim' the market. Dupont is a prime practitioner of market skimming pricing. With each innovation, it estimates the highest price it can charge given the comparative benefits of its new product versus the available substitutes.

(ix) Early Cash Recovery:

Some firms set a price which will create a mad rush for the product and recover cash early. They may also set a low price as a caution against uncertainty of the future.

(x) Satisfactory Rate of Return:

Many companies try to set the price that will maximize current profits. To estimate the demand and costs associated with alternative prices, they choose the price that produces maximum current profit, cash flow or rate of return on investment.

4.6.2 Factors Involved in Pricing Policy

The pricing of the products involves consideration of the following factors:

1. **Cost Data:** The cost factor is a very important part of the pricing policy.
2. **Demand factor:** Firm's price also depends on the demand of the product Factor.
3. **Consumer Psychology:** Some firms take the advantage of customer's psychology and determine the prices accordingly for example: ` 999.
4. **Competition:** Competition has a greater impact on the pricing of a product. Sometime firm required to set the prices according to competitors' price.
5. **Profit:** Main objective of setting price is profit. Required profit by the firm determines its product prices.
6. **Government Policy:** Sometimes government decides the price band of some product like : petrol, LPG, and firm have to follow the prices accordingly.

Cost Plus Pricing

In this method a markup (profit) is added to the cost of the product and then sales price is finalized. So in this type of pricing all cost components are added like labour, raw material, admin cost, advertising cost, electricity etc. and then a certain percentage is added to reach on selling price

For example:

XYZ International has designed a product that contains the following costs:

Direct material costs = ` 20 / unit
Direct labour costs = ` 5.50/ unit
Allocated overhead = ` 8.25/unit

The company applies a standard 30% markup to all of its products.

To derive the price of this product, company adds the all above coat and then arrives on total cost of ` 33.75/ unit. Then company adds 30% of this and find the selling cost ` 43.88/unit.

$$33.75 + 33.75 \times 30/100 = 43.88$$

Advantages of Cost Plus Pricing

The following are advantages to using the cost plus pricing method:

1. **Simple:** It is quite easy to derive a product price using this method, though you should define the overhead allocation method in order to be consistent in calculating the prices of multiple products

2. **Assured contract profits:** Any contractor is willing to accept this method for a contractual agreement with a customer, since it is assured of having its costs reimbursed and of making a profit. There is no risk of loss on such a contract.
3. **Justifiable:** In cases where the supplier must persuade its customers of the need for a price increase, the supplier can point to an increase in its costs as the reason for the increase.

Cost plus pricing is a more valuable tool in a contractual situation, since the supplier has no downside risk. However, it is required to review which costs are allowable for reimbursement under the contract; it is possible that the terms of the contract are so restrictive that the supplier must exclude many costs from reimbursement, and so can potentially incur a loss.

Disadvantages of Cost Plus Pricing

1. **Ignores competition:** This method ignores the competition and does not consider the pricing of competitor. This method consider only cost of product and profit which company want to earn but a company gets surprise when it finds that competitors are charging substantially different prices. And this create the huge impact on the revenue of the company.
2. **Product cost overruns:** Under this method, the design department has no incentive to carefully design a product that has the appropriate feature set and design characteristics for its target market. Instead, the department simply designs what it wants and launches the product.
3. **Contract cost overruns:** If we consider the government organization which hires the supplier under this method there is no motivation to the supplier to curtail the price and which results the high price of the product in market..
4. **Ignores replacement costs:** The method is based on historical costs, which may have subsequently changed. The most immediate replacement cost is more representative of the costs incurred by the entity.

Penetrating Pricing Policy

Penetrating pricing policy is the method of pricing which is used by a company to attract the customer towards the new product or services. Under this method company set the lower prices of its product to build the market share. The primary objective of penetration pricing is to acquire lots of customers with low prices and then use various marketing strategies to retain them.

For example, a small cable distributor may set a low price for its products and subsequently additional software product offers every month. A small company will work hard to serve these customers to build brand loyalty among them.

Price Skimming Strategy

Situations where penetration pricing works effectively are as follows:

- When there is little product differentiation.
- Demand is price-elastic.
- Where the product is suitable for a mass market (utilizing economies of scale).

Advantages of Penetration Pricing

1. **High adoption and diffusion:** Because of the lower prices, penetration pricing allows a product or service to be quickly accepted and adopted by customers.

2. **Marketplace dominance:** Competitors can be easily trapped in a penetration pricing strategy and take little time to react on the situation. This makes the company able to grab the opportunity to cater as many customers as possible.
3. **Economies of scale:** This strategy provide more market to company to sale and high sales allows the firm to take advantage of economies of scale.
4. **High turnover:** Penetration pricing results in an increased turnover rate, making vertical supply chain partners such as retailers and distributors happy.

Disadvantages of Penetration Pricing

1. **Pricing expectation:** When a firm uses a penetration pricing strategy, customers often expect permanently low prices. If prices gradually increase, customers will become dissatisfied and may stop purchasing the product or service.
2. **Low customer loyalty:** Penetration pricing attracts those customers who are the bargain hunters or those with low customer loyalty. And these customers can easily switch to competitors if they find a better deal there.
3. **Damage brand image:** Because of the lower price sometimes customer perceive the brand cheap which affect the brand image.
4. **Inefficient long-term strategy:** This strategy is beneficial for the short term only, in long term it is not feasible. In long time, Firm may not be able to recover its cost if it uses penetration pricing.

Price Skimming

Another type of pricing strategy is price skimming, in this type of pricing company charges high price initially and then gradually reduces the price. This pricing strategy makes company able to quickly recover expenditures for product production and advertising. The company uses this strategy if the product is new in the market or it is an innovative product for example: new software etc.

Skimming is a useful strategy in the following contexts:

- There are enough prospective customers willing to buy the product at a high price.
- The high price does not attract competitors.
- The high price is interpreted as a sign of high quality.

Advantages of Price Skimming:

1. High prices leads to high revenue for the company.
2. Due to higher prices company covers up development expenses which required to be incurred by the manufacturer.
3. Generally, it is easier to quote a higher price in the initial period and gradually reduce it to create a mass market for the product.
4. If the products are out of fashion within a short span, skimming is advantageous
5. As higher prices bring in large cash flows, funds will not be locked up. The exporter can employ the funds in other areas of market development.
6. Premium products are the status symbol for buyers in high income bracket.

Disadvantages of Price Skimming

1. High prices may not evoke quick sales.
2. As very few people buy the product, the brand loyalty of the product may suffer.

3. In the long run, people may shift their loyalty to low priced goods.
4. High profit margins attract competitors selling similar products.
5. Due to low demand for the product, economies of large scale production are not realizable.

Cyclical Pricing

Cyclical Pricing is a method where company adopts appropriate pricing strategy at different stages of Business Cycle. Every Business Cycle consists of four phases: Recession, Depression, Recovery and Prosperity. Contraction comprises of the first two phases and the last two phases constitute expansion.

The recession phase is basically the downturn phase of an economy, which is characterized by decline in aggregate demand, wage rate etc. During recovery, some macroeconomic variables including these above-mentioned variables change, following the change in GDP. During the business cycle there is a need to adopt the appropriate pricing strategy.

Regarding the appropriate marketing strategy there are 2 different opinions. Here both the opinions are presented:

(1) Rigid Pricing

(2) Flexible Pricing

(1) Rigid (Fixed) Pricing:

According to this opinion, firm charges the fixed price irrespective of the business cycle. The supporter of this theory said that the fixed price creates the trust among the customers because it offers them the assurance of quality. Customer believes that firm is not making any compromise with quality and that is why the prices are fixed.

But the main disadvantage of the rigid pricing is that because of fixed price the firm may suffer with losses if the prices of raw material or labour get fluctuated.

(2) Flexible Pricing:

Flexible or dynamic pricing means the firm charges different price of the same product in different time and that depends on phases of business cycle. With this pricing policy the firm can maximize its profit. Because at the time of contraction the firm can charge the lower price of the product and this makes customer able to buy the product. And at the time of expansion the firm can charge the higher prices to make the huge profit. So by flexible pricing a firm can sustain in the market.

But there is a disadvantage of the flexible pricing, as the firm charges different prices the customer can be distract and can switch over to another product. If the customer previously paying lower price of the product/services he won't be ready to pay the higher price for the same product.

Marginal Cost Pricing

In the business there are two major costs: Fixed and Variable. Variable cost is the cost which varies according to the level of production and fixed cost does not vary according to level of production. Marginal cost (MC) focuses on variable or marginal cost rather than fixed cost, such as wages and raw material costs. It ignores any fixed costs in relation to the product, such as rent or interest payments.

The concept of the marginal cost is that if firm charges the price higher than the MC then the surplus (difference between price and MC) can be used for recovering the fixed cost and once the fixed cost will be recovered then further sales will give profit to the firm.

Marginal cost pricing is likely to be most appropriate where demand fluctuates considerably - perhaps, for example, travel industry, airlines, resorts and hotels. They need a minimum number of seats or rooms filled or the minimum number of people checked in to achieve a profit. When they are under booked, they will not get any revenue but also face losses due to maintenance costs and employee salaries that have to be fulfilled however the business is running then.

Like other pricing policy marginal pricing also have some advantages and disadvantages.

Advantages

1. This method is considered as easy method because it is easy to implement and calculation is also simple.
2. This method can help the firm if demand is fluctuating.
3. It can be very useful where the firm has spare capacity. And firm is not able to employ its resources to other places.
4. Can be a good way to remain in business and price-competitive in a time of difficult trading. Prices can then be raised later when the economic situation improves.

Disadvantages

1. This pricing strategy is not suitable in long time because the firm is required to recover the full cost of production.
2. This pricing can create the lower price expectations and later on it will be very difficult to the firm to increase the price.
3. If markets are not fully separated then there can be leakage between the markets with different prices. Customers who might have paid a higher price may take advantage of the lower marginal cost price.

4.6.9 Transfer Pricing

Transfer price is the price at which divisions of a company transact with each other. For example, if a subsidiary company sells goods to a parent company, the cost of those goods paid by the parent to the subsidiary is the transfer price. Transfer price is used by the multinational company (MNC) where the branches of company are located in different countries. There are different methods of transfer pricing:

(a) Market price base method.
(b) Cost base method.
(c) Negotiated method.

For example:

There is a firm XY Private Ltd., and it has two divisions A and B. Division A transfer the goods to division B and after processing goods sold out in the market. Fixed cost for division A is ` 31000 and variable cost is ` 120/unit and division A decides the sales price (transfer price) is ` 200/unit. For division B the fixed cost is ` 5000 and variable cost is ` 150/unit. And division B decided the selling price ` 300/ unit.

Here the transfer price and transaction between division A and B can be seen via following figure.

Sales price (Transfer price) ` 200/unit** **Fixed cost ` 5000 **Variable cost ` 150/unit**

Following are the purposes of Transfer pricing:

1. Transfer pricing is one of the performance evaluation tool and with this pricing policy, the profit of each department can be measured.
2. Transfer prices would affect not just the reported profits of every center, but would also affect the allocation of a company's resources (Cost incurred by one centre will be considered as the resources utilized by them).
3. Transfer pricing gives autonomy to the divisions of a company.
4. Tax burden can be minimized through transfer pricing.

Advantages of transfer pricing:

1. Managers are more motivated in transfer pricing as they have control over their division' result.
2. Increase decision making makes managers more efficient for higher level position in future.
3. This method makes the firm able to allocate the resources in different division properly.
4. With the help of this method the firm can figure out the profit of each department and this may help the firm for better evaluation of each department.

Problems related with the transfer pricing:

1. Setting of transfer price may be a problem for the firm because divisional managers may have different opinion regarding transfer pricing.
2. Transfer pricing required additional time cost and labour.
3. For some of the divisions or departments, for instance, a service department, arm's length prices don't work equally well as such departments don't offer measurable benefits.
4. The transfer pricing in a multinational company is very complicated.

Price Determination Under Different Market Structure

Introduction of Market and Market Structure

Market is a place where the buyers and sellers interact with each other to purchase or sale the goods/ services.

In words of a French Economist, Cournot "market is not any particular place in which things are bought and sold but the whole of any region in which buyers and sellers are in such free intercourse with one another that the price of the same goods tends to equality easily and quickly."

Market cannot be confined with place and best example to understand it is "online market".

Essential characteristics of market:

1. A commodity for which buyer and seller will deal.
2. The existence of buyers and sellers.
3. A place, it may be a certain region, a country or the entire world.
4. Interaction of buyers and seller for purchase and sales.

Classification of market:

1. **On the basis of area:**
   (a) Local
   (b) National
   (c) International
2. **On the basis of time:**
   (a) Short period
   (b) Long period
3. **On the basis of competition:**
   (a) Perfect competitive market
   (b) Imperfect competitive market
      I. Monopolistic market
      II. Perfect Oligopoly
      III. Imperfect Oligopoly
      IV. Monopoly

Following chart shows the different market at a glance:

Type of the Market	No. of Firms	Nature of the Commodity	Example
(a) Perfect competitive market			
Perfect competition	Infinite	Homogeneous	Vegetable
(b) Imperfect market			
I. Monopolistic competition	Many	Differentiated	Retail trade
II. Perfect oligopoly	A few	Homogeneous	Steel, bread
III. Imperfect oligopoly	A few	Differentiated	Tea, soap
IV. Monopoly	one	Homogeneous	Defense

* Now a day there is no example of monopoly, but tried to give closest one.

4.7.1 Market Structure

The term market structure refers to the organizational features of an industry that influence the firm's behavior in its choice of price and output. In simple words we can say that market structure is the playing field of the firm.

Market structure is generally classified on the basis of competition.

4.7.2 Price Determination Under Perfect Competition

Price determination or firms' equilibrium is find out in all the market conditions on the following principles:

1. Output is determined where MC = MR.
2. Price is determined by the straight perpendicular line drawn on X axis from output to AR.
3. Profit or loss find out by the following criteria:
   (a) Supernormal profit: when AC < AR
   (b) Normal profit: when AC = AR

(c) Losses: when AC > AR

Above mentioned 3 principles are applied on all markets.

4.7.3 Perfect Competition

Perfect competition is a kind of market structure where large number of buyers and sellers interact with each other for purchase or sale of homogeneous good or services. There are large number sellers and that's why they contribute small part of supply and have no control over the price. For example: vegetable market, fish market etc.

Characteristics of perfect completion

1. **Large number of buyer and seller:** The first condition is that there are large number of buyers and sellers, and if not, no single producer or purchaser will be able to influence the market price by varying respectively his supply of demand.
2. **Homogeneous product:** Second characteristic is all firms will produce the same product and so that there will be the same price in the market and no firm would be able to influence the prices.
3. **Perfect mobility of factors of production:** Another characteristic is that there is perfect mobility of factors of production (i.e. capital, labour, machine etc.). It means factors of production can move from one place to another place without any restriction.
4. **Free entry and free exit:** In perfect competitive market there is no restriction on entry and exit. Firms can enter in the market or can exit from the market without any barrier.
5. **Perfect knowledge:** In perfect competition both buyer and seller have the full information about the prevailing price, future price and availability of the commodity. There is no uncertainty in the market.
6. **No government interference:** Government does not interfere in the market functioning. The prices are decided on the basis of demand and supply only. Here government follows the free enterprise policy.
7. **Absence of collusion:** Perfect completion assumes that there is no agreement between the firms. And firms are not involved to form any cartel. So buyers and sellers can take their decisions independently.
8. **Absence of Selling Costs:** Under perfect competition, the costs of advertising, sales-promotion, etc. do not arise because all firms produce a homogeneous product.

4.7.4 Price Determination

In perfect competition the price is determined by the industry and the firms follow that price. Industry is the combination of firms which produces same kind of product. In this market industry is "price maker" and firms are "price taker". Under perfect competitive market price is determined in two periods.

A. In Short Run

B. In Long Run

A. Price Determination under Perfect Competition in short run or firms equilibrium under perfect market in short run

Short run is the period where:

1. Capital is fixed but labour is variable.
2. Price of the commodity is fixed.

3. The firm is faced the short-run-U-shaped cost curves.

Under perfect completion in short run price determination can be understand in two segment

1. Price determination in industry.
2. Price determination in firm.

Price determination in Industry

In perfect completion the industry is price maker and price is determined by the interaction of demand and supply curve.

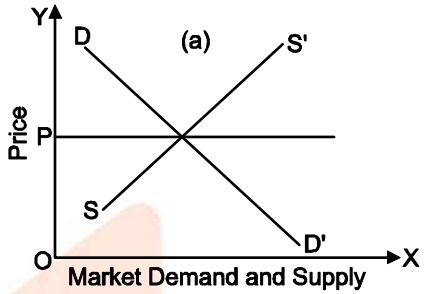


Fig. 4.4 : Market Demand and Supply

In this graph we can see that on X axis market demand and supply has been taken and with interaction of demand supply the price is determined on Y axis which is shown by "P". Now this price will be followed by the firm and as this price is fixed for all firms this will also decide the demand for the particular firm.

And that is why the firm will face the straight line horizontal demand curve which is shown in the following figure:

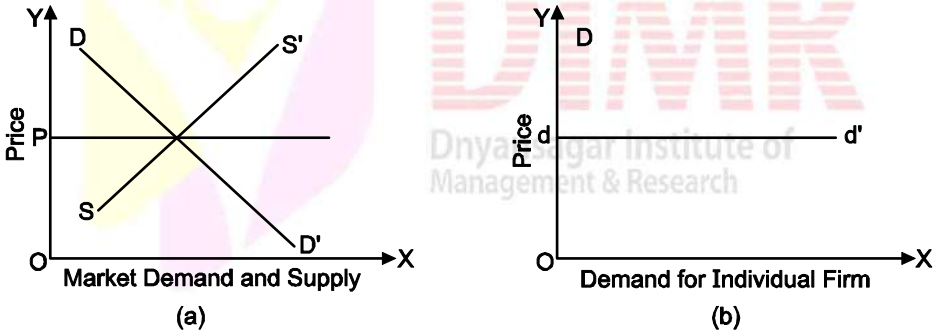


Fig. 4.5 : Determination of Market Price and Demand for Individual Firms

Price determination in firm

Under perfect competition price is decided by the industry and firms follow the price. Every firm has different cost structure therefore on decided price (P) the firm is required to get its equilibrium. Firm's equilibrium is a state when "firm is satisfied with its level of output". So here on given price the firm is required to decide its output level.

In order to attain the equilibrium position a firm has to satisfy two conditions:

1. The marginal revenue should be equal to the marginal cost. i.e. MR = MC. If MR is greater than MC, there is always an incentive for to expand its production further and gain by sale of additional unit. Profits are maximum only at the point where MR = MC.
2. The MC Curve should cut MR curve from below. In other words, MC should have positive slope.

In short run the firm can face one of the following situations:

1. **Normal profit or breakeven:** If the firm is facing AR=AC then it means the firm is on break even or on normal profit
2. **Super normal profit:** If the AC is below AR it means the firm is facing getting supernormal profit.
3. **Loses:** If the AC is more than the AR it means the firm is facing losses.

Output of the firm will be determined where MC = MR

And profit or loss is determined by the difference of AR and AC

(AC = Average cost, AR = Average revenue, MC = marginal cost, MR = Marginal Revenue)

In perfect competition the price is fixed that is why AR=MR.

Following figures shows the firm's equilibrium in 3 different conditions:

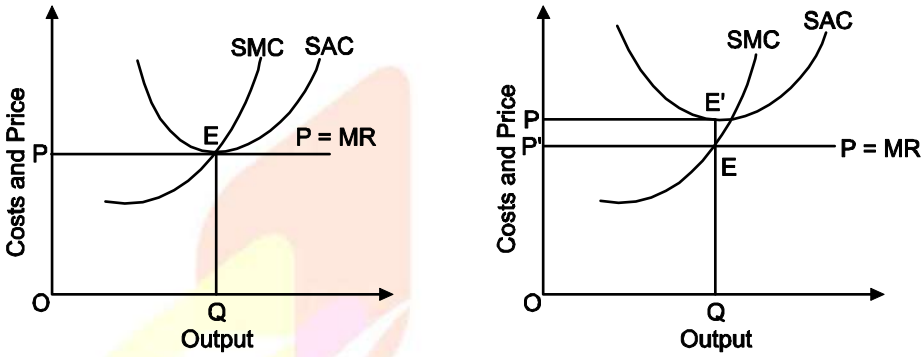


Fig. 4.6: Short-run equilibrium of firm with normal and losses

(a) Firm's equilibrium – facing normal profit or break even.

(b) Firms' equilibrium – facing losses.

(c) Firm's equilibrium – facing supernormal profit.

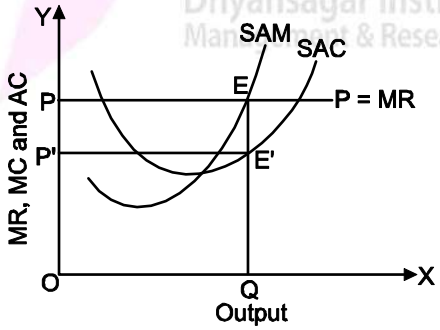


Fig. 4.7: Short-run equilibrium of the firm

B. Price Determination under Perfect Competition in short run or firms equilibrium under perfect market in long run:

Long run is the period where all the inputs are variable and firm is allowed to change its capacity.

Price determination in Industry

Under perfect competition the industry is price maker and in long run due to the supernormal profit more firms will attract towards the market, which results to increase in supply and supply curve will shift upward which will reduce the price.

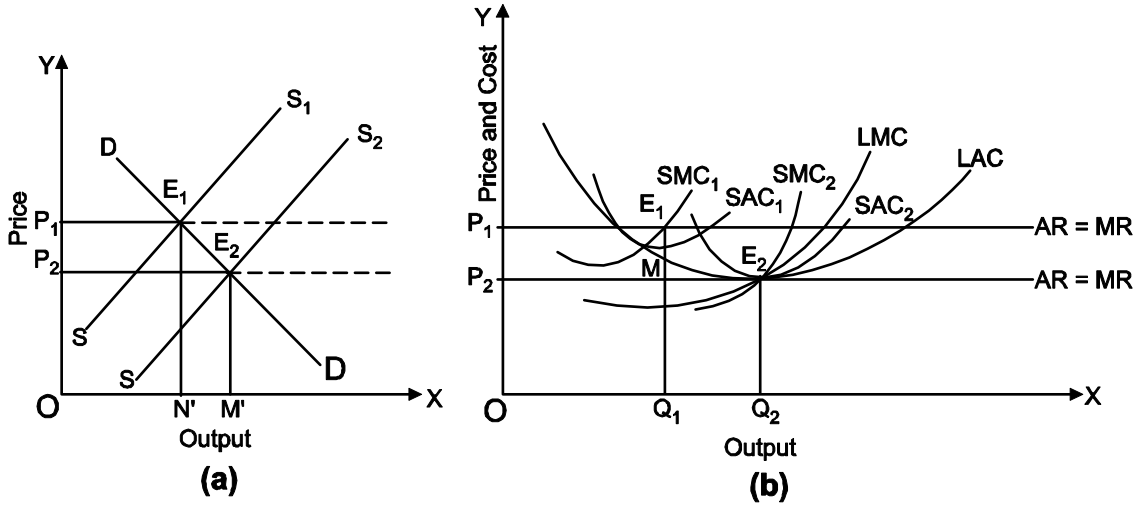


Fig. 4.8: Long-run equilibrium of the firm and industry

In above figure, (a) part is showing that supply curve has shifted from S_1 to S_2 due to which price has reduced from P_1 to P_2.

Price and output determination in firm or firm's equilibrium

In long run, under perfect completion, the firm who are earning losses will exit from the market and new firm will attract towards the market and due to which the supply will increase and price will go down. Result of this situation will be the firms who were earning the normal profit will enter into losses and the firms those were earning the supernormal profit will enter into the normal profit.

So in other words it can be said that in long run industry will determine the price and firm will earn the normal profit only.

In above figure, (b) part is showing that how the firm is switching from supernormal profit to normal profit because the firm is price taker and industry is price maker. And industry has reduces the price. And in long run now firms LAC = LAR which shows the normal profit.

Monopolistic Competition

Monopolistic competition refers to a market situation where there are many firms selling a differentiated product. "There is competition which is keen, though not perfect, among many firms making very similar products". No firm can have any perceptible influence on the price-output policies of the other sellers nor can it be influenced much by their actions. Thus, monopolistic competition refers to competition among a large number of sellers producing close but not perfect substitutes for each other.

Features of Monopolistic Competition

1. **Large Number of Sellers:** In a monopolistically competitive market, there are a large number of sellers who individually have a small share in the market. Unlike perfect competition, these large numbers of firms do not produce perfect substitutes. Instead, they produce and sell products which are close substitutes of each other. This makes the competition among firms real and tough.

2. **Product Differentiation:** In a monopolistic competitive market, the products of different sellers are differentiated on the basis of brands. These brands are generally so much advertised that a consumer starts associating the brand with a particular manufacturer and a

type of brand loyalty is developed. Product differentiation gives rise to an element of monopoly to the producer over the competing product.

3. **Freedom of Entry or Exit:** New firms are free to enter into the market and existing firms are free to quit it.

4. **Independent Behaviour:** In monopolistic competition, every firm has independent policy. Since the number of sellers is large, none controls a major portion of the total output. No seller by changing its price-output policy can have any perceptible effect on the sales of others and in turn be influenced by them.

5. **Selling Costs:** Under monopolistic competition where the product is differentiated, selling costs are essential to push up the sales. Besides, advertisement, it includes expenses on salesman, allowances to sellers for window displays, free service, free sampling, premium coupons and gifts, etc.

6. **Non-price Competition:** Under monopolistic competition, a firm increases sales and profits of his product without a cut in the price. The monopolistic competitor can change his product either by varying its quality, packing, etc. or by changing promotional programmes.

7. **Control Over Price:** Firm has some control over price. For example: Restaurants, professionals like solicitors etc.

Price Determination under Monopolistic Competition

In short run:

Under monopolistic competition a firm can alter its sales by the following 3 methods:

1. By changing the price of its product.
2. By changing the nature of its product.
3. By increasing the advertisement outlays.

Under the monopolistic competition, In short run, the firms are able to earn the supernormal profits. The short run equilibrium position of the firm is illustrated in the following figure:

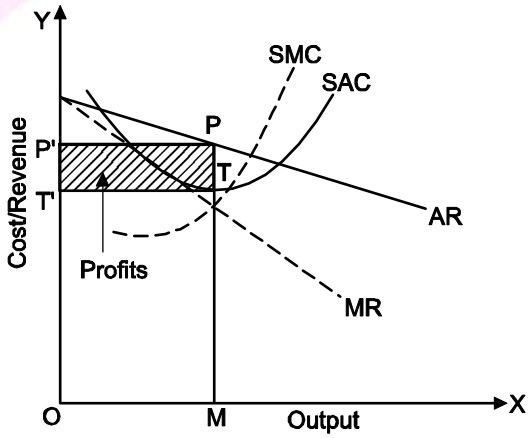


Fig. 4.9 : Equilibrium under monopolistic competition : Short-run

In above figure, the MR and SMC curves intersect at point T which determines the profit maximizing output at OM and price P'. At this output OM and price OP' the firm maximizes their

short run profit. Here the profit area is P'PTT'. But if the demand and cost situation are less favourable, then the monopolistic firm will be realizing loss in the short run. In the following Fig. 4.10 the loss making monopolistic firm is shown:

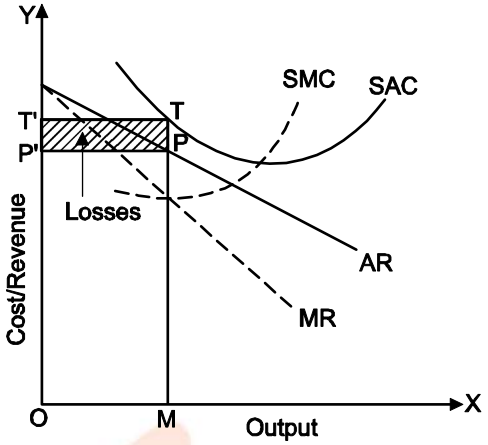


Fig. 4.10: Equilibrium under monopolistic, competition: Short-run (with losses)

Here the SAC > AR that is why the firm is making losses at OM output and OP' price loss area is showing by T'TPP'.

In short run the equilibrium condition for the firm is SMC = MR.

In long run:

In long run conditions differ from the short run conditions because in the long run new firms enter into the industry, firms indulge in price competition, firms advertise their products more vigorously. The long run equilibrium of the firm under monopolistic competition is illustrated in the following figure.

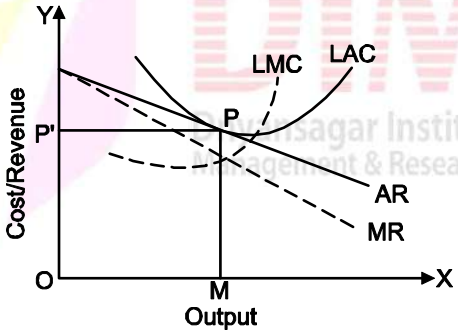


Fig. 4.11 : Equilibrium under monopolistic competition : Long-run

In long run such super normal profit disappears and firm earns normal profit because of the above mentioned reasons. Here LMC curve intersect MR which determines the profit maximse output at OM level and price OP'. So in long run there is equilibrium for the firm where LAC = AR and LMC = MR.

Price Determination Under Oligopoly

Oligopoly

Oligopoly is market where a few large firms compete against each other and there is an element of interdependence in the decision-making of these firms. Each firm in the oligopoly recognizes this interdependence. Any decision one firm makes (be it on price, product or promotion) will affect the trade of the competitors and so results in countermoves.

In other words, Oligopoly is a market situation in which there are a few (but more than two) firms selling homogenous or differentiated but close substitute products. Thus, there can be two kinds of oligopoly: for example cold drinks industry or automobile industry. There are a handful firms manufacturing cold drinks in India. Similarly there are a few members of automobile industry in India.

1. Oligopoly with product differentiation, and
2. Oligopoly without product differentiation.

Characteristics of Oligopoly Market

1. **Interdependence:** The most important feature of oligopoly is interdependence in decision-making of the few firms which comprise the industry. This is because when the number of competitors is few any change in price, output, product by a firm will have direct effect on the fortune of the rivals, who will then retaliate in changing their own prices, output or advertising technique as the case may be..
2. **Importance of Advertising and Selling Costs:** A direct effect of interdependence of oligopolists that the various firms have to employ various aggressive and defensive marketing weapons to gain a greater share in the market or to maintain their share. For this various firms have to incur a good deal of costs on advertising and other measures of sales promotion. Therefore, there is a great importance of advertising and selling costs in an oligopoly market.
3. **Group Behaviour:** The theory of oligopoly is a theory of group behaviour, not of mass or individual's behaviour and to assume profit maximizing behavior on oligopolist's part may not be very valid. There is no generally accepted theory of group behaviour.
4. **Indeterminate Demand Curve:** Because of interdependence of the firms in oligopoly and because of inability a particular firm to predict the behaviour of other firms, the demand curve facing an oligopolistic firm loses its definiteness and determinateness.
5. **Few Sellers:** In oligopoly market the number of sellers (firms) is small. Here small number of firms means that every firm produces a significant fraction of the total output of the industry and each firm can exercise noticeable impact on the market conditions.
6. **Aggressive and Defensive Marketing Methods:** Oligopoly firms resort to various aggressive or defensive marketing techniques to increase their share of the market or to maintain their share of market. They resort to extensive advertisement and sales promotion.
7. **Competition and Combination:** In oligopoly the competition is not perfect. There may be fierce, violent, cruel and cut throat competition on the one hand. But on the other hand, oligopolist realizes the disadvantage of competition and rivalry. Therefore, the oligopolist firms may work out some policy of collusion to avoid harmful competition.
8. **Identical or Differentiated Products:** Some oligopolistic industries produce identical products, like perfect competition in this regard, while others produce differentiated products, more like monopolistic competition. This characteristic might seem to be a bit wishy-washy, taking both sides of product differentiation issue. In actuality it points out that oligopolistic industries general come in two varieties:
9. **Identical Product Oligopoly:** This type of oligopoly tends to process raw materials or produce intermediate goods that are used as inputs by other industries. Notable examples are petroleum, steel, and aluminium.

10. **Differentiate Product Oligopoly:** This type of oligopoly tends to focus on goods sold for personal consumption. The key is that people have different wants and needs and thus enjoy variety. A few examples of differentiated oligopolistic industries include automobiles, household detergents, and computers.
11. **Small Number of Large Firms:** The most important characteristic of oligopoly is an industry dominated by a small number of large firms, each of which is relatively large compared to the overall size of the market. This characteristic gives each of the relatively large firm's substantial market control. While each firm does not have as much market control as monopoly, it definitely has more than a monopolistically competitive firm.

Price determination under Oligopoly

There is no definite theory of price-output determination under oligopoly. The reason being that there is interdependence in the decision-behavior of oligopolistic firms and the uncertainty about the reaction patterns of rival firms the demand curve of each firm is uncertain. Due to interdependence in the behaviour of firms and uncertain reaction patterns, there can be a variety of behavior patterns.

Different economists have made different assumptions about the aims of oligopolistic firms and they assumed different behaviour patterns of firms accordingly. Different behaviour patterns may be:

(a) Rivals may decide to co-operate in the pursuit of their objectives,
(b) They may fight each other to increase their market shares, and
(c) Agreements may be of wide variety. Therefore, a large variety of models about price-output determination under oligopoly have been developed by economists depending upon assumptions about the group behavior of oligopolistic firms.

The different models of price determination are as follows:

(a) Non-collusive oligopoly model of Sweezy (Kinked Demand Curve).
(b) Collusive oligopoly model.

Kinked Demand Curve

This is one of the prevailing models for price determination under Oligopoly.

Assumptions:

There are following assumptions in kinked demand curve:

1. There are few firms in the oligopolistic industry.
2. The product produced by one firm is a close substitute for the other firms.
3. The product is of the same quality. There is no product differentiation.
4. There are no advertising expenditures.
5. There is an established or prevailing market price for the product at which all the sellers are satisfied.
6. Each seller's attitude depends on the attitude of his rivals.
7. Any attempt on the part of a seller to push up his sales by reducing the price of his product will be counteracted by the other sellers who will follow his move, if he raises the price, others will not follow him. Rather they will stick to the prevailing price and cater to the customers, leaving the price raising seller.

Explanation:

Under oligopoly and the most popular explanation is kinked demand curve hypothesis given by an American economist Sweezy.

Each oligopolistic believes that if he lowers the price below the prevailing level; its competitors will follow him and will accordingly lower prices, whereas if he raises the price above the prevailing level, its competitors will not follow its increase in price.

This is because when an oligopolistic lowers the price of its product its competitors will feel that if they do not follow the price cut their customers will run away and buy from the firm which has lowered the price. Thus, in order to maintain their customers they will also lower their prices thus the upper portion of the demand curve is price elastic. On the other hand, if a firm increases the price of its product there will a substantial reduction in its sales because as a result of the rise in its price, its customers will withdraw from it and go to its competitors which will welcome the new customers and will gain in sales. These happy competitors will have therefore no motivation to match the price rise. The oligopolist who raises its price will lose a great deal and will therefore refrain from increasing price. This behavior of the oligopolists explains the inelastic lower portion of the demand curve.

The Prevailing price level is MP and the firm produces and sells output OM. Now the upper segment dP of the demand curve dD is relatively elastic and lower segment PD is relatively inelastic. This difference in elasticity is due to the particular competitive reaction pattern assumed by the kinked demand curve hypothesis.

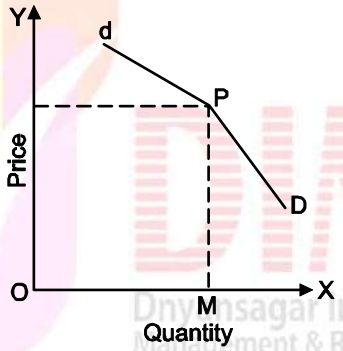


Fig. 4.12: Kinked demand curve under oligopoly

Criticism: The kinked demand theory is criticized on the following grounds:

1. It does not explain how prevailing price is determined. It simply explains how and why a price once determined in the market remains stable.
2. It does not explain price-output determination under collusive oligopoly because under collusive oligopoly firms behave in a concerted manner. There is no kink on the demand curve of the firm under collusive oligopoly.

Pricing under Collusion (Collusive Oligopoly):

When competing firms make some kind of agreement about pricing and output they are said to collude. The agreements may be formal or facet. But formal or open agreements are illegal in most countries. The agreement between oligopolists is generally tacit or secret. When firms enter into collusive agreement, collusive oligopoly comes into existence. Collusion can be of two types:

(A) Perfect collusion (Cartels).

(B) Imperfect collusion (Price leadership).

Perfect Collusion (Cartels) :

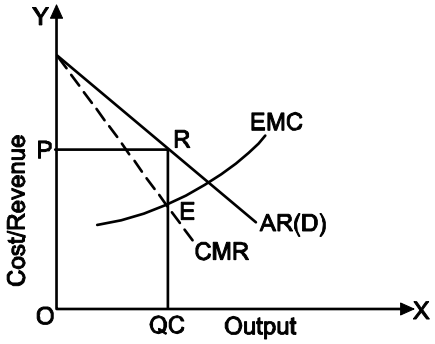


Fig. 4.13

When rival firms enter into price competition with each other, they will make the market price down to the level of production cost. Therefore there is a strong incentive for the oligopolists to collude, raise price and restrict output. Collusion is just the opposite of competition. A cartel is an agreement among independent firms on subjects like prices, output, market sharing, etc. The desire of the firms to have large joint profits gives impulse to form cartels. But such a desire is short-lived and, therefore, the formal arrangement of cartels cannot be a long-term phenomenon.

Let us suppose that there are only two firms. Supposing further the central cartel board knows the demand curve (average revenue curve) of the industry and corresponding total marginal revenue curve. The cartel board finds out the Combined Marginal Cost (CMC) curve for the industry by horizontal summation of MC curves of the two firms. The profit maximizing output of industry is determined by equating combined marginal revenue and combined marginal cost. The price-output determination is illustrated in a given figure. In this figure, AR (D) and CMR are demand curve and marginal revenue curve of the industry. EMC is combined marginal cost curve. The industry is in equilibrium at E point where EMC cuts CMR and equilibrium output is QC. Thus equilibrium price is OP. Now the question is how the output quota of each firm is determined. Each firm will be asked to produce that much output at which MC of each firm is equal to the MC of total equilibrium output. The marginal cost of each firm will be equal.

Conditions for a Successful Collusion:

Agreements to raise prices are not equally possible in all industries. The collusion can be successful only if the following conditions exist:

1. Small Number of Firms.
2. Threat of Entry Potential Rivals.
3. Stable Demand Conditions.
4. Less Fear of Anti-Trust Action.

Imperfect Collusion (Price Leadership):

In an oligopolistic situation, there are more than two or a few sellers who are able to exercise monopolistic influence. In such a market situation, we generally find that there exists what is called the 'price leadership'. Under price leadership, one firm assumes the role of a price leader and fixes the price of the product for the entire industry. The other firms in the industry simply follow the price leader and accept the price fixed by him and adjust their output to this price. The price leader is generally a very large or a dominant firm or a firm with!he lowest cost of production.

Price - Output Determination under Price Leadership

Economists have developed various models concerning price-output determination under price leadership on the basis of certain assumptions regarding the behaviour of the price leader and his followers.

Assumptions under Price Leadership

1. There are only two' firms A and B and firm A has a lower cost of production than B;
2. The product of the firms is homogenous or identical so that the consumers are indifferent as between the firms;
3. Both A and B have equal share in the market, i.e., they are facing the same demand curve which will be half of the total market demand curve.

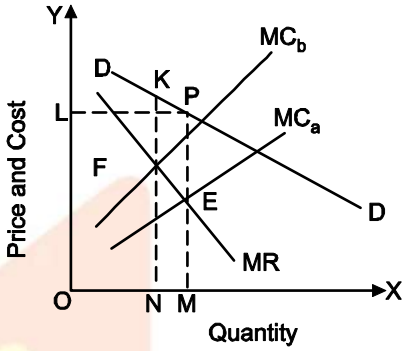


Fig. 4.14: Price-output equilibrium under price leadership

The price and output decisions have been illustrated in figure aside. Suppose all the firms face identical revenue curves as shown by AR and MR curves. But they have different cost curves : the largest firm or the low-cost firm, has its cost curves as shown by Ad and MC, whereas all other rival firms, smaller in size have their cost curves as Price-output Equilibrium under Price Leadership shown by AC_2 and MC_2. This so because the largest firm has the economies of scale and its cost of production is lower than that of other firms. Given the cost and revenue conditions, the low-cost firm would find it most profitable to fix its price at ($OP_2 = LQ_2$) and sell quantity OQ_2. Since at this level of output it's MC = MR and hence its profit is maximum. On the other hand, the high-cost firms would be in position to maximum. On the other hand, the high-cost firms would be in position to maximize their profit at price OP_3 and quantity OQ, But, if they charge a higher price OP_3 they would lose their customers to the low-cost firm. The high cost firms are therefore forced to accept the price OP_2 and recognize e price leadership of the low-cost firm. Note that the low-cost firm can eliminate other firms and become a monopolist, by cutting the price to OP, (= JQ_2). At price OP, the low cost firm can sell its entire output OQ_2, at price OP, but it will, make only normal profit. It may however not so do for the fear of anti-monopoly laws.

Advantages of Price Leadership

One most important advantage of price leadership is that by this method the firms opt out of the uncertainty surrounding pricing decisions in oligopoly. There is interdependence between the firm's own behaviour.

Duopoly

A duopoly is a type of oligopoly where two firms have dominant or exclusive control over a market. The key components of a duopoly are:

(a) How the firms interact with one another.

(b) How they affect one another.

Characteristics of Duopoly

1. Existence of only two sellers.
2. Independence.
3. Presence of monopoly elements: so long as products are differentiated, the firms enjoy some monopoly power, as each product will have some loyal customers.
4. There are two popular models of duopoly, i.e., Cournot's Model and Chamberlin's Model.

(1) Cournot's Model

This duopoly model was developed in 1838 by the French economist Augustin Cournot. The following diagram illustrates the Cournot model. It shows how Firm A and B share the total market and adjust output and how they maximize their profit.

Suppose there are only two firms in the market A and B. but initially A is the only seller in the market. And it is assumed that the unit cost is zero he sales OQ at price OP_2. His total profit will be OP_2PQ. Now B enters in the market and he finds that market opens for him is QM which is half of the total market. In order to maximize his revenue B sells QN at price OP_1. B supplies only QN which is 1/4 of the total market. Now A's profit is affected by entry of B. with the entry of B, price falls to OP_1.

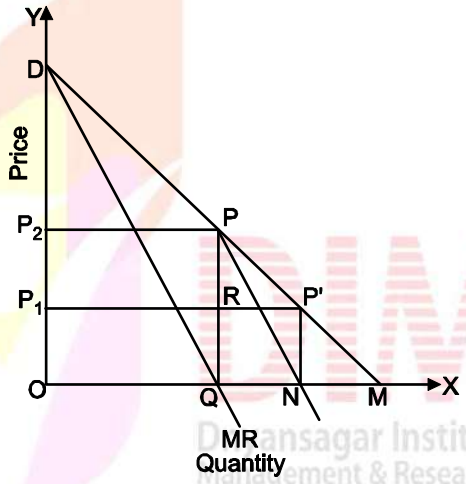


Fig. 4.15: Price and output determination under duopoly : Cournot's model

A assumes that the market available for him is 3/4 of the total market. To maximize his profit A will produce 1/2 of 3/4 i.e. 3/8 of the market. Firm A and B supply only half of the available market. Now it's B's turn to react, B will assume that now A is supplying only 3/8 of the total market so market open for B is 1 – 3/8 = 5/8. To maximize his profit B will supply 1/2 of 5/8 = 5/16 of the market. Now A will react on this. This process will continue till equilibrium price and output are achieved.

(2) Chamberlin's Model

This model is based on the assumption that both the producers recognize their mutual interdependence. Following figure illustrates this model.

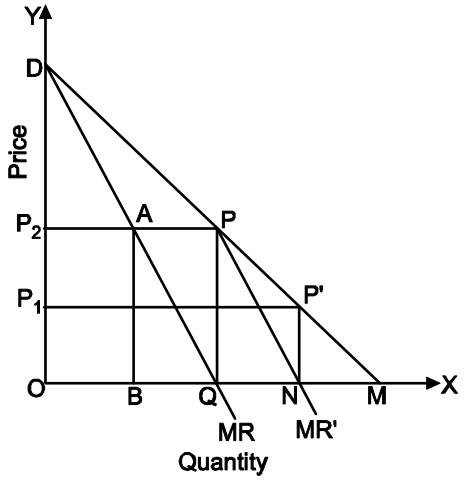


Fig. 4.16: Chamberlin's model of stable equilibrium

In above figure suppose the producer A enters in the market first as monopolist, A will produce OQ and charges OP_2. When firm B enters in the market, it consider that PM is the demand curve. Chamberlin assumes that A will recognize the interdependence between them recognize the fact that B will react to its decision. Therefore firm A decides to compromise with existence of firm B and decides to reduce its output to OB which is half of the output OQ. Firm B will also recognizes the interdependence and finds that BQ is the most profitable output for him.

Price Determination Under Monopoly

Monopoly

The word monopoly has been derived from Greek word *monos*, meaning "alone" amd *polein* meaning "seller". Monopoly is market situation in which there is a single seller of a commodity of 'lasting distinction' without close substitute. Monopoly is that market condition which is hard to exist in the market nowadays. Now in the age of competition monopoly in any industry is hard to find.

Feature of Monopoly Market:

1. **Single Seller of the Product:** In a monopoly market there is only one firm producing or supplying a product. This single firm constitutes the industry and as such there is no distinction between the firm and the industry in a monopolistic market.
2. **Restrictions to Entry:** In a monopolistic market, there are strong barriers to entry. The barriers to entry could be economic, institutional, legal or artificial.
3. **No Close Substitutes:** The monopolist generally sells a product, which has no close substitutes. In such a case, the cross elasticity of demand for the monopolist's product and any other product is zero or very small. The price elasticity of demand for monopolist's product is also less than one. As a result, the monopolist faces a downward sloping demand curve.
4. **Market Power:** Monopoly market structure has market power, and can decide price and controls price or output/supply.
5. **Abnormal Profits:** There are abnormal profits in long run.

6. **Economies of Scale:** Operation of scale economies over sufficiently large range of outputs leaves only one firm supplying the entire market. Such a firm is called a 'natural monopoly'. The potential entrant would have to build a large plant in order to compete with such established firm. Bain argued that large-scale entry was thus more risky and difficult to finance.
7. **Absolute Cost Advantage:** Established firms in the industry can obtain resources at a lower cost than potential entrants. This advantage occurs when established firms have access to important inputs, or unique assets (such as prime location or manufacturing process) which allow them to produce at a lower cost than potential entrants. Under these conditions, established firms would be able to charge prices above their marginal costs and earn economic profits without attracting entry.
8. **Capital Requirements:** In some industries (automobiles, defense, oil refining and deep sea drilling) the capital requirements of production are enormous. In others, (chemicals, pharmaceuticals and electronics) large investment in R and D is necessary. Entry becomes risky when large sunk costs of this kind are required.
9. **Control over Inputs:** Control over the entire supply of raw material like mineral deposits, oil supplies and even scientific talent can also lead to monopoly power. Till World War II, Alcoa, the Aluminium Company of America controlled supply of bauxite and, therefore, had monopoly in production of Aluminium. Other examples of monopoly based on resource control are French Champagne, De Beers (diamonds) and OPEC (crude oil).
10. **Legal Restrictions:** Patents held by existing firms make it virtually impossible for other firms to produce a comparable product or use a particular production process. Xerox had monopoly on copying machines and Polaroid on instant cameras when they were produced first.

    Exclusive franchises granted by the government are another form of legal restrictions. A firm is set up as the sole producer and distributor of a product or service but is subject to government regulations. For example, post offices set up by government.
11. **Strategic Barriers:** A monopoly firm may exercise limit pricing, that is, keep price below monopoly levels to discourage new entry. For the same reason, it may engage in extensive advertising and brand proliferation, not because this is profitable in itself, but to raise the cost of entry of new competitors This is generally called as retaliation pricing. The firm may intentionally create excess capacity, as a warning that it can quickly expand capacity should a new firm attempt to enter.

Price Determination under Monopoly:

In short run

The price determination or firm's equilibrium is illustrated in the following figure:

The short run cost curves are shown by the SAC and SMC curves. AR and MR are the revenue curves. Now on given cost and revenue conditions first will identify the output level of the firm i. e. MC = MR, or we can say where MC will cut the MR that will be the output point for the firm where firm will achieve maximum profit. In the following figure this point is N. An ordinate drawn from point X-axis determines the profit maximizing output at OQ. The ordinate NQ

extended upward to the AR curve gives price PQ. Difference between the AR and AC on the ordinate gives the supernormal profit (P_1PMP_2).

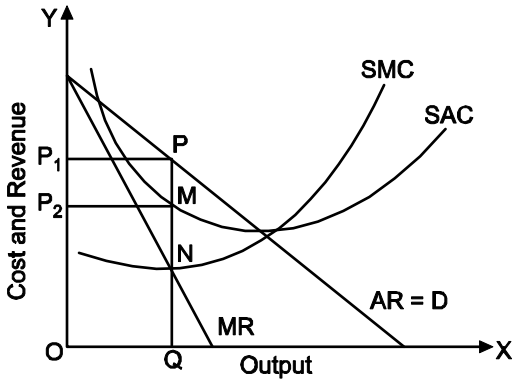


Fig. 4.17: Monopoly equilibrium

It is not necessary that monopoly firm will always have the supernormal profit sometimes it may have the losses too depends on its cost and revenue conditions and government policy. In the following figure it is shown that monopoly firm is facing losses:

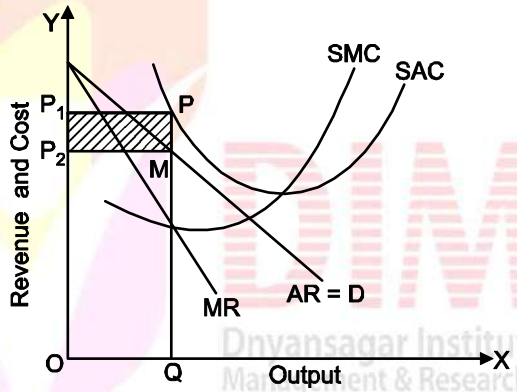


Fig. 4.18: Monopoly equilibrium in the short-run: losses

In the above figure it is shown that the SAC is above to the AR or we can say that AR < SAC which gives losses to the firm. So here at OQ output and QP price the firm is facing losses (P_1PMP).

In long run

A price determination under monopoly or firm's equilibrium in long run is illustrated in the following figure. The AR and MR curves shows the market demand and revenue conditions faced by the monopoly firm. LAC and LMC shows the cost curves in long run. As shown in the figure the point of intersection between LMC and MR determine the level of output at OQ_2 and price P_2Q_2. This price and output combination gives to firm the maximum profit. Here in the figure the profit is shown by the area $LMSP_2$.

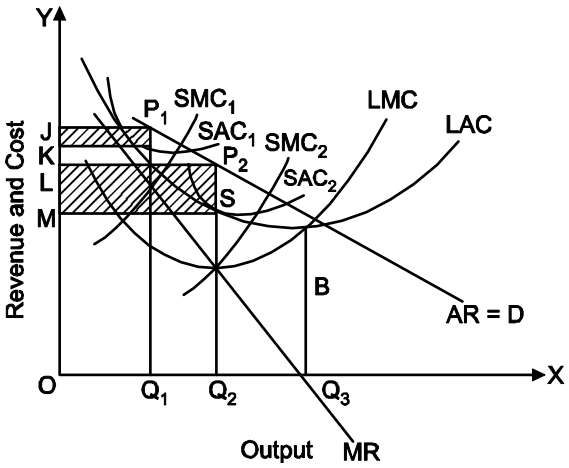


Fig. 4.19: Long-run equilibrium of the monopoly firm

Dual Price System

There are certain non-storable goods for example electricity, telephone services etc. which are demanded in varying quantity in different seasons and in day and night times. Consumption of electricity at day time reaches to its peak which is called "peak load" and in night it reaches at its bottom which is called "off peak". And due to this variation it's very difficult for the government to decide the price as electricity production is the public monopoly. Government cannot store the electricity if it's not utilizing at off peak time and cannot generate more electricity at peak load time.

For the above mentioned goods the dual pricing system is adopted. A higher price at peak load time is charged and a lower price at off load time is charged.

Advantages:

1. It results in an efficient distributions of electricity consumption. Housewives run their dishwasher and washing machines at off peak period.
2. It helps in preventing losses the company and ensure regular supply in long run.

Disadvantages:

1. Business man who has day nature business pays the higher rate than those business man who can shift his business at off peak period.
2. Billing is also a problem. Each customer will have to stall 2 meters for peak load and off load periods.

Prevention and Control of Monopolies

The government may wish to regulate monopolies to protect the interests of consumers. For example, monopolies have the market power to set prices higher than in competitive markets. The government can regulate monopolies through price capping, yardstick competition and preventing the growth of monopoly power.

Reasons to Regulate the Monopolies:

1. **Prevent excess prices:** Without government regulation, monopolies could put prices above the competitive equilibrium. This would lead to allocative inefficiency and a decline in consumer welfare.

2. **Quality of service:** If a firm has a monopoly over the provision of a particular service, it may have little incentive to offer a good quality service. Government regulation can ensure the firm meets minimum standards of service.
3. **Promote competition:** In some industries, it is possible to encourage competition, and therefore there will be less need for government regulation.
4. **Natural Monopolies:** Some industries are natural monopolies – due to high economies of scale, the most efficient number of firms is one. Therefore, we cannot encourage competition, and it is essential to regulate the firm to prevent the abuse of monopoly power.

Regulation of Monopolies by the Government:

1. **Price capping by regulators:**

For many newly privatized industries, such as water, electricity and gas, the government created regulatory bodies such as:

OFGEM – gas and electricity markets

OFWAT – tap water.

ORR – Office of rail regulator.

Amongst their functions, they are able to limit price increases.

2. **Regulation of quality of service:**

Regulators can examine the quality of the service provided by the monopoly. For example, the rail regulator examines the safety record of rail firms to ensure that they don't cut corners.

In gas and electricity markets, regulators will make sure that old people are treated with concern, e.g. not allow a monopoly to cut off gas supplies in winter.

3. **Merger policy:**

The government has a policy to investigate mergers which could create monopoly power. If a new merger creates a firm with more than 25% of market share, it is automatically referred to the Competition Commission. The Competition Commission can decide to allow or block the merger.

4. **Breaking up a monopoly:**

In certain cases, the government may decide a monopoly needs to be broken up because the firm has become too powerful. This rarely occurs. For example, the US looked into breaking up Microsoft, but in the end, the action was dropped. This tends to be seen as an extreme step, and there is no guarantee the new firms won't collude.

5. **Yardstick or 'Rate of Return' Regulation:**

This is a different way of regulating monopolies; Rate of return regulation looks at the size of the firm and evaluates what would make a reasonable level of profit from the capital base. If the firm is making too much profit compared to their relative size, the regulator may enforce price cuts or take one off tax.

6. **Investigation of abuse of monopoly power:**

In the UK, the office of fair trading can investigate the abuse of monopoly power. This may include unfair trading practices such as:

- Collusion (firms agree to set higher prices).
- Collusive tendering. This occurs when firms enter into agreements to fix the bid at which they will tender for projects. Firms will take it in turns to get the contract and enable a much higher price for the contract.

- Predatory pricing (setting low prices to try and force rival firms out of business).
- Vertical restraints – prevent retailer's stock rival products.

Government Intervention in Markets

Governments intervene in markets to try and overcome market failure. The government may also seek to improve the distribution of resources (greater equality). The aims of government intervention in markets include:

- Stabilize prices.
- Provide producers/farmers with a minimum income.
- To avoid excessive prices for goods with important social welfare.
- Discourage demerit goods/encourage merit goods.

Types of government intervention in markets:

- Minimum prices.
- Maximum prices.
- Nudges/Behavioural unit.

Minimum price

Under this the government sets a lower limit for prices, e.g. the price of potatoes could not fall below ` 13/kg.

The minimum price is set for a few reasons:

1. To increase farmers' incomes.
2. To increase wages.
3. Make demerit goods more expensive. For example, a minimum price for alcohol has been proposed.

Maximum price

This involves putting a limit on any increase in price e.g. the price of housing rents cannot be higher than ` 1300 per month.

Maximum prices may be appropriate in markets where:

1. Suppliers have monopoly power and are able to generate substantial economic rent by charging high prices.
2. The good is socially important – e.g. good quality housing is important to labour productivity and a nations' health.
3. Demand is price inelastic because the good is necessary for maintaining minimum standards of living.

Nudges

This is a different kind of government intervention. It is a government policy to influence demand indirectly. For example:

(A) Putting cigarettes behind closed covers. It makes it harder or less attractive for people to buy.

(B) Tax is a method to discourage consumption of certain goods. For example, taxes on demerit goods – goods with negative externalities. Taxes both discourage consumption and raise revenue for the government.

(C) The government may subsidies goods with positive externalities (for example, public transport or education).

Break Even Analysis

A break-even analysis is a financial tool which helps to determine at what stage a company, or a new service or a product, will be profitable. In other words, it's a financial calculation for determining the number of products or services a company should sell to cover its costs (particularly fixed costs). Break-even is a situation where company is having no loss no profit.

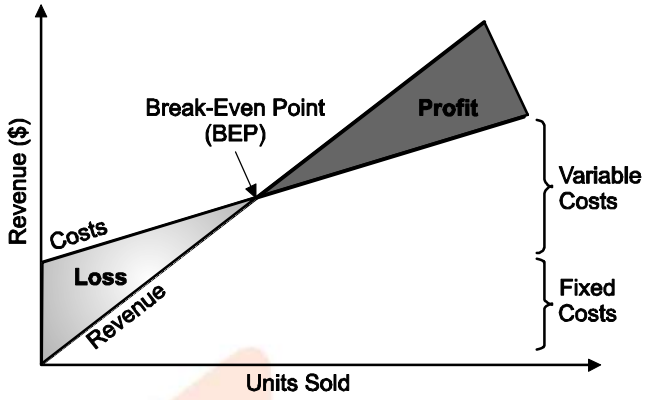


Fig. 4.20

Calculation of breakeven analysis

Following formulas are used for calculation of Break Even Point (BEP)

$$\text{Contribution per unit} = \text{Selling price per unit} - \text{Variable cost per unit}$$

$$\text{Break Even Point} = \frac{\text{Fixed cost}}{\text{Contribution per unit}}$$

For example:

Variable costs per unit: ` 400, Sale price per unit: ` 600 Desired profits : ` 4,00,000 Total fixed costs : ` 10,00,000. First we need to calculate the break-even point per unit, so we will divide the ` 10,00,000 of fixed costs by the ` 200 which is the contribution per unit (` 600 – ` 200). Break Even Point = ` 10,00,000/` 200 = 5000 units. Next, this number of units can be shown in rupees by multiplying the 5,000 units with the selling price of ` 600 per unit. We get Break Even Sales at 5000 units × ` 600 = ` 30,00,000. (Break-even point in rupees).

Break Even Analysis is used:

1. **Starting a new business:** In case of a new business a break-even analysis is a must. Not only it helps in deciding, whether the idea of starting a new is viable, but it will force to be realistic about the costs, as well as guide about the pricing strategy.
2. **Creating a new product:** In the case of an existing business, a break-even analysis is must before launching a new product - particularly if such a product is going to add a significant expenditure.
3. **Changing the business model:** If one is about to the change the business model like switching from wholesale business to retail business, he should do a break-even analysis. The costs could change considerably and this will help to figure out the selling prices need to changed too.

Advantages of Break Even Analysis

1. It helps to determine remaining/unused capacity of the concern once the breakeven is reached. This will help to show the maximum profit on a particular product/service that can be generated.
2. It helps to determine the impact on profit on changing to automation from manual (a fixed cost replaces a variable cost).
3. It helps to determine the change in profits if the price of a product is altered.
4. It helps to determine the amount of losses that could be sustained if there is a sales downturn.

4.16 Profit Forecasting

Profit forecasting means prediction made by analysts regarding the future and resulting profitability of a specific company. These forecasts typically include different variables such as current economic conditions and other important data. Some companies try to influence predictions by providing lots of data to show that the company is a good investment. The predictions issued by analysts are used by investors when deciding to purchase or sell shares of a specific company.

Data which is required for the profit forecasting:

1. **Data from prior financial statements, particularly:**
   (a) Previous sales levels and trends.
   (b) Past gross percentages.
   (c) Average past general, administrative, and selling expenses necessary to generate your former sales volumes.
   (d) Trends in the company's need to borrow (supplier, trade credit, and bank credit) to support various levels of inventory and trends in accounts receivable required to achieve previous sales volumes.
2. **Unique company data, particularly:**
   (a) Plant capacity.
   (b) Competition.
   (c) Financial constraints.
   (d) Personnel availability.
3. **Industry-wide factors, including:**
   (a) Overall state of the economy.
   (b) Economic status of your industry within the economy.
   (c) Population growth.
   (d) Elasticity of demand for the product or service your business provides.

Benefits of profit forecasting:

1. Planning annual operations.
2. Motivating managers to achieve goals.
3. Controlling activities.
4. Evaluating performance of the managers.

Approaches to profit forecasting:

1. **Spot Projection:** Spot projection includes projecting the profit and loss statement of a business firm for a specified future period. Projecting of profit land loss statement means forecasting each important element separately. Forecasts are made about sales volume, prices and costs of producing the expected sales. The prediction of profits of a firm is **subject to wide margins** of error, from forecasting revenues to the inter-relation of the various components of the income statement.
2. **Break-Even Analysis :** It helps in identifying functional relations of both revenues and costs to output rate, keeping in consideration the way in which output is related to the profits. It also helps in doing so by relating profits to output directly by the usual data used in break-even analysis.
3. **Environmental Analysis:** It helps in relating the company's profits to key variable, in the economic environment such as the general business activity and the general price level. These variables are not considered by a business firm.

Unit-5

Introduction

Business typically examines the changes in the economy for future planning. If there is change in consumer spending or consumption business has to follow this because increases in consumer spending encourages the business to invest more in equipments and resources. The consumption function is an economic formula that connects total consumption and gross national income (spending). Consumption formula calculates consumer spending based on income and the changes in income – spending rises or falls in proportion to income.

5.1 Consumption Function

Consumption function describes the relationship between consumption and disposable income. According to Keynesian Consumption function formula.

$$C = a + bYd$$

Where

1. Yd = disposable income (income after government intervention – e.g. benefits, and taxes)
2. a = autonomous consumption (consumption when income is zero. (e.g. even with no income, you may borrow to be able to buy food))
3. b = marginal propensity to consume (the % of extra income that is spent). Also known as induced consumption.

This suggests consumption is primarily determined by the level of disposable income (Yd). Higher Yd leads to higher consumer spending. Above formula suggests that as income rises, consumer spending will rise. However, spending will increase at a lower rate than income.

5.1.1 Marginal Propensity to Consume (MPC)

According to Keynes assumed that consumption doesn't increase at the same rate as income. When people get more money, they spend some and save the rest. The marginal propensity to consume is the portion of each additional dollar that a consumer spends. Lower-income people tend to spend a higher proportion of their additional income. People with higher incomes save a greater percentage. Marginal propensity to consume (MPC) measures the proportion of extra income that is spent on consumption.

For example, if an individual gains an extra ` 100, and spends ` 70, then the marginal propensity to consume will be 70 /100 = 0.70

$$\text{MPC} = \frac{\text{Change in consumption}}{\text{Change in income}}$$

At low incomes, people will spend a high proportion of their income. The average propensity to consume could be one or greater than one. This means people spend everything they have. When person have low income, he don't have the luxury of being able to save. He need to spend everything he have on essentials. However, as incomes rise, people can afford the luxury of saving a higher proportion of their income.

5.1.2 Types of MPC

MPC greater than 1:

When MPC is greater than one, it means that changes in income levels lead to proportionately larger changes in the consumption of a particular good. It can sometimes be correlated to goods with price elasticity of demand that is greater than 1, as demand for such goods would change by a disproportionately large factor when prices change. These goods are thought to be non-essential or "luxury goods," as demand for these goods is more volatile than demand for essential goods and services.

MPC equal to 1:

When MPC is equal to one, it means that changes in income levels lead to proportionate changes in the consumption of a particular good. It can sometimes be correlated to goods with price elasticity of demand that is equal to 1, as demand for such goods would change in a linear fashion when prices change. These goods are fairly rare to observe in real-life economies

MPC less than 1:

When MPC is less than one, it means that changes in income levels lead to proportionately smaller changes in the consumption of a particular good. It can sometimes be correlated to goods with price elasticity of demand that is less than 1, as demand for such goods would change by a disproportionately smaller factor when prices change. These goods are thought to be essential; as demand for these goods is less volatile than demand for non-essential goods and services.

5.1.3 Investment Function

Meaning of Capital and Investment:

In common language, investment means to buy shares, stocks, bonds and securities which already exist in stock market. But this is not real investment because it is simply a transfer of existing assets. Hence this is called financial investment which does not affect aggregate spending.

According to **Keynes** in real sense *"investment refers to real investment which adds to capital equipment."* It leads to increase in the levels of income and production by increasing the production and purchase of capital goods. Investment thus includes new plant and equipment, construction of public works like dams, roads, buildings, etc., net foreign investment, inventories and stocks and shares of new companies.

According to Joan Robinson, *"By investment is meant an addition to capital, such as occurs when a new house is built or a new factory is built. Investment means making an addition to the stock of goods in existence."*

5.1.4 Capital

Capital refers to real assets like factories, plants, equipment, and inventories of finished and semi-finished goods. It is any previously produced input that can be used in the production process to produce other goods. The amount of capital available in an economy is the stock of capital. Thus capital is a stock concept.

To be more precise, investment is the production or acquisition of real capital assets during any period of time**.**

To illustrate, suppose the capital assets of a firm on 31 March 2017 are ` 100 crores and it invests at the rate of ` 10 crores during the year 2017-18. At the end of the next year (31 March 2018), its total capital will be ` 110 crores. Symbolically, let I be investment and K be capital in year t, then

$I_t = K_t - K_t - 1.$

Capital and investment are related to each other through net investment. Gross investment is the total amount spent on new capital assets in a year. But some capital stock wears out every year and is used up for depreciation and obsolescence. Net investment is gross investment minus depreciation and obsolescence charges for replacement investment. This is the net addition to the existing capital stock of the economy.

5.1.5 Types of Investment

1. Induced Investment:

Induced investment is profit or income motivated. Factors like prices, wages and interest changes which affect profits influence induced investment. Similarly demand also influences it. When income increases, consumption demand also increases and to meet this, investment increases. In the ultimate analysis, induced investment is a function of income i.e., I = f(Y). It is income elastic. It increases or decreases with the rise or fall in income, as shown in Fig. 5.1.

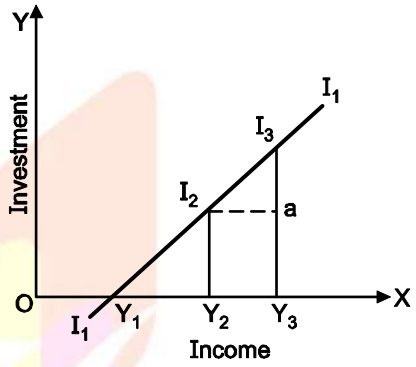


Fig. 5.1

I_1–I_1 is the investment curve which shows induced investment at various levels of income. Induced investment is zero at OY_1 income. When income rises to OY_3 induced investment is I_3Y_3A fall in income to OY_2 also reduces induced investment to I_2Y_2.

Induced investment may be further divided into:

(i) The average propensity to invest,

(ii) The marginal propensity to invest.

(i) The average propensity to invest is the ratio of investment to income, I/Y. If the income is ` 40 crores and investment is ` 4 crores, I/Y = 4/40 = 0.1. In terms of the above figure, the average propensity to invest at OY_3 income level is I_3Y_3/ OY_3.

(ii) The marginal propensity to invest is the ratio of change in investment to the change in income, i.e. ΔI/ΔY. If the change in investment, ΔI = ` 2 crores and the change in income, ΔY = ` 10 crores, then ΔI/ΔY = 2/10 = 0.2 In Figure 1, $\Delta I/\Delta Y = I_3a/Y_2Y_3$.

2. Autonomous Investment:

Autonomous investment is not dependent on the level of income and is thus income inelastic. It is influenced by exogenous factors like innovations, inventions, growth of population and labour force, researches, social and legal institutions, weather changes, war, revolution, etc. But it is not influenced by changes in demand. Rather, it influences the demand. Investment in economic and social overheads whether made by the government or the private enterprise is autonomous.

Such investment includes expenditure on building, dams, roads, canals, schools, hospitals, etc. Since investment on these projects is generally associated with public policy, autonomous investment is regarded as public investment. In the long-run, private investment of all types may

be autonomous because it is influenced by exogenous factors. Diagrammatically, autonomous investment is shown as a curve parallel to the horizontal axis as I_1I' curve in Fig. 5.2. It indicates that at all levels of income, the amount of investment OI_1 remains constant.

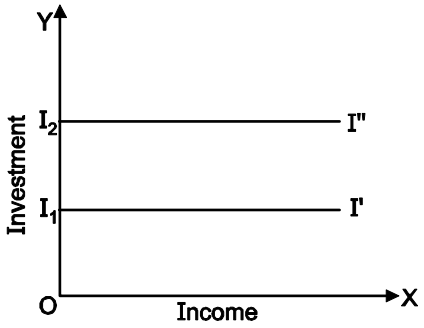


Fig. 5.2

The upward shift of the curve to I_2I'' indicates an increased steady flow of investment at a constant rate OI_2 at various levels of income.

5.1.6 Determinants of the Level of Investment

The decision to invest in a new capital asset depends on:

1. Whether the expected rate of return on the new investment is equal to or greater or less than the rate of interest to be paid on the funds needed to purchase this asset. It is only when the expected rate of return is higher than the interest rate that investment will be made in acquiring new capital assets.
2. The cost of the capital asset, the expected rate of return from it during its lifetime, and the market rate of interest. Keynes sums up these factors in his concept of the marginal efficiency of capital (MEC).

5.1.7 Marginal Efficiency of Capital (MEC)

The marginal efficiency of capital displays the expected rate of return on investment (cost of the capital), at a particular given time. The marginal efficiency of capital is compared to the rate of interest.

Keynes described the marginal efficiency of capital as:

"The marginal efficiency of capital is equal to that rate of discount (interest rate) which would make the present value of the series of annuities given by the returns expected from the capital asset during its life just equal to its supply price."

Symbolically, this can be expressed as:

$$SP = R_1/(1 + i)1 + R_2 (1+i)2 + R_n/(1+i)n$$

Where,

Sp = supply price or investment amount,

R_1 R2 … and R_n =The prospective yields or the series of expected annual returns from the capital asset in the years, 1, 2 … and n,

i = The rate of discount or rate of interest which makes the capital asset exactly equal to the present value of the expected yield from it.

This i is the MEC or the rate of discount or the expected rate of return which equates the two sides of the equation.

This theory suggests investment will be influenced by:

- The marginal efficiency of capital
- The interest rates

Generally, a lower interest rate makes investment relatively more attractive.

If interest rates were 3%, then firms would need an expected rate of return of at least 3% from their investment to justify the investment.

If the marginal efficiency of capital was lower than the interest rate, the firm would be better off not investing, but saving the money.

Why are interest rates important for determining the marginal efficiency of capital?

To finance investment, firms will either borrow or reduce savings. If interest rates are lower, it's cheaper to borrow, or their savings give a lower return making investment relatively more attractive.

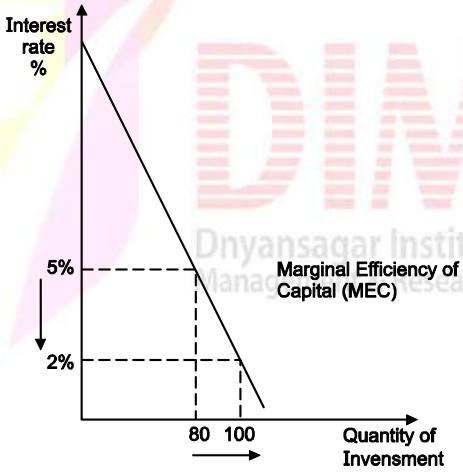


Fig. 5.3

The marginal efficiency of capital is the highest rate of return expected from an additional unit of a capital asset over its cost.

For example:

If the supply price of a new capital asset is ` 1,000 and its life is two years, it is expected to yield ` 550 in the first year and ` 605 in the second year. Its MEC is 10 per cent which equates the supply price to the expected yields of this capital asset.

Thus

$$(Sp)\ ` 1000 = 550/(1.10) + (605)/(1.10)2 = ` 500 + 500$$

Suppose we expect to receive ` 100 from a machine in a year's time and the rate of interest is 5 per cent. The present value of this machine is

$$R_1/ (1+ i) = 100/(1.05) = ` 95.24$$

Other example:

If we expect ` 100 from the machine after two years then its present value is 100/ (1.05)2 = ` 90.70. The present value of a capital asset is inversely related to the rate of interest. The lower the rate of discount, the higher is the present value, and vice versa. For instance, if the rate of discount is 5 per cent, PV of an asset of ` 100 for one year will be ` 95.24; at 7 per cent discount rate, it will be ` 93.45; and at 10 per cent discount rate, it will be ` 90.91.

5.1.8 The Marginal Efficiency of Investment (MEI)

The marginal efficiency of investment is the rate of return expected from a given investment on a capital asset after covering all its costs, except the rate of interest. Like the MEC, it is the rate which equates the supply price of a capital asset to its prospective yield. The investment on an asset will be made depending upon the interest rate involved in getting funds from the market. If the rate of interest is high, investment is at a low level.

A low rate of interest leads to an increase in investment. Thus the MEI relates the investment to the rate of interest. The MEI schedule shows the amount of investment demanded at various rates of interest. That is why, it is also called the investment demand schedule or curve which has a negative slope,

To what extent the fall in the interest rate will increase investment depends upon the elasticity of the investment demand curve or the MEI curve. The less elastic is the MEI curve, the lower is the increase in investment as a result of fall in the rate of interest, and vice versa. Following Fig. 5.4 shows the relationship between the interest rate, MEI and amount of investment :

In Fig. 5.4 the vertical axis measures the interest rate and the MEI and the horizontal axis measures the amount of investment. The MEI and MEI' are the investment demand curves. The MEI curve in Panel (A) is less elastic to investment which increases by I'I''. This is less than the increase in investment I_1 I"$_2$ shown in Panel (B) where the MEI' curve is elastic. Thus given the shape and position of the MEI curve, a fall in the interest rate will increase the volume of investment.

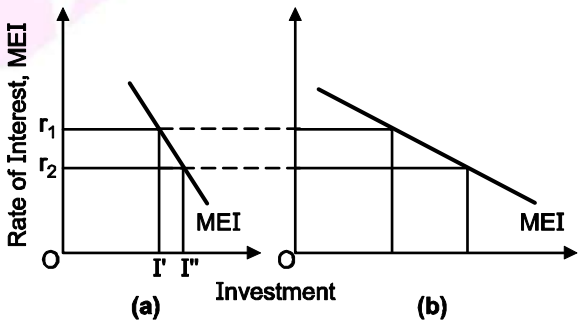


Fig. 5.4

The vertical axis measures the interest rate and the MEI and the horizontal axis meas-ures the amount of investment.

On the other hand, given the rate of interest, the higher the MEI, the larger shall be the volume of investment. The higher marginal efficiency of investment implies that the MEI curve shifts to the right. When the existing capital assets wear out, they are replaced by new ones and level of investment increases.

But the amount of induced investment depends on the existing level of total purchasing. So more induced investment occurs when the total purchasing is higher. The higher total purchasing tends to shift the MEI to the right indicating that more inducement to investment takes place at a given level of interest rate.

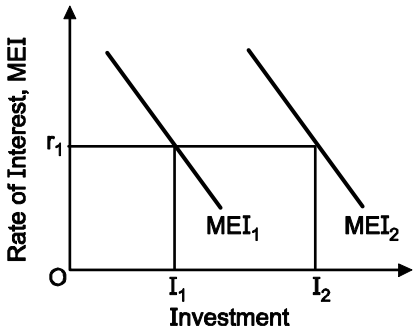


Fig. 5.5

In Fig. 5.5, where MEI_1 and MEI_2 curves indicate two different levels of total purchasing in the economy. Let us suppose that the MEI, curve indicates that at ` 200 crores of total purchasing, $OI_1$ (` 20 crores) investment occurs at Or_2 interest rate. If total purchasing rises to ` 500 crores, the $MEI_1$ curve shifts to the right as $MEI_2$ and the level of induced investment increases to $OI_2$ (` 50 crores) at the same interest rate Or_1.

5.1.9 Difference between MEC and MEI

Keynes did not distinguish between the marginal efficiency of capital (MEC) and the marginal efficiency of investment (MEI).

But modern economists have made clear distinctions between the two concepts as follows:

(i) The MEC is based on a given supply price for capital, and the MEI on induced changes in this price.

(ii) The MEC shows the rate of return on all successive units of capital without regard to the existing stock of capital. On the other hand, the MEI shows the rate of return on only units of capital over and above the existing stock of capital.

(iii) The MEC is a 'stock' concept, and the MEI is a 'flow' concept.

(iv) The MEC determines the optimum capital stock in an economy at each level of interest rate. The MEI determines the net investment of the economy at each interest rate, given the capital stock.

5.2 Multiplier

In economics, a multiplier broadly refers to an economic factor that, when increased or changed, causes increases or changes in many other related economic variables. In terms of gross domestic product, the multiplier effect causes gains in total output to be greater than the change in spending that caused it.

For example, suppose variable X changes by 1 unit, which causes another variable Y to change by M units. Then the **multiplier is M**.

The term multiplier is usually used in reference to the relationship between government spending and total national income. Multipliers are also used in explaining fractional reserve banking, known as the deposit multiplier. Many different multipliers exist in finance and economics.

1. **The Fiscal Multiplier:** The fiscal multiplier is the ratio of a country's additional national income to the initial boost in spending or reduction in taxes that led to that extra income.

For example, National government endorses ` 1 crore fiscal stimulus and that its consumers' marginal propensity to consume (MPC) is 0.75. Consumers who receive the initial ` 1 crore will save ` 250 crore and spend ` 750 crore, effectively initiating another, smaller round of stimulus. The recipients of that ` 750 crore will spend ` 562.5 crore, and so on.

2. **The Investment Multiplier:** An investment multiplier similarly refers to the concept that any increase in public or private investment has a more than proportionate positive impact on aggregate income and the general economy. The multiplier attempts to quantify the additional effects of a policy beyond those immediately measurable. The larger an investment's multiplier, the more efficient it is at creating and distributing wealth throughout an economy.
3. **The Earnings Multiplier:** The earnings multiplier frames a company's current stock price in terms of the company's earnings per share (EPS) of stock. It presents the stock's market value as a function of the company's earnings and is computed as (price per share/earnings per share).

   This is also known as the price-to-earnings (P/E) ratio. It can be used as a simplified valuation tool for comparing relative costliness of the stocks of similar companies, and for judging current stock prices against their historical prices on an earnings relative basis.
4. **The Equity Multiplier:** The equity multiplier is a commonly used financial ratio calculated by the following formula:

$$\frac{\text{Company's total asset value}}{\text{Total net equity}}$$

   It is a measure of financial leverage. Companies finance their operations with equity or debt, so a higher equity multiplier indicates that a larger portion of asset financing is attributed to debt. The equity multiplier is thus a variation of the debt ratio, in which the definition of debt financing includes all liabilities.
5. **Money Multiplier:** Keynes believed that any injection of government spending created a proportional increase in overall income for the population, since the extra spending would carry through the economy. In his 1936 book, "The General Theory of Employment, Interest, and Money," Keynes wrote the following equation to describe the relationship between income (Y), consumption (C) and investment (I):

$$\mathbf{Y = C + I}$$

   The equation states that for any level of income, people spend a fraction and save/invest the remainder. He further defined the marginal propensity to save and the marginal propensity to consume (MPC), using these theories to determine the amount of a given income that is invested**.** Keynes also showed that any amount used for investment would be reinvested many times over by different members of society.

5.3 Accelerator

One of the major factors contributing to business cycle is the instability of investment. When the economy is doing well, firms will invest to provide the extra capacity they need for increased production. However, when growth starts to slip, firms will tend to stop investing, in fact investment may become negative. Why invest if there is no need for extra capacity and you cannot even sell what you are currently making! The changes in investment during the different phases of the trade cycle may therefore be several times that of the rise or fall in income.

So we can see that investment depends not so much on the level of income and consumer demand, but on their rate of change. Firms are investing to provide production capacity and so they will invest according to how much demand is growing, not according to the actual level of demand. **This link between investment and the rate of change of demand is called the accelerator theory.** The accelerator shows the effect of a change in consumption on investment.

The principle of acceleration states that if demand for consumption goods rises, there will be an increase in the demand for factor of production, say machine, which goes to produce the goods.

In other words, the accelerator measures the changes in investment goods industries as a result of changes in consumption goods industries, the accelerator is not a functional relationship between the demand for consumption goods and the demand for the machines which make them. The acceleration coefficient is the ratio between the induced investments to a net change in consumption expenditures. Symbolically

$$\mathbf{a = \Delta I/\Delta C}$$

Where, a = acceleration coefficient

ΔI = Net changes in investment outlays

ΔC = Net change in consumption outlays.

Suppose an expenditure of ` 10 crore on consumption goods leads to an investment of ` 20 crore in investment industries, then the accelerator is 2.

The accelerator principle states that changes in the level of current income, leading to changes in output of consumer goods, will lead to proportionately greater or accelerated changes, in the output of capital goods, i.e. investment.

Working of the Accelerator

Suppose we are living in the world where only one commodity is produced i.e. cloth, and for producing cloth worth ` 100, we required one machine of ` 300, which means the accelerator is 3. So if demand or consumption increases by ` 100 the investment will increase by ` 300. If existing level of demand of cloth is ` 500 then the investment will be required ` 1500. At the end of the year if one machine becomes useless as result of wear and tear, so that at the end of year, a gross investment of ` 300 must take place to replace the old machinery.

In following table, the demand rises to ` 800 in third period. To produce output worth ` 800 we need 8 machineries. But in stock we have only 5 machineries so 3 more machinery we need to purchase of ` 900 and at the end of the year 1 machinery is useless so replacement cost will be ` 300, so the total expenditure for third period will be 900 + 300 = ` 1200.

Table 5.1: Working of Accelerator

Demand for cloth In `	Needed stock of machinery	Replacement expenditure	Net Investment	Gross investment `
Period 1, 500	5 machinery = ` 1500	1 machine = ` 300	0 machine	300
Period 2, 500	5 machinery = ` 1500	1 machine = ` 300	0 machine	300
Period 3, 800	8 machinery = ` 2400	1 machine = ` 300	3 machines = 900	1200
Period 4, 1000	10 machinery =	1 machine =	2 machines =	900

	` 3000	` 300	` 600	
Period 5, 1000	10 machinery = ` 3000	1 machine = ` 300	0 machines	300
Period 6, 800	8 machinery = ` 2400	1 machine = ` 300	– 2 machines = ` – 600	– 300

In fourth period demand rises to 1000 ` (25%). from 800 ` but gross investment is only 900 ` which is less than 25% from the third period, even in fifth period the demand remain same but the investment fall down by ` 600.

It is interesting to analyze the working of the Principle of Acceleration.

Accelerator depends primarily upon two factors:

(i) The capital-output ratio, ($\Delta I/\Delta C$).

(ii) The durability of the capital equipment.

The dependence of acceleration value is on the durability of the machinery. If replacement period of machinery is longer, the value of accelerator will vary.

Importance of the accelerator:

The accelerator principle indicates how changes in the level of current income will have an accelerated impact on the level of investment and is therefore one explanation of economic instability and the upward and downward swings of the trade cycle.

Accelerator principle - some qualifications

- The upward leverage effect of the accelerator only takes effect if industry is operating at or near full employment. If industry has excess capacity it can meet a larger demand by increasing output of underutilized equipment.
- Additional machines will only be ordered when the increased demand is believed to be permanent. Otherwise firms will deal with additional orders by running down stocks or operating waiting lists.
- There may be an increase in demand for investment goods, but if the capital goods industries are fully employed, there may be an increase in the prices of capital goods and there could actually be a fall in demand for capital with more capital saving techniques being adopted. Here the accelerator will be reduced.

Weaknesses of accelerator theory:

The accelerator assumes a fixed relationship between a change in consumption and a change in investment - the bullet points above show that this is not necessarily the case. The accelerator principle also ignores the time lags which would probably occur in reality between a change in consumption and the implementation of any investment decisions.

5.4 Business Cycle

Business cycles are fluctuations in economic activity that an economy experiences over a period of time. The business cycle is a useful tool for analyzing the economy. It can also help you make better financial decisions. These fluctuations of business cycle can be understood by the stage of business cycle.

- According to **Keynes** - *"A trade cycle is composed of periods of good trade characterized by rising prices and low unemployment percentage, altering with periods of bad trade characterized by falling prices and high unemployment percentages."*

- According to **Gordon** - *"Business cycles consist of recurring alternation of expansion and contraction in aggregate economic activity, the alternating movements in each direction being self-reinforcing and pervading virtually, all parts of the economy."*

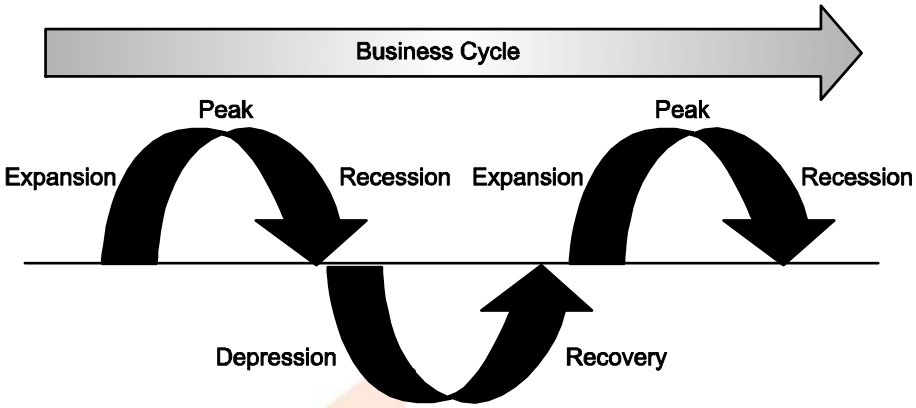


Fig. 5.6

1. Expansion (prosperity):

The first stage in the business cycle is expansion. In this stage, there is an increase in positive economic indicators such as employment, income, output, wages, profits, demand, and supply of goods and services. Debtors are generally paying their debts on time, the money supply is high, and investment is high. This process continues until economic conditions become favourable for expansion. Expansion is the good signal for the business and its gives the opportunity to the business to grow.

2. Peak:

The economy then reaches a saturation point, or peak, which is the second stage of the business cycle. The maximum limit of growth is attained. The economic indicators do not grow further and are at their highest. Prices are at their peak. This stage is the beginning of the reversal in the trend of economic growth. Consumers tend to restructure their budget at this point.

3. Recession:

The next stage of peak is the recession. In this phase the demand for goods and services starts declining. Producers do not notice the decrease in demand instantly and go on producing, which creates a situation of excess supply in the market. Because of more supply and less demand prices tend to fall. All positive economic indicators such as income, output, wages, etc. consequently start to fall.

4. Depression (contraction):

In this stage there is rise in unemployment. The growth in the economy continues to decline, and as this falls below the steady growth line, the stage is called depression. When economy is in depression it's a bad signal for the business.

5. Trough:

In the depression stage, the economy's growth rate becomes negative. In the trough there is further decline until the prices of factors, as well as the demand and supply of goods and services, reach their lowest. The economy eventually reaches the trough. This is the lowest it can go. It is

the negative saturation point for an economy. This is the weaken point of national income and expenditure.

6. Recovery:

After this stage, the economy comes to the stage of recovery. In this phase, there is a turnaround from the trough and the economy starts recovering from the negative growth rate. Demand starts to pick up, supply starts reacting too. The economy develops a positive attitude towards investment and employment and hence, production starts increasing.

Employment also begins to rise and due to the accumulated cash balances with the bankers, lending also shows positive signals. In this phase, depreciated capital is replaced by producers, leading to new investment in the production process.

Recovery continues until the economy returns to steady growth levels. It completes one full business cycle of boom and contraction. The extreme points are the peak and the trough.

Every economy passes through all the stages of trade cycle but the duration of each cycle is not fixed.

5.4.1 Features of Business Cycle

If we study the stages if business cycles, some common characteristics are seen in all stages. These are the features of business cycle.

1. Occur Periodically:

In business cycle all stages or phases occur from time to time. However they do not occur in for specific times, their time periods will vary according to the industries and the economic conditions. Their duration may vary from anywhere between two to ten or even twelve years. Even the intensity of the stages will be different. For example, the firm may see tremendous growth followed by a shallow short-lived depression phase.

2. Synchronic in nature:

Another feature of business cycles is that stages are synchronic. Business cycles are not limited to one firm or one industry. They originate in the free economy. A disturbance in one industry quickly spreads to all the other industries and finally affects the economy as a whole. For example, a recession in the steel industry will set off a chain reaction until there is a recession in the entire economy.

3. All Sectors are Affected:

The effect of business cycle is faced by all the sectors of economy. Some industries like the capital goods industry, consumer goods industry may be disproportionately affected. So the investment and the consumption of capital goods and durable consumer goods face the maximum impact of the cyclic fluctuations. Non-durable goods do not face such problems generally.

4. Complex Phenomenon:

Business cycles are a very complex and dynamic phenomenon. They do not have any uniformity. There are no set causes for business cycles as well. So it is nearly impossible to predict or prepare for these business cycles. Because every economy has its own structure of industry and growth and all stages of business cycle depends on that only.

5. Affect all Departments:

Trade cycles are not only limited to the output of goods and services. It has an effect on all other variables as well such as employment, the rate of interest, price levels, investment activity etc.

6. International in Character:

Trade cycles are transmittable. They do not limit themselves to one country or one economy. Once they start in one country they will spread to other countries and economies via trade relations and international trade practices.

7. Profit is highly variable:

In business cycle profit is highly variable and pro- cyclical. Usually profit is rise in boom and decline in recession. In comparison of wages or any other income profit is more variable.

5.4.2 Theories of Business Cycle

Several theories of business cycle have been put forward from time to time. Some well-known theories are taken here.

1. Hawtrey's Monetary Theory:

According to Prof. R. G. Hawtrey, "The trade cycle is a purely monetary phenomenon." According to him variation in the flow of money is the sole and sufficient reason of business activity and fluctuation in the economy. He said that business cycle is changes in the flow of monetary demand on the part of businessmen that lead to prosperity and depression in the economy. He opines that non-monetary factors like strikes, floods, earthquakes, droughts, wars, etc. may at best cause a partial depression, but not a general depression.

According to this theory, cyclical fluctuations are caused by expansion and contraction of bank credit which, in turn, lead to variations in the flow of monetary demand on the part of producers and traders. Bank credit is the principal means of payment in that times.

Credit is expanded or reduced by the banking system by lowering or raising the rate of interest or by purchasing or selling securities to merchants. This increases or decreases the flow of money in the economy and thus brings about prosperity or depression.

The expansion phase or stage of the trade cycle starts when banks increase credit facilities. Banks increase the credit facility by providing the loan on reduced rate of interest and by purchasing securities. These encourage borrowings on the part of merchants and producers. This is because they are very sensitive to changes in the rate of interest.

According to Hawtrey, prosperity cannot continue limitlessly. It comes to an end when banks stop credit expansion. Banks refuse to lend further because their cash funds are depleted and the money in circulation is absorbed in the form of cash holdings by consumers

Criticisms :

Some of the points of criticism are discussed below:

(1) Credit cannot be the only Cause of Cycle.

(2) Money Supply cannot continue a Boom or Delay a Depression.

(3) Traders do not depend Only on Bank Credit.

(4) Traders do not react that much to changes in Interest Rates.

(5) Factors other than Interest Rate are more important.

(7) This theory does not explain Periodicity of Cycle.

(8) This theory ignores Non-Monetary Factors.

2. Hayek's Monetary Over-Investment Theory:

This theory was given by F. A. Hayek; he explained his theory on the basis of distinction between the natural interest rate and the market interest rate. The natural rate of interest is that rate at which the demand for loanable funds equals the supply of voluntary savings.

On the other hand, the market rate of interest is the money rate which prevails in the market and is determined by the demand and supply of money. According to Hayek, so long as the natural rate of interest equals the market rate of interest, the economy remains in the state of equilibrium and full employment.

Trade cycles in the economy are caused by disparity between market and natural interest rates. When the market interest rate is less than the natural rate, there is prosperity in the economy. On the contrary, when the market interest rate is more than the natural rate, the economy is in depression.

According to this theory, prosperity begins when the market rate of interest is less than the natural rate of interest. In such a situation, the demand for investment funds is more than the supply of available savings. The demand for investment funds is met by the increase in the supply of money. As a result, the interest rate falls. Low interest rate induces producers to get more loans from banks. The producers get more loans to invest for the production of more capital goods.

According to Hayek, when the prices of factors are rising continuously, the rise in production costs bring fall in profits of producers. The producers of capital goods invest less in the expectation of loss in the future. Consequently, the natural interest rate falls. Simultaneously, banks impose restrictions on giving loans to them. With low profits and reduction in loans, producers reduce the production of capital goods and adopt labour-intensive production processes.

According to this theory, when the fall in prices comes to an end during depression, banks begin to raise the supply of money which reduces the market interest rate below the natural interest rate. This encourages investment and the process of revival begins in the economy.

Criticisms:

Following criticism are found in this theory:

(1) This theory takes the Narrow Assumption of Full Employment.

(2) Theory believes in unrealistic assumption of Equilibrium.

(3) Interest Rate cannot be the only Determinant for business cycle.

(4) Theory has given the undue importance to Forced Savings.

(5) Incomplete Theory: it does not explain all stages of business cycle.

3. Schumpeter's Innovations Theory:

The innovations theory of trade cycles is given by Joseph Schumpeter. According to Schumpeter, innovations in the structure of an economy are the source of economic fluctuations. Trade cycles are the outcome of economic development in a capitalist society.

According to this theory there are two stages: The first stage deals with the initial impact of innovation and the second stage follows through reactions to the original impact of innovation.

The first approximation starts with the economic system in equilibrium with every factor fully employed. Every firm is in equilibrium and producing efficiently with its costs equal to its receipts. Product prices are equal to both average and marginal costs. Profits and interest rates are zero.

There are no savings and investments. This equilibrium is characterized by Schumpeter as the "circular flow" which continues to repeat itself in the same manner year after year, similar to the

circulation of the blood in an animal organism. In the circular flow, the same products are produced every year in the same manner.

By innovation Schumpeter means "such changes in the production of goods as cannot be affected by infiniteismal steps or variations on the margin."

An innovation may consist of:

(1) The introduction of a new product.
(2) The introduction of a new method of production.
(3) The opening up of a new market.
(4) The conquest of a new source of raw materials or semi-manufactured goods.
(5) The carrying out of the new organizations of an industry.
(6) Innovations are not inventions.

Criticisms:

(1) Innovator later on associates with company and not necessary to be there as innovator.
(2) Innovations in not Only Cause of Cycles.
(3) Bank Credit is not the Only Source of Funds.
(4) Innovation financed through voluntary Savings does not produce a Cycle.
(5) Full Employment Assumption is unrealistic.

4. Keynes's Theory:

Keynes regards the trade cycle as mainly due to "a cyclical change in the marginal efficiency of capital, and other significant short-period variables of the economic system."

According to Keynes, the principal cause of depression and unemployment is the lack of aggregate demand. And recovery is brought by raising aggregate demand due to increasing consumption and/or investment. Since consumption is stable during the short-run, revival is possible by increasing investment. Similarly, the main cause of the downturn is reduction in investment

Thus in the Keynesian explanation of the trade cycle, "the cycle consists primarily of fluctuations in the rate of investment. And fluctuations in the rate of investment are caused mainly by fluctuations in the marginal efficiency of capital."

To explain the course of the Keynesian cycle, we start with the expansion phase. During the expansion phase, the MEC is high. Businessmen are optimistic. There is rapid increase in the rate of investment. Consequently, output, employment and income increase. Every increase in investment leads to a multiple increase in income via the multiplier effect. This cumulative process of rising investment, income and employment continues till the boom is reached. As the boom progresses, there is a tendency for the MEC to fall due to two reasons. First, as more capital goods are being produced steadily, the current yield on them declines. Second, at the same time the current costs of new capital goods rise due to shortages and bottlenecks of materials and labour. Principal cause of cyclical fluctuations.

During the downturn, investment falls due to a fall in the MEC and rise in the rate of interest. This leads to a cumulative decline in employment and income via the reverse operation of the multiplier. Further, the fall in the MEC may shift the consumption function downward thereby hastening the depression. Keynes attaches more importance to the sudden collapse of the MEC than to a rise in the rate of interest as an explanation of the downturn of the cycle leading to the crisis and the depression.

Criticisms:

(1) Overemphasis is given on the Role of Expectations.

(2) This theory seems as Psychological Theory.

(3) Explanation of is Crisis is not appropriate.

(4) Incomplete Theory.

(5) Not based on observed Data.

5. Friedman's Theory

Friedman and Schwartz have given this theory on the basis of US historical data. They said that business cycles are mostly monetary in origin. It is the money stock itself that shows a consistent cyclical behaviour which is closely related to the cyclical movements in economic activity at large.

About the causal relation between the money stock and economic activity, they make the following generalizations:

(i) Changes in economic activity have always been accompanied by changes in the money stock.

(ii) There have not been major changes in the money stock that have not been accompanied by changes in economic activity.

(iii) Changes in the stock of money have been attributed to a specific variety of external factors rather than to changes in economic activity.

Thus changes in the money stock are a consequence as well as independent cause of changes in economic activity. There is also much evidence that during business cycles the money stock plays largely an independent role.

Time and Economic Activity:

Friedman and Schwartz point toward two propositions: First, appreciable changes in the growth rate of the money stock are necessary and sufficient conditions for appreciable changes in growth rate of economic activity or money income. Second, this is true both for long secular changes and also for changes over periods roughly the length of business cycles.

Criticisms:

Economists have criticized Friedman's theory of money and business cycles on the following grounds:

(1) Monetary Changes is not the Only Cause of Changes in Economic Activity.

(2) Monetary Changes is not the Main Cause of Business Cycles.

(3) Time Lag of Peaks and Troughs is not Long and Variable.

6. Hicks's Theory:

J. R. Hicks in his book *'A Contribution to the Theory of the Trade Cycle'* builds his theory of business cycle around the principle of the multiplier-accelerator interaction. According to him, "the theory of the acceleration and the theory of the multiplier are the two sides of the theory of fluctuations." Unlike Samuelson's model, it is concerned with the problem of growth and of a moving equilibrium.

Characteristics of the Theory:

The characteristics of Hicks's theory of trade cycle are:

- Reasonable rate of growth,

- Consumption function,
- Autonomous investment,
- An induced investment function,
- Multiplier-accelerator relation.

The reasonable rate of growth is the rate which will sustain itself. It is consistent with saving-investment equilibrium. The economy is said to be growing at the reasonable rate when real investment and real saving are taking place at the same rate. According to Hicks, it is the multiplier-accelerator interaction which weaves the path of economic fluctuations around the reasonable growth rate.

The consumption function takes the form Ct = aYt – 1.

Consumption in period t is regarded as a function of income (Y) of the previous period (f-1). Thus consumption lags behind income, and the multiplier is treated as a lagged relation. The autonomous investment is independent of changes in the level of output. Hence it is not related to the growth of the economy. The induced investment, on the other hand, is dependent on changes in the level of output. Hence it is a function of the growth rate of the economy. In the Hicksian theory, the accelerator is based on induced investment which along with the multiplier brings about an upturn.

The accelerator is defined by Hicks as the ratio of induced investment to the increase in income. Given constant values of the multiplier and the accelerator, it is the 'leverage effect' that is responsible for economic fluctuations.

Criticisms:

The Hicksian theory of the business cycle has been criticized on the following basis :

1. Value of Multiplier is not constant.
2. Value of Accelerator is not constant.
3. Autonomous Investment is not continuous.
4. Growth is not dependent only on changes in Autonomous Investment.
6. Ceiling fails to explain adequately the onset of Depression.

Conclusion:

Despite these apparent weaknesses of the Hicksian model, it is superior to all the earlier theories in satisfactorily explaining the turning points of the business cycle. To conclude with Dernburg and McDougall, "The Hicks's model serves as a useful framework of analysis which, with modification, yields a fairly good picture of cyclical fluctuation within a framework of growth.

It serves especially to emphasize that in a capitalist economy characterized by substantial amounts of durable equipment, a period of contraction inevitably follows expansion. Hicks's model also pinpoints the fact that in the absence of technical progress and other powerful growth factors, the economy will tend to languish in depression for long periods of time." The model is at best suggestive.

5.4.3 Measures to Control Business Cycles

There are various measures which put into practice from time to time to control fluctuations in an economy. Main aim of the controlling measure is stabilizing economic activity so as to avoid the ill-effects of a boom and a depression. The following three measures are adopted for this purpose.

1. Monetary Policy:

Monetary policy is a very strong tool for controlling the economic fluctuations. Monetary policy is operated by the central bank of a country. Monetary policy has two types of tools quantitative tool and qualitative tool to control money supply (credit) in the economy. To control the money supply during a boom, central bank raises the bank rate, sells securities in the open market, raises the reserve ratio (SLR, CRR), and adopts a number of selective credit control measures such as raising margin requirements and regulating consumer credit.

Thus the central bank adopts a dear money policy. Borrowings by business and trade become dearer, difficult and selective. Efforts are made to control excess money supply in the economy.

To control a recession or depression, the central bank follows an easy or cheap monetary policy by increasing the reserves of commercial banks. It reduces the bank rate and interest rates of banks. It buys securities in the open market. It lowers margin requirements on loans and encourages banks to lend more to consumers, businessmen, traders, etc. By this way central bank increases the money supply in the economy.

Limitations of Monetary Policy:

But monetary policy is not so effective as to control a boom and a depression. If the boom is due to cost- push factors, it may not be effective in controlling inflation, aggregate demand, output, income and employment. So far as depression is concerned, the experience of the Great Depression of 1930s tells us that when there is negativity among businessmen, the success of monetary policy is practically nil.

2. Fiscal Policy:

Fiscal policy is the use of government revenue collection (mainly taxes) and expenditure (spending) to influence the economy. Monetary policy alone is not capable of controlling business cycles. Therefore It should be supplemented by compensatory fiscal policy. Fiscal measures are highly effective for controlling excessive government expenditure, personal consumption expenditure, and private and public investment during a boom. On the other hand, they help in increasing government expenditure, personal consumption expenditure and private and public investment during a depression.

There are the following measures which government can adopt via fiscal policy during the cyclic fluctuations:

1. Alternative in tax rates.
2. Changes in the government expenditure.
3. Announcement of government policy to influence investment decisions of public.
4. An appropriate international policy.

Fiscal policy during Boom:

In fiscal policy following measures are adopted during a boom. The government tries to reduce unnecessary expenditure on non-development activities in order to reduce its demand for goods and services. This also puts a check on private expenditure which is dependent on the government demand for goods and services. But it is difficult to cut government expenditure. Moreover, it is

not possible to distinguish between essential and non-essential government expenditure. Therefore, this measure is supplemented by taxation.

To cut personal expenditure, the government raises the rates of personal, corporate and commodity taxes. The government also follows the policy of having a surplus budget when the government revenues exceed expenditures. This is done by increasing the tax rates or reduction in government expenditure or both. This tends to reduce income and aggregate demand.

Fiscal Policy during Depression:

During a depression, the government increases public expenditure, reduces taxes and adopts a budget deficit policy. These measures tend to raise aggregate demand, output, income, employment and prices. An increase in public expenditure increases the aggregate demand for goods and services and leads to increase in income. The public expenditure is made on such public works as roads, canals, dams, parks, schools, hospitals and other construction works.

They create demand for labour and the products of private construction industries and helps in reviving them. The government also increases its expenditure on such relief measures as unemployment insurance, and other social security measures in order to stimulate the demand for consumer goods industries. Borrowing by the government to finance budget deficits utilizes idle money lying with the banks and financial institutions for investment purposes.

3. International Measures:

The business cycles are of international in nature. Whenever a business cycle appears in a country, due to its trade relations with other countries, these usually spread to other countries. Therefore it is necessary to take measures on international level to control trade cycles. For example if there is depression in USA or Japan, the economy of India and other countries is bound to suffer due to heavy economic reliance on these two countries. In these circumstances all the countries should take corrective measures for the revival of the big economies. This may be done by increasing imports from these countries. Other measure may include reconsidering the rules and regulation of trade and making them favourable with these countries.

4. Economic Reforms:

The developing economies usually face the situation of recession. One major cause of such a recessionary situation is backward structure of the economy. In this situation government should take bold steps to introduce reforms in the economy. These reforms may include

- Changes in the taxation system.
- Agriculture reforms.
- Policies favourable for industrial growth.
- Removal of Administrative inefficiencies, etc.

5. Planning

Market forces of demand and supply have failed to best allocate the scarce resources. Due to the wastage of already scare resources the business fluctuations have become the order of the day. In this situation it is desirable for the government to interfere in economic decision making. Appropriate planning may help a country to get out of depression or main the situation of prosperity.

6. Investment Friendly Environments

When a country becomes politically unstable, it becomes very difficult for it to maintain prosperity. In this type of situation investors stop new investment due to uncertainty. The journey towards recession sets in fast. In this situation it is very important to build up their confidence and

make investment friendly environment in the country. This will help to stop recession and achieve prosperity. Thus political stability is an important factor of economic stability.

7. Direct Controls:

This method is to ensure proper allocation of resources for the purpose of price stability. They are in the form of rationing, price and wage controls, export duties, exchange control, monopoly control etc. They are more effective in overcoming shortages arising from inflationary pressures.

Their point of success mainly depends upon the existence of an efficient and honest administration. They are mostly used in emergencies like war, crop failures and in hyperinflation. In the end it can be said that there is no single method which can control cyclical fluctuations. Therefore, it can be suggested that all methods be used simultaneously

Conclusions:

Of the various instruments of stabilizations policy, no single method is sufficient to control cyclical fluctuations. Therefore, all methods should be used simultaneously. This is because monetary policy is easy to apply but less effective while fiscal measures and direct controls are difficult to operate but are more effective.

Since cyclical fluctuations are inherent in the capitalist system, they cannot be eliminated completely. Some fluctuations may be beneficial for economic growth and others may be undesirable. Stabilization policy should, therefore, control undesirable fluctuations.