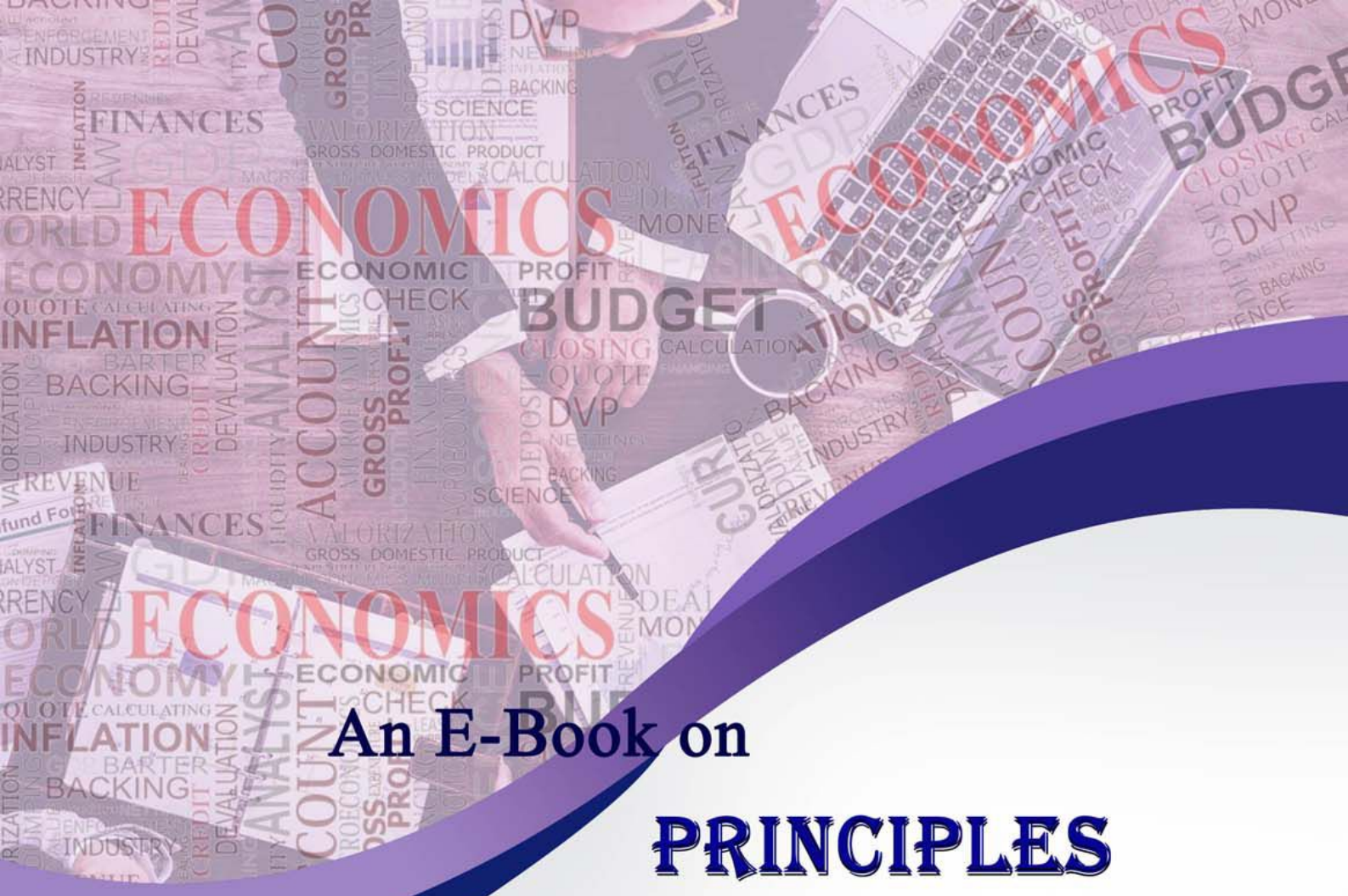

An E-Book on

PRINCIPLES OF BUSINESS DECISIONS

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B Com II Semester, MG University

AN E-BOOK OF
PRINCIPLES OF BUSINESS DECISIONS

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An E-Book of Principles of Business Decisions

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PREFACE

Economics is an interesting branch of knowledge which starts from the economic activities of households and extends to global economic movements. It is one of the oldest branches of knowledge. Internal and external environment of business can be better understood and managed with the help of economic theorems. These theorems are used by the business in the analysis of production, management of cost, pricing of products, estimation of demand, etc. In short it helps in decision making in business.

This text book on 'Principles of Business Decisions' does not cover the actual observations or experiences. It is a text book as per the BCom IInd Semester syllabus of MG University, Kottayam. A syllabus oriented book has got its own limitations. Many printed and e-resources are used to get inference on the topics covered. It fulfils the minimum requirements for appearing the University examination with confidence.

It is an effort of almost five years of handling the topic for UG courses. The E-Book intended for free circulation, though priced. The print version, if required cannot be given without covering the cost of book and distribution.

Hope this book will cater your examination requirement in an easy manner.

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01/01/2022.

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Module IV

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Module I

Decision Making and Economic Theories

Economics

The etymology of the word 'economics' can be traced back to the Greek word οἰκονόμος'[1] (oikonomos - ഒകോനോമോസ്). Oikonomos means 'household management'.

House/family is the basic unit, where we learn the optimum utilization of scarce resources. Every economy is a group of families, and the society as a whole also tries to optimize the use of its scarce resources. Optimum utilization of scarce resources is necessary, because human wants are unlimited and the means to satisfy those wants are limited. Moreover the same resource can also be used for satisfying another want. Due to scarcity, one has to decide, which need is to be satisfied with the available resource. In short, scarce resources have alternative uses.

[1] οἶκος (oíkos ഒക്കോസ്) means house and νόμος' (nomos നോമോസ്) means law.

The same 'law' is applicable in business also. Business has to take decisions always for the best use of scarce resources. Thus economic principles are used by the business men for decision making. Thus economics is about making choices. It is not just about money.

Definition

"Economics is the branch of knowledge concerned with the production, consumption, and transfer of wealth."

"Economics is the science which studies human behavior as a relationship between given ends and scarce means which have alternative uses." Prof. Lionel Charles Robbins[2]

Robbins definition focus on three major prepositions, Ends (Unlimited Wants), Means (Scarce Resource), and Alternative Uses.

1. **Ends** (Unlimited Wants): Human beings have unlimited wants. Satisfaction of all wants is impossible. So he struggles to produce more goods for the whole life.

2. **Means** (Scarcity of Resources): Economic resources are limited or scarce. These resources are also called inputs. Unlimited ends and the

[2] 'An Essay on the Nature and Significance of Economic Science' by Robbins (1898 – 1984) (Professor of economics at New College, Oxford.

scarcity of resources is the root of all economic problems.

Economic problems will not arise with resources which are unlimited (eg. air, sea, water etc.). Hence they are called non-economic resources. They are unlimited in supply and are fee.

3. **Alternative Uses**: The scarce resources have alternative uses. For example if a piece of land can be used for producing rubber, pepper, etc. It can also be used for the construction of a commercial/house building. Therefore, one has to choose the best way of utilizing the scarce resources which have alternative uses.

Definition of decision and decision making

Decision: Decision means a conclusion or resolution reached after thinking about several possibilities. It is a choice made between alternative courses of action under uncertainty.

Decision making

Decision making is a process of selecting the best among the different alternatives. It is the act of making a choice. It is often carried out to maximize the reward or utility. It includes identifying a decision making situation, gathering information, assessing alternative resolutions and choosing the best alternative.

Microeconomics: Micro (small) economics is all about how individuals make decisions. It defines how supply and demand determine prices, how companies think about competition, etc. It is the study of individuals, households and firms' behavior in decision making and allocation of resources.

Macroeconomics: Macro (large) economics studies how the aggregate economy behaves. This aggregate economy includes regional, national, and global economies. It deals with the performance, structure, behavior, and decision-making of an economy as a whole. Eg. inflation, price levels, rate of growth, national income, gross domestic product (GDP), changes in unemployment, etc.

Importance of decision making[i]

1. **Minimize cost**: Organization has various resources like man, money, method, material, machine, market and information. Optimum utilization of these resources helps the organization to operate at minimum cost.
2. **Selection of best alternative**: Every problem has multiple solutions. Selection of the best alternative requires intelligent decision making.
3. **Evaluation of the managerial performance**: Decision making is essential for evaluating the

performance of a manager. The quality/success of manager depends upon the number of right decisions taken by him.

4. **Employee's motivation**: Right decisions motivate the employees. It provides an overall framework of operation and guideline to the staffs.
5. **Essential element**: Decision making is indispensable component for the organizational success. Right decisions at right time lead the organization to success.
6. **Achievement of goals**: Right decisions helps to achieve the organizational goals within a given time and budget.
7. **Pervasive function**: Decision-making is a pervasive (universal) function of managers. It is required at all managerial functions such as planning, organizing, motivating, directing and controlling and in all functional areas such as production, marketing, finance, personnel and R&D.

Steps in decision making

Ricky W. Griffin has suggested six steps in the process of decision making. Accordingly, the steps are:

1. **Identification of the symptom of problem:** This is the first stage in the decision-making

process. The exact reason of problems may be internal or external. Identification of exact problem is not an easy task. Early detection of the symptoms will help to identify the problem in its root stage.

2. **Symptom/Problem analysis**: Systematic and scientific analysis of the symptoms of problem is the next step. This analysis would help to diagnose the problem.
3. **Problem Diagnosis**: Business problem diagnosis works a bit like the medical diagnosis of human beings. It can be done after symptoms. It is better to do it as a routine checkup before they get out of hand.
4. **Developing alternative decisions**: Each problem has multiple solutions. One should develop various possible alternatives for a better decision.
5. **Evaluation of alternatives**: Each alternative should be evaluated in terms of cost, time, legality, resources and short/long-term impact, etc.
6. **Selecting of best alternative**: After analyzing various alternatives, the decision maker has to select the best alternative. He should consider the short-term and long-term impact of the decision. He should also ensure that, it matches with the organizational objectives.

7. **Implementing the decision**: After selecting the best alternative, one should implement his decision. Communication is most important at this stage.
8. **Review of decision:** After implementing the decision, he should review the impact of decision. It the response is negative then he must start from the first step.

Elements of decision

Decision-making is the selection of one course of action from two or more alternatives. It is a choice-making activity. The following are the steps in DM process:

1. Objective of decision: The objective of the decision should be kept in mind before taking the decision.
2. Alternatives: Decision is the selection of best alternative. Hence one should elicit all the alternative decisions available.
3. Outcome/pay off: All alternatives should be analyzed on the basis of probable outcome and cost.
4. Criteria: The following are the criteria on the basis of which analysis have to be made for decision making.

   a. Risk b. Cost, time and efforts

c. Timing d. Limitation of resources

d. Decision environment: There are three decision making environments. They are certainty, risk, and uncertainty. Decision making is more complex under uncertainty.

e. Limiting factor: Any factor that has a limiting effect on the activities is described as limiting factor. For eg. Time, money, mission of organization, prevailing law, etc. can limit the scope of decision making.

Types of decisions

There are different types of decisions.

1. **Routine Decisions**:

   Routine decisions are of repetitive nature. It requires relatively little consideration. They are related to day-to-day operations of an organization. Eg. Daily attendance.

2. **Programmed Decisions**:

   A routine or repetitive decision that can be handled by rules or procedures are called programmed decisions. Eg. Admission procedure.

3. **Non-Programmed (Complex) Decisions**:

   It deals with unusual or exceptional problems. They are complex in nature. It requires specific treatment. Eg. Employee strike.

4. **Major Decisions**:

   Major decisions are something that is greater, very significant, serious or important. They are taken by top management. Eg. Purchase of a big machine.

5. **Minor Decisions**:

   Minor decisions are routine type decisions, which do not require much expertise. They are taken within the broad policy of the organisation. Eg. Purchase of stationeries.

6. **Strategic Decisions**:

   Strategic decisions are basically long term decisions. It affects firm's future. They are taken by top level management.

   Eg. Acquisition of a business.

7. **Organizational Decisions**:

   Organizational decisions taken in his official capacity is called organizational decisions. It can be delegated to others. Eg. Decisions as CEO, as clerk, as superintend, etc.

8. **Personal Decisions:**

   Personal decisions are taken in his individual capacity. Eg. Household decisions.

9. **Individual Decisions**:

   Official decisions taken by a single individual is called individual decisions. They are generally decisions of routine nature.

   Eg. Payment decision taken by the manager.

10. **Group Decisions**:

    Group decisions are taken by a committee constituted for this specific purpose.

    Eg. Decisions of department meeting.

11. **Policy Decisions**:

    They are taken by top management. They relate to major issues and policies.

    Eg. Recruitment policy, marketing policy, etc.

12. **Operation (Short Term) Decisions**:

    They are decisions made to manage day to day business. They are in response to short-term situations. Eg. Giving additional carry bag to a customer, switch on/off cabin A/c, etc.

13. **Long-Term Decisions**:

    Time period covered for a long term decision is long. Risk involved is also more.

    Eg. Decision to construct a building.

14. **Departmental Decisions**:

    They are decisions relating to a particular department.

15. **Non-Economic Decisions**:

    Non-economic decisions relate to factors such as values, moral behavior etc.

    Eg. Decision to implement common prayer.

16. **Rational Decisions**:

    These are logical, sequential models of decisions. The emphasis is on listing many potential options and their analysis and selection.

    Eg. Selection of quality material by human beings.

17. **Spontaneous Decisions**:

    The word spontaneous refers to quick, hasty, or impulsive acts. Spontaneous decision making is a process of instantaneous selection from available alternatives. It is characterized by making rapid, hasty, and impulsive decisions.

18. **Analytical decisions**:

    Here decisions or conclusions are taken by analyzing the given data or information. First analyze and evaluate the given information

then make conclusions. Analytical decision-makers benefit from a deliberate and thoughtful approach.

19. **Intuitive Decisions**.

    The idea here is that there may be absolutely no reason or logic to the decision making process. Decisions are taken on the basis of an inner intuition ('sixth sense'). For this absolutely no reason or logic to the decision making process. It is the opposite of rational decision making.

    Eg. He decided not to send the kids by bus. The bus met with an accident later.

Decision making environment

1. **Under certainty (Outcomes are known):**

   This is a situation where accurate, measurable, and reliable information are available to base decisions. Decision maker knows the outcome of each alternative. The cause and effect relationships are known. Future is highly predictable under certainty. Decision maker has complete confidence in a single answer to the question.

   Eg. routine and repetitive decisions.

2. **Under risk (Outcomes are unknown, but probabilities are known)**:

Here, the decision maker has incomplete information about available alternatives. But he has a good idea of the probability of outcomes for each alternative. Or he may know the range of outcomes, but the individual outcome is unknown. Lack of perfect information generates the risk. For eg. lottery

3. **Under uncertainty (Outcomes are unknown and probabilities are unknown)**:

   When we neither know the possible outcomes in advance, nor their probabilities, the situation is called uncertainty. The decision-maker is not aware of all available alternatives, and the associated risks and benefits. In such situations, decisions are made on the basis of certain assumptions. Risk analysis, decision trees, preference theory, etc. are some tools used to make decisions under uncertainty.

   For eg. Accident, theft, natural calamity, etc. - one do not know whether he will met with an accident or not.

Uncertainty Vs Risk in Business

Risk	Uncertainty
1. Can predict the possibility of future outcome. 2. Risk can be managed. 3. Risks can be measured and quantified.	1. Cannot predict the possibility of future outcome. 2. Uncertainty is uncontrollable. 3. Uncertainty cannot be measured and quantified.

Application of economic theories in decision making

Economics is a branch of social science focused on the production, distribution, and consumption of goods and services. Application of economics theories in decision making is called applied economics. These are areas where economic theories can be applied for business decision making.

The application of economic theory through statistical methods helps businesses in decision making. Applied economics helps to determine strategy on production, operations, risk, pricing and investments. Managerial economics increases

the efficiency of decision making in businesses. The study of economics helps to make better decisions. For eg. The theory says the effect of law of supply and demand on price, wages, and availability of goods.

Areas where economic theories can be applied

1. Deciding the price of a product
2. Quantity of the commodity to be produced.
3. Manufacture a product or to buy from another manufacturer.
4. Choosing the production technique
5. Deciding on the level of inventory.
6. Deciding on the advertising media
7. Deciding on the intensity of the advertising campaign.
8. Making employment and training decisions.
9. Decisions of expansion of business.
10. Decisions on mergers and acquisitions of business.

Important Economic Concepts and Theories

The following are the important Economic concepts and theories applied in decision making.

1. **Demand Theory**:

   Demand theory explains law of demand and price, law of demand and supply and law of supply

   (a) Law of demand and Price: The law explains the relationship between consumer demand and price. The law states that when demand increases price increases and when demand decreases price decreases.

   (b) Law of demand and supply: The law explains the relationship between demand and supply. The law states that when supply increases with low demand, price decreases and when supply decreases with increasing demand, price increases.

   (c) Law of Supply: When the price of a good/service increases, supply will also increase.

2. **Production Theory**:

   It explains the production function. The production function shows the relation between input and output. It also shows the maximum amount of output that can be obtained by the firm from a fixed quantity of resources. Least cost input combination and Law of variable proportions; Law of diminishing returns, etc. are explained by the theory.

3. **Cost Theory**:

   Theory of cost explains various concepts of costs and its impact in decision making. Fixed cost, variable cost, marginal cost, total cost, opportunity cost, sunk cost, short run cost, long run cost, etc. are various cost concepts used in production and cost analysis.

4. **Price Theory**:

   Price theory is concerned with the economic behaviour of individual consumers, producers, and resource owners. It explains how prices are decided under various economic conditions. It also explains price elasticity, price dynamics, personalized pricing, etc.

5. **Profit Theory**:

   Profit is the reward for the business men. There are several concepts of cost like Gross Profit, net profit, profit before tax, profit after tax, PBIT, PAIT, etc. Theory of profit explains why and how profit arises. Walker's Theory (Profit as Rent of Ability), Clark's Dynamic Theory (profits arise in the dynamic economy and not in the static economy), Hawley's Risk Theory (society pays to assume the business risk), Knight's Theory (profit as a reward for uncertainty-bearing, not to risk bearing), Schumpeter's Innovation Theory (reward of successful innovation), Monopoly Theory

(monopoly power as Source of Profit), etc. are some important price theories.

6. **Theory of Capital:**

There are various theories of capital like pure theory of capital, Capital structure theory, etc. Capital structure theory explains the use of debt capital to increase profitability. This theory helps the firm to maximize the value of firm and to minimize the cost of capital.

7. **Theory of business cycle**:

The term "business cycle" (or economic/trade/boom-bust cycle) refers to economy-wide fluctuations in production, trade, and general economic activity. There are four basic phases of trade cycle- Recovery, Boom, Recession, and Depression. A theory of business cycle tries to explain the phenomena of business cycle. The most important theories of business cycles include Pure Monetary Theory, Monetary Over-Investment Theory, Schumpeter's Theory of Innovation, Keynes Theory, Samuelson's Model of Multiplier Accelerator Interaction, Hicks's Theory, etc.

8. **Principle of Incremental reasoning:**

As per the incremental principle a decision is clearly a profitable one if:

(i) It increases revenue more than costs.

(ii) It decreases some cost to a greater extent than it increases others.

(iii) It increases some revenues more than it decreases others.

(iv) It reduces costs more than revenues.

Thus there are two concepts in the incremental reasoning-incremental cost, incremental revenue. Incremental cost denotes change in total cost, and incremental revenue means change in total revenue resulting from a decision of the firm.

Maximization of profit is the main objective of this principle. The principal simply states that, to maximize the overall profit, it should make profit in all the elements.

9. **Principle of Time perspective:**

As per Time Perspective theory, time value should be considered for economic analysis. Thus economic analysis is made for very short run, short run and long run periods.

10. **Discounting principle:**

The time value of money (TVM) is the concept that a rupee available today is worth more than a rupee available in future. This is due to its potential earning capacity. In other words, its purchasing power decreases due to inflation. If

money can earn interest, any amount of money received sooner is worth more. TVM is also referred to as present discounted value. PVF (present value factor) is used to find out the present value of money earned in future.

11. **Principle of Opportunity cost**:

It denotes benefit foregone. Opportunity costs represent the benefits misses out on when choosing one alternative over another. Opportunity cost may lead to regret. Opportunity cost arises because of scarcity of resources. For eg. OC of doing a business is the interest that would have been received from bank deposit.

12. **Equi-marginal principle**:

Optimum allocation of inputs.

The principle of equi-marginal utility explains the behavior of a consumer in distributing his limited income among various goods and services. This law states that how a consumer allocates his money income between various goods so as to obtain maximum satisfaction. The equi-marginal principle states that consumers will choose a combination of goods to maximise their total **utility**. Utility is an economic term used to represent satisfaction or happiness.

Accordingly, consumer is in equilibrium position when marginal utility of expenditure on each goods is the same. In effect, the consumer will evaluate the MU/price. This is known as the marginal utility of expenditure on each item of good.

$$\frac{Marginal\ Utility\ of\ 'A'}{Price\ of\ 'A'} = \frac{Marginal\ Utility\ of\ 'B'}{Price\ of\ 'B'}$$

Example of marginal utility for Goods A and B

Units	MU good A	MU good B
1	30	20
2	25	18
3	15	15
4	8	14
5	0	13

If the price of good 'A' and good 'B' are same (say Rs.15), Then the optimum combination of goods would be quantity of 3. Because at quantity of 3 – 15/Rs10 = 15/Rs15

Assumptions of marginal utility theory:

1. Consumers are rational

2. Utility can be described in cardinal terms (e.g. monetary units)
3. Constant prices and incomes.
4. Goods can be split up into small units

13. Law of diminishing marginal Utility

The Law of Diminishing Marginal Utility states that, as consumption increases the marginal utility derived from each additional unit declines. Marginal utility is derived as the change in utility with the consumption of an additional unit. In other words, the first unit of consumption of a good or service yields more utility than the second and subsequent units. There shall be a continuing reduction in the utility for greater amounts.

For eg. A consumer consumes 6 apples one after another. The first apple gives him '20 utils' (units for measuring utility). When he consumes the second and third apple, the marginal utility of each additional apple will be lesser. This is because with an increase in the consumption of apples, his desire to consume more apples falls.[ii]

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REVIEW QUESTIONS

2 mark questions:

1. What is a decision? 2021
2. What is Micro Economics? 2018, 19
3. Define theory of capital. 2018
4. What are the steps in decision-making? 2018

5 mark questions:

5. Explain the significance of discounting principle in business decision with an example. 2021
6. How is macro-economic different from micro economics? 2020
7. Explain the concept of time perspective with an example. 2019
8. What is the importance of Decision-Making? 2018
9. Explain different types of decision. 2018

15 mark questions:

10. Define decision making. Explain the steps involved in decision making. 2021
11. What is decision making? What are the various elements of decision making? 2020
12. Explain different types of decision. 2018

Module II

Demand Theory

Needs, wants, utility

Needs are things necessary to survive. Eg. Air, water, food, shelter, medicine, etc. Wants are things that one would like to have, but that are not necessary for survival. For eg. Jewelry, journals, newspapers, designer cloths, TV, etc.[i] Human **wants** can be satisfied by the use of products or services. Eg. Hunger can be satisfied by eating bread. **Utility** means the power to satisfy human want.

Measurement of utility

Utility is an abstract (non-concrete/ mental) idea. Some economists believe that it cannot be measured. Some economists says that the amount that one is willing to pay for a product or service can be considered as the amount of utility derived from that product/service. All economists agree that it is possible for a man to compare the utilities derived from two products[ii]. For eg. A thirsty man may choose lemon water, or fresh juice or plain water.

Demand

Demand is a consumer's willingness, desire and ability to purchase a particular product or service. Demand also means the quantities of goods sold at various prices over a time period. Demand also shows the needs of the people. In order to constitute demand, the following three conditions are required:

a) Consumer's desire to buy the product.

b) Consumer's ability to pay for the product.

c) Consumer's willingness to pay for the product.

Supply refers to the amount of goods/services that are available.

Types of Demand (Demand distinctions)

There are several concepts of demand. These concepts are called demand distinctions.

a. Individual and market demand

Individual demand refers to the demand for a good or a service by an individual (or a household). The demand of all persons in an economy (village, district, industry, etc.) is known as market demand.

b. Direct Demand and Derived Demand

Demands for consumer goods (goods meant for final consumption) are called direct demand.

Demand for industry goods and complementary goods are called derived demand. The demand for industry goods depends on the demand for consumer goods.

Eg. Demand for petrol (derived demand) depends on the demand for vehicles.

Demand for raw material (derived demand) depends on the demand for finished goods.

c. Company demand and industry demand

The demand for the product of an individual company is called company demand. Eg. The demand for closeup tooth paste.

The demand for the product of all companies in that industry is called industry demand. Eg. Demand for the toothpaste of all the companies.

d. Perishable and durable goods demand

Perishable goods are single use goods which are nondurable in nature. Eg. Vegitables, fish, meat, etc. Perishable goods are used for meeting immediate demand.

Durable goods are non- perishable goods which can be used repeatedly. Eg. Mobile phones, bikes,

ornaments, etc. Durable goods are meant for current as well as future demand.

e. New and replacement demand

If the purchase of an item is meant as an addition to stock, it is a new demand. Eg. Demand for a new model of computer.

If the purchase of an item is meant for maintaining the old stock of asset, it is replacement demand. Eg. demand for spare parts of a machine.

f. Short run and Long run demand

Short run is a period where there no time to change any of the fixed factors of production. If a demand exists for this time period, it is called short run demand. Firms will not get time to increase the supply to a large extent. A short run demand will result into a change in prices. Prices go up if demand increases and go down if demand drops

Long run is a period where the market can change all factors of production. If a demand exists for this long time period, it is called long run demand. There will be no change in the price of the product.

Demand Theory

Theory is an unproven statement based on research. Principle is a theory that has been proved and generally accepted. Law is a very specific statement.

Demand theory shows the relationship between consumer demand for goods and services and their prices. Demand theory forms the basis for demand curve.

Law of Demand

There are various factors which influences demand for a commodity. For eg. Price, income, advertisement, law, etc. Price is the most important among these. 'Law of demand' states that there is an inverse relationship between price and demand[1].

When the price of a good increases, it's demand decreases and vice versa, provided all other factors remains constant. In other words, the higher the price, the lower the quantity demanded.

[1] Adam Smith explained the concept of supply and demand as an "invisible hand" that naturally guides the economy: 'The Wealth of Nations', 1776.
Alfred Marshall's developed 'supply-and-demand curve': 'Principles of Economics' in 1890. He also introduced the concept of 'price elasticity of demand', which examines how price affect demand.

Assumptions of law of demand

The basic assumption of the law of demand is that no other factors are influencing the demand. That means:

1) No change in price of related goods.
2) No change in income of the consumer.
3) No change in taste and preferences, customs, habit and fashion of the consumer.
4) No change in size of population.
5) No expectation regarding future change in price.
6) No expectation regarding future change in supply.
7) No change in quality of product.
8) No change in the purchasing power of money.
9) No change in tax rates and other fiscal measures.

Explanation of the law of Demand

The law of demand can be understood with the help of demand function, demand schedule and demand curve.

a. Demand function

Demand is a dependent variable and price is an independent variable. Therefore, demand is a function of price.

$$D = f(P)$$

Where, D is demand and P is price and f is the functional relationship.

In the law of demand, other factors of demand (except price) are kept constant.

b. Demand Schedule

Tabular representation of the correlation between price and quantity demanded, over a period is called Demand schedule. An imaginary price schedule of onion is given below:

Price of onion per kg	Qty demanded (kg)
20	100
30	80
40	60
50	40
60	20
70	10

The above table shows that when the price is Rs.20, the quantity demanded is 100kg. The quantity demanded reduces with the increase in price.

Demand Curve

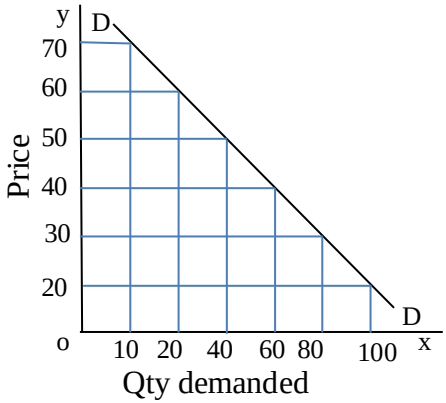


Figure 2.1

Graphical representation of the correlation between price and quantity demanded, over a period is called Demand curve. The demand curve of the above demand schedule is given below:

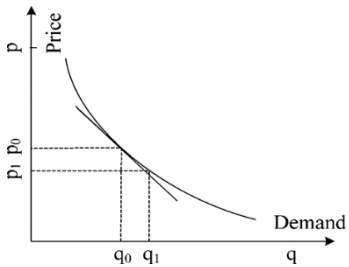


Figure 2.2

The above demand curve shows a linear relationship, which will not generally happen. The change in quantity demanded may be more than or less than proportional to the change in price. In such a situation, we may get a curve as shown in figure 2.2

Reasons for Law of Demand

Demand curve slops downward. This is because of the inverse relationship between demand and price. There are several reasons for this phenomenon.

1. Diminishing Marginal utility:

The marginal utility of a commodity declines as the consumption increases. Hence the consumer may increase his consumption at a lower price only.

2. Price effect:

When there is increase in price of commodity, the consumers reduce the consumption of such

commodity. The result is that there is decrease in demand for that commodity. The consumers consume mo0re or less of a commodity due to price effect. The demand curve slopes downward.

3. Income effect:

When price falls, consumer will have some excess money. For eg. If the price of onion falls from Rs. 40 to Rs. 20, there will be a saving of Rs.20 in his hand. This means there is an increase in the real income of the consumer. This induces the consumer to purchase more quantity of the product.

4. Same price of substitutes:

When the price of a commodity increases, the price of substitutes remains the same. Consumer may buy the substitute which is cheaper and vice versa. This result into a reduction in the quantity demanded.

5. Change in the number of buyers:

The income of people is not the same, the rich people have money to buy same commodity at high prices. Large majority of people are poor, and they buy more when price fall and vice versa.

6. Different uses of goods

There are different uses for many goods. When price decreases, more quantity will be purchased to use the product for various purposes.

Exceptions to the Law of demand

1. Inferior goods/ Giffen goods

The law of demand is not applicable for inferior goods. When price of inferior commodity decreases, and its demand also decrease. Amount so saved is spent on superior commodity.

This exception was pointed out by Robert Giffen. Low priced rice, low priced bread, etc. are some examples of Giffen goods.

2. Prestige goods/Velben goods

The law of demand is not applicable for luxury products like diamond and jewelry. There is more demand when prices are high. A consumer will buy less of the diamonds at a low price because its prestige value goes down with the fall in price.

This exception was studied by the economist, T.Velben and through his doctrine of 'conspicuous conception'.

3. Ignorance of consumers

There is a general presumption that high priced goods will have more quality. A low priced commodity is generally considered as inferior.

Hence there will be more demand for high priced goods. Here also the law of demand does not apply.

4. Price expectation

When the consumer expects a more hike in the price, he demands more of a commodity. He will not buy even at a reduced price, if he expects a further decline in price.

5. Fear of shortage

When the people expect a scarcity in the goods, he will purchase more at high price.

6. Change in income

The consumers will demand more goods or services even at a higher price, when his income increases. On the other hand, they will demand less even at lower price, if there is decrease in their income.

7. Change in fashion

If a commodity goes out of fashion, people do not buy it even if the price falls. For example: old fashioned shirts and pants, etc. Similarly, people buy fashionable goods in spite of price rise.

8. Change in Technology

People will not purchase a product with an outdated technology, even at a cheaper price. Eg. Type writer, mobile phone, etc.

9. Basic necessities of life

The law of demand is not applicable for basic necessities of life such as salt, rice, medicine, etc. The demand for such necessary goods does not change with the rise or fall in price.

10. Depression

The law of demand is not applicable during depression. Reduction in prices may not increase demand. This is due to low purchasing power of people.

11. Speculation

The law is not applicable for speculative transactions. An increase in price may attract more buyers. They may sell at a lower price to avoid losses.

Demand Determinants

There are various factors that influences demand for a commodity like Price, income, advertisement, law, etc. These factors which influence the demand are called 'determinants of demand'. Following are the determinants of demand for a product:

1. Price of the Product/ Service:

Price is the major determinant of demand. There is an inverse relationship between the price and

quantity demanded. The demand decreases with increase in price, and vice versa.

2. Income:

Income of the consumer is another important determinant of demand. Generally, increase in the income of a consumer would increase the demand for products, and vice versa. But this income-demand relationship is different for four categories of goods: essential goods, inferior goods, and luxury goods.

a. Essential/ Basic Consumer Goods:

They are goods consumed by all the people in the society. For example, food grains, soaps, oil, cooking fuel, and clothes. The quantity demanded for basic consumer goods increases with increase in the income of a consumer, but up to a fixed limit only.

b. Inferior Goods:

They include low priced rice, low priced bread, etc. Demand for these products decreases with increase in the income of consumers.

c. Luxury Goods:

Luxury goods are those used for the pleasure and esteem of consumers. Eg. Expensive jewelries, luxury cars, etc. Its demand increases with increase in consumer's income.

3. Taste, Preference and habit of Consumers:

The tastes and preferences of consumers are affected by various factors, such as life styles, customs, common habits, and change in fashion, standard of living, place of living, peer group, religious values, age, and gender, etc. A change in any of these factors may reduce the consumption of old products. Consumer may shift to new products for their consumption.

4. Price of Related Goods:

In certain cases, demand for a specific product is influenced by the price of related goods. Related goods are of two types- substitutes and complementary goods:

a. Substitutes:

These are goods that satisfy the same need of consumers but at a different price. These products can replace each other, either perfectly or in part. For example, tea and coffee, coconut oil and palm oil etc. The increase in the price of a good results in increase in the demand of its substitute with low price. Thus substitute goods have a positive cross elasticity of demand.

b. Complementary Goods:

They are goods that are consumed simultaneously or in combination. Eg. printer and ink cartridges, car and petrol, and tea and

sugar, are used together. The demand for complementary goods are inversely related to each other. For example, increase in the prices of petrol would decrease the demand of cars.

5. Expectations of Consumers:

When the consumer expects a more hike in the price or a scarcity of the products in future, he demands more of a commodity. He will not buy even at a reduced price, if he expects a further decline in price.

6. Effect of Advertisements:

An effective advertisement informs the consumers about the availability of a product, demonstrates the features of the product, and persuading them to purchase the product. Consumers are highly sensitive about advertisements. Thus there is a positive correlation between advertisement and demand.

7. Distribution of Income in the Society:

Disparities in the income distribution among various segments of the society, affects the demand for products. For example, the high income segment would prefer luxury goods, while the low income segment would prefer necessary goods.

8. Growth of Population:

Population growth acts as a crucial factor that affect the market demand. Demand will increase with increase in population.

9. Government Policy:

High tax rate would increase the price, resulting into the decrease in demand. Credit availability to consumers would increase the demand for products. Hence taxation policy and money supply will affect the demand.

10. Climatic Conditions:

Climate affects the demand of certain product to a greater extent. For example, ice-creams and cold drinks (summer), tea and coffee (winter).

Movements in Demand

There are basically two types of movements in demand. (a) Movements along the demand curve and (b) shift in demand.

(a) Movements along the demand curve

Change in demand due to a change in price is called movements along the demand curve. This can be either expansion or contraction in demand.

(i)Expansion and Contraction in demand

Change in demand due to change in price will result into movements along the demand curve. When the demand increases due to a reduction in price it is called '**expansion / extension of demand**'. In the given figure demand is expanded from Q to Q1 as a result of decrease in price from P to P1.

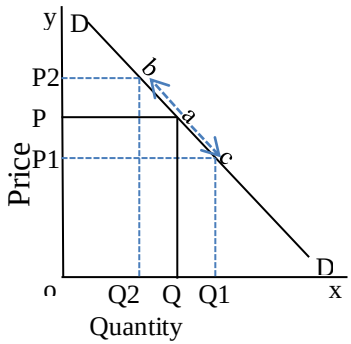


Figure 2.3

When the demand decreases due to an increase in price, it is called '**contraction of demand**'. In the given figure demand decreases from Q to Q2, when the price increased from P to P2.

(b) Shift in Demand

If the demand changes, when the price remains constant, it is called shift in demand. In other words if the change in demand is caused by factors other than price, it is called 'shift in demand'. It can be of two types:

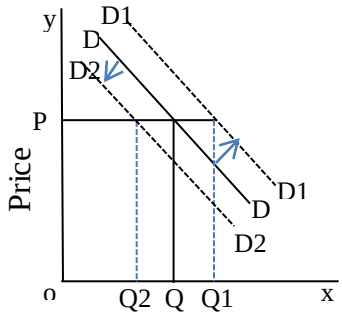


Figure 2.4

i. Rightward Shift:

Increase in demand at the same price level leads to a rightward shift in demand curve from D to D1. Demand rises from oQ to oQ1

ii. Leftward Shift:

Decrease in demand at the same price level leads to a leftward shift in demand curve from D to D2. Demand falls from oQ to oQ2.

Elasticity of Demand

Demand elasticity (elasticity of demand) refers to how sensitive the demand for a good is to changes in determinants of demand. It means that a change in the demand due to change in any determinant of demand. Demand elasticity is calculated as:

$$\frac{\%\text{ change in the quantity demanded}}{\%\text{ change in determinant of demand}}$$

$$\%\text{ change in Qty} = \frac{\text{change in the qty demanded}}{\text{Original Qty}}$$

Types of elasticity[iii]

Price elasticity, income elasticity, advertisement elasticity and cross elasticity are the most common elasticity of demand.

1. Price elasticity of Demand (PED)

Price elasticity of demand is an economic measure of the change in the quantity demanded of a product in relation to its price change. If there is a large change in response to changes in its price, it is termed "elastic". If the change is small, it is termed "inelastic".

$$\text{Price Elasticity of Demand} = \frac{\%\ \text{change in the qty demanded}}{\%\ \text{change in price}}$$

2. Income elasticity (IED)

Income elasticity of demand is an economic measure of the change in the quantity demanded of a product in relation to change in income.

Normal goods have a positive income elasticity of demand. As incomes rise, more goods are demanded. For necessity goods like rice, salt, etc. income elasticity of demand is near to zero. Inferior goods have negative income elasticity. Luxury goods will have positive income elasticity.

$$\text{Income Elasticity of Demand} = \frac{\%\ \text{change in the qty demanded}}{\%\ \text{change in income}}$$

3. Advertisement elasticity of Demand (AED)

Advertisement elasticity of demand is an economic measure of the change in the quantity demanded of a product in relation to change in advertisement expenditure.

A positive advertising elasticity indicates that an increase in advertising leads to an increase in demand. A price comparison of AED and PED can be used to calculate whether more advertising would maximize profit.

$$\text{Advertisement Elasticity of Demand} = \frac{\%\ \text{change in the qty demanded}}{\%\ \text{change in expenditure on advertisement}}$$

4. Cross elasticity of demand (CED)

Cross (cross-price) elasticity of demand is an economic measure of the change in the quantity demanded of a product in relation to change in the price of another product.

The cross elasticity of demand for substitute goods is always positive. Substitute goods are two

goods that can be used in place of one another. Eg. Tapioca and Rice, Pepsi Cola and Coca Cola.

Cross elasticity of demand for complementary goods is negative. Complementary goods are those that are used with each other. Eg. Petrol and Cars, Mobile Phones and Sim Cards

Cross Elasticity of Demand

$$= \frac{\%\text{ change in the qty demanded of X}}{\%\text{ change in the price of Y}}$$

Importance of price elasticity

1. It helps to determine the price policy- Increase or decrease in price.
2. It helps to take price and output decision for producers.
3. Price elasticity is the main reason for low prices to agricultural goods during good harvest.
4. It helps to determine the price of complementary products.
5. It helps to determine whether 'price discrimination' is to be followed or not.
6. It helps the govt. to determine taxation policy.

7. It helps the govt. to implement price discrimination on electricity bill (slab rate system).
8. It helps the govt. to take decisions of industrial subsidies. Subsidies are given if the goods are subject to price elasticity.

Degrees of price elasticity

1. Perfectly elastic demand
2. Perfectly inelastic demand
3. Relatively elastic demand
4. Relatively inelastic demand
5. Unitary elastic demand

1. Perfectly elastic demand

The demand is said to be perfectly elastic when a very small change in price leads to an infinite change in quantity demanded. A very small fall in price causes demand to rise infinitely. A very small rise in price reduces the demand to zero. This is theoretical which is never found in real life.

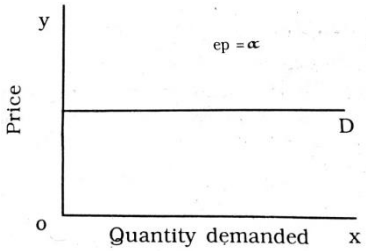


Figure 2.5

2. Perfectly inelastic demand

The demand is said to be perfectly inelastic when a change in price produces no change in the quantity demanded. The demanded is totally unresponsive of change in price. The elasticity of demand is said to be zero.

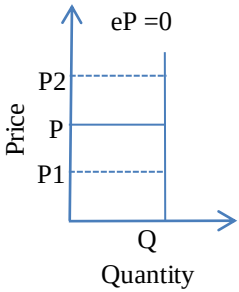


Figure 2.6

Even if the price increased to p1 or p2, quantity demanded remains Q.

3. Relatively elastic demand

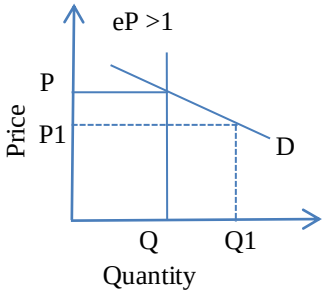


Figure 2.7

The demand is relatively more elastic when a proportionate change in price causes more than proportionate change in quantity demanded. If price changes by 10% the quantity demanded of the commodity change by more than 10% i.e. 15%/ 25%. The demand curve in such a situation is relatively flatter.

In the above figure (2.7) demand increased from Q to Q1 when the price decreased from P to P1.

4. Relatively inelastic demand

The demand is relatively inelastic when a proportionate change in price causes less than proportionate change in quantity demanded. If price changes by 10% the quantity demanded of the commodity change by less than 10% i.e. 8%/ 5%. The demand curve in such a situation is very steep.

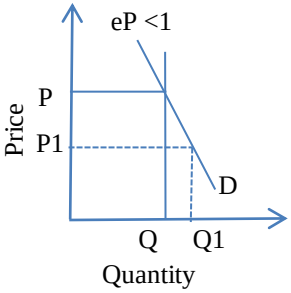


Figure 2.8

In the above figure (2.8) demand increased from Q to Q1 when the price decreased from P to P1.

5. Unit elastic demand

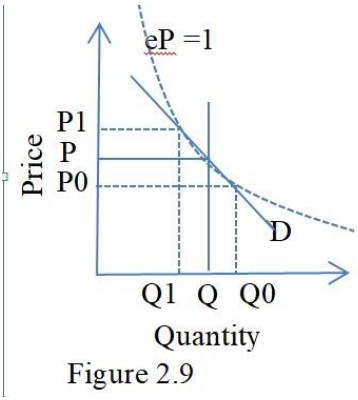


Figure 2.9

When a change in price causes proportionate change in quantity demanded, it is called unit elasticity of demand. If price changes by 10% the quantity demanded also change by 10%. The demand curve is known as 'rectangular hyperbola.'

In the above figure (2.9) demand increased from Q to Q0 when the price decreased from P to P0. Demand decreased from Q to Q1 when the price increased from P to P1.

Measurement of elasticity

There are three methods of measurement of elasticity. They are:-

(a) Percentage Method

(b) Arc Method

(c)Total Outlay Method

a. Percentage Method (Point elasticity)

This method is used to measure elasticity of demand at a particular point on a demand curve.

$$\frac{\%\text{ change in the qty demanded}}{\%\text{ change in price}} \; ie \; \frac{\triangle \text{Q}}{\text{Q}} \div \frac{\triangle \text{P}}{\text{P}}$$

Eg. Price of a commodity is Rs.18, when quantity demanded is 2000 units. Price decreased to Rs.16 and as a result demand increased to 3000 units.

$$Pe = \frac{\triangle \text{Q}}{\text{Q}} \div \frac{\triangle \text{P}}{\text{P}}$$

$$\frac{1000}{2000} \div \frac{2}{18} = \underline{4.5}$$

$$(\triangle \text{Q} = 3000 - 2000, \triangle \text{P} = 18 - 16)$$

b. Arc Method

This method is used to measure elasticity of demand between two points on a demand curve.

$$Pe = \frac{\triangle \mathrm{Q}}{\triangle \mathrm{P}} X \frac{\mathrm{P} + \mathrm{P1}}{\mathrm{Q} + \mathrm{Q1}}$$

Eg. Price of a commodity is Rs.18, when quantity demanded is 2000 units. Price decreased to Rs.16 and as a result demand increased to 3000 units.

$$Pe = \frac{\triangle \mathrm{Q}}{\triangle \mathrm{P}} X \frac{\mathrm{P} + \mathrm{P1}}{\mathrm{Q} + \mathrm{Q1}}$$

$$Pe = \frac{\triangle 1000}{\triangle 2} X \frac{18 + 16}{2000 + 3000} = \mathbf{3.4}$$

(c)Total Outlay Method

(Total revenue/total ex-penditure method)

Here price elasticity is calculated by comparing the total expenditure of a purchaser before and after the change in price.

Total Outlay = Price x Quantity Demanded.

For eg.

Price	Qty demanded	Total Exp.	Elasticity
10	100	1000	
8	125	1000	=1

10	100	1000	
8	100	800	<1

10	100	1000	
8	80	640	<1

10	100	1000	
8	150	1200	>1

Demand Forecasting

Demand forecasting is a combination of two words-demand and forecasting. Demand means requirements of a product or service. In general, forecasting means making estimation in the present for a future event.

Demand forecasting is a systematic process of anticipating the demand for the product and

services of an organization in future under a set of uncontrollable and competitive forces.

"Demand estimation (forecasting) is a process of finding values for demand in future time periods."

Evan J. Douglas

"Demand forecasting is an estimate of sales in monetary or physical units for a specified future period under a proposed marketing plan." American Marketing Association

Significance of Demand Forecasting

1. It helps to reduce risks involved in business activities.
2. It helps to make important business decisions.
3. It provides an insight into capital investment and expansion decisions.
4. It helps in making budget by estimating costs and expected revenues.
5. It helps in production planning- plant capacity, requirement of raw material, availability of labor, capital, etc.
6. It helps to fill the gap between the demand and supply.
7. It helps in inventory management- raw materials, work in progress, finished goods, etc.

8. It helps to formulate the price policy.
9. It helps in setting sales targets.
10. It helps to decide the channel of distribution.

Types of Forecasting

On the basis of time span, there are two types of forecasting- Short Term and Long Term Forecasting.

Short Term demand Forecasting

Demand forecasting for a short period up to one year is called short term forecasting. It concerned with policies relating to sales, purchases, pricing, finances, etc. It is in accordance to the existing production capacity. It is useful in taking adhoc decisions regarding the day-to-day working of the concern. Following are the objectives of short term demand forecasting:

a) To evolve a suitable production policy.
b) To avoid the problem of over production and under production.
c) To determine appropriate price policy.
d) To forecast short term financial requirements.
e) To set sales targets and incentives.
f) To reduce cost of purchasing raw materials.
g) To control inventory.

Long Term demand Forecasting

Demand forecasting for more than one year is called long term forecasting. It involves expansion of production units, study of technological developments, economic trends, consumer preferences and man-power planning. Long-term forecasting enables to take major strategic business decisions. Following are the objectives of long term demand forecasting:

a) Investment decisions like Planning for new project, expansion, diversification and modernization of existing project.

b) Assessment of long-term financial needs.

c) Man-power planning for expansion or contraction of the business in the long run.

Methods of Forecasting

There are several methods of demand forecasting. But no methods enable an organization to anticipate risks and uncertainties. Demand forecasting methods are broadly classified into two: Survey method and Statistical method.

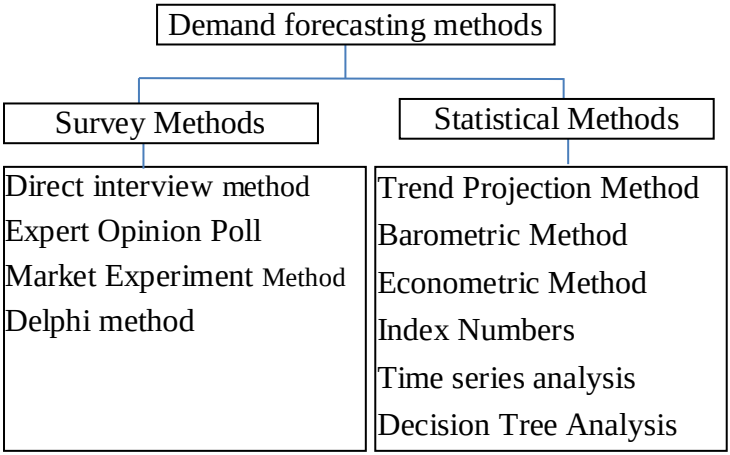
a. Survey Methods

Survey method involves forecasting demand by collecting information regarding the buying behavior of consumers. This information is

collected from experts or by conducting surveys or by market experiments.

b. Statistical Methods

Statistical method involves forecasting demand by using the past data through statistical techniques. These methods are used for long term demand forecast.



Delphi Method: This method is used to generate collective opinion from a group of market experts. Market forecast of these experts are pooled anonymously. Questionnaires are prepared at several rounds, based on their forecasts to refine their opinion. This is a systematic interactive way

of collecting opinion from group of market experts.

Forecasting demand for new products

Past data are not available for the demand forecasting of a new product. Hence it is a challenging task. The demand of new product can be forecasted by anyone of the following techniques:

1. Substitute Approach
2. Evolutionary Approach
3. Opinion poll approach
4. Vicarious approach
5. Sales experience approach (or Market test method)

1. **Substitute Approach:** is used when the new product is a substitute of existing products. Eg. 'liquid soap' for 'toilet soap cake', 'liquid mosquito vapouriser' for 'mosquito coil', etc. Here demand is forecasted on the basis of the demand for existing product.
2. **Evolutionary Approach:** Here the new product is seen as an evolution from an existing product. For eg. lap top is an evolution from desk top. Demand is forecasted on the basis of the demand for old product.

3. **Opinion poll approach:** Here the potential buyers are directly approached and asked whether they would be interested in buying the products. Opinion of the potential buyers is polled in this approach to forecast the demand.
4. **Vicarious approach (or Experts' opinion):** Dealers come into contact with thousands of customers. This approach takes the opinion of dealers to forecast the demand for a new product.
5. **Sales experience approach (or Market test method):** New product is either produced in small quantities, for test marketing. If test marketing is successful, then forecasting is done on the basis that.

Characteristics of a good forecasting technique

1. **Accuracy:** Accuracy denotes near to actual demand. Forecast should be clear.
2. **Durability:** A forecast takes a lot of time and money. Hence it should be usable for multiple years.
3. **Flexibility:** A demand forecast should be flexible and adaptable to any kind of changes.
4. **Simplicity**: A forecast should be acceptable to all, when it is as simple as possible.

5. **Availability**: Data should be available to the decision makers at all time.
6. **Plausibility**: Demand forecasts should be reasonable, as to easily understand by individuals.
7. **Possibility**: It should have the quality of application in the changing business conditions.
8. **Economy**: The costs do not exceed the benefits.

REVIEW QUESTIONS

2 Mark Questions

1. What is demand curve? 2018
2. What is demand schedule? 2020
3. What is meant by expansion and contraction of demand? 2020
4. What is advertising elasticity of demand? 2019
5. Name the methods to measure price elasticity of demand. 2020
6. Mr. Raju consumed 200 units of product X when his monthly income was Rs.10,000. When his monthly income increased to Rs. 15,000, his consumption increased to 300 units. Calculate income elasticity of demand. 2020
7. Differentiate between movement in demand and shift in demand. 2019, 21
8. What is advertising elasticity of demand? 2019, 21

9. Distinguish between short term and long term demand forecasting. 2019, 21
10. What is meant by Delphi technique? 2018, 19, 21

5 Mark Questions

11. How will you determine advertisement elasticity? 2020
12. What are the steps involved in demand forecasting? 2020
13. List out the factors which determine market demand for a commodity of your choice. 2018
14. Explain the factors influencing elasticity of demand. 2019, 20
15. What are the types of income elasticity of demand? 2019, 20
16. What is meant by total outlay method? 2018
17. State the assumptions of law of diminishing returns. 2019, 20

15 Mark Questions

18. Define demand forecasting? Discuss various methods used for forecasting demand. 2020
19. Explain with the suitable examples the various determinants of demand. 2019
20. What is elasticity of demand? Explain the various factors that determine elasticity of demand. 2018

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Module III

Production Analysis

Production

Generally, production is the transformation of raw material into the finished goods. These raw materials are classified as land, labor and capital. Thus production is the result of co-operation of four factors of production viz., land, labour, capital and organization.

Producer combines all the four factors of production in an optimal proportion. Producer aims to maximize his profit. Hence he decides to maximize the production at minimum cost. This is possible at the best combination of factors of production.

Production Analysis

Production analysis deals with the physical relationships between inputs and outputs. These basic inputs are classified into two: Variable inputs and Fixed inputs.

Variable Inputs: Inputs that are variable in the short run and long run with change in output.

Eg. raw material.

Fixed Inputs: Inputs that remain constant in the short term, irrespective of output. Eg. Factory OH.

Production Function

An equation that expresses the relationship between the quantities of input and quantity of output is termed as production function. It states the amount of product that can be obtained from various combinations of inputs.

It can be shown algebraically as:

$O = f (I_1, I_2, I_3, I_4 \ldots\ldots I_n)$

Where, O = quantity of output

I_1, I_2, I_3= Quantity of different inputs

Or

O = f (l, m, n, c, t)

Where, O = output, l = labour, m = management (of organisation), n = land (or natural resources), c = capital, t = technology, and f refers to the functional relationship

Thus production function establishes the physical relationship between inputs and the output.

Assumptions of production function

1. Production function relates to a particular time period. Relationship expressed by the production function changes with change in time period.

2. There is no change in production technology.
3. Quality of labor remains the same.
4. The factors of production are divisible.

Uses of production function

1. Cost function is derived from the production function.
2. It gives the maximum amount of output that can be obtained from a given combination of inputs.
3. It is also a measure the marginal productivity. It is the change in output from one an additional unit of input.
4. It gives the cheapest combination of inputs to produce a given output.

Cobb Douglas Production Function

Cobb–Douglas production function[1] is a particular functional form of the production function. It is used to represent the relationship between inputs and outputs based on two variables- labor and capital.

$O=KL^{a}C^{(1-a)}$

Where:

[1] The Cobb-Douglas production function is based on the empirical study of the American manufacturing industry. The study is conducted by Paul H. Douglas and C.W. Cobb. It is a linear homogeneous production function which takes into account two inputs - labour and capital.

O = output,

K = positive constant, called the technology coefficient.

C = Capital

A = positive fraction between 0-1

Physical Production

There are three concepts regarding physical production: (1) Total Product (2) Aver-age Product (3) Marginal Product.

(1) Total Product: Means the total quantity of goods produced with a given units of inputs.

(2) Average Product: Means the average of the total product per unit of input.

$$\text{Average Product} = \frac{\text{Total Product}}{\text{Number of units of an input}}$$

If 10 labors produced 150 units of total output, average product is 150/10 =15 units

(3) Marginal Product: Means the addition to the total production by the employment of an extra unit of input.

10 labors produced 150 units of total output. One more labor is added and the production increased to 170 units. Marginal product of the 11^{th} labor is 170-150=20units.

Production Theory

It is an effort to explain the principles by which a business firm decides:

- How much of each "outputs" it will produce.
- How much of its "inputs" or "factors of production" it will use.

Laws of Production

The laws of production describe the technically possible ways of increasing the level of production. There are basically two laws of production: Law of Diminishing Returns and Law of Returns to Scale. 'Law of diminishing returns' deals with the production function in the short run. 'Law of returns to scale' deals with the production function in the long run.

A. Law of Diminishing Returns or Law of variable proportions

Law of diminishing returns is used for short-run analysis of production. In the short run only variable inputs can be changed. Fixed inputs cannot be changed.

The law explains the relationship between input and output, when only one variable factor input is allowed to increase and all other inputs are kept

constant. It also explains the relation between total product and marginal product.

As per the law, there are 3 stages in the production function: increasing stage, diminishing stage and negative returns stage.

a) **Increasing stage:** This is the first stage of production. At this stage total product, marginal product and average product will show an increasing trend.

b) **Diminishing stage:** This is the second stage. At this stage, marginal product and average product will show a declining trend. Total product will show an increasing trend, but at a lower rate.

c) **Negative returns stage:** This is the third stage. At this stage marginal product becomes negative. Hence total product and average product will show declining trend.

The following table 3.1 explains this phenomenon[2].

[2] Drawing tip: Put a value to marginal product. Let it increase, then decreases to zero and then further goes to negative values. Calculate other values based on it.

No of workers	Total Product (in units)	Marginal Product (in Units)	Average Product (in Units)	Stage
1	10	10	10	stage1
2	25	15	12.5	
3	43	18	14.3	
4	57	14	14.3	stage2
5	65	8	13	
6	65	0	10.8	
7	61	-4	8.7	stage3
9	52	-9	5.8	
10	37	-15	3.7	

Table 3.1

The above table can be diagrammatically shown as below:

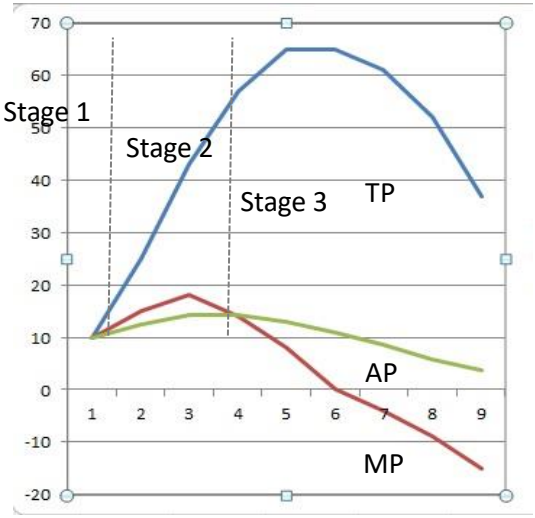


Figure 3.1

Assumption of Law of diminishing returns

1. No change in production technology.
2. Quality of labor remains the same.
3. Only one input is varied.
4. Fixed inputs are indivisible.
5. Output is measured in physical units.

Reasons of Law of diminishing returns

1. Fixed inputs are indivisible: Hence there is unused capacity in the fixed input, during the initial stages. Hence output increases at an increasing level in the initial stages.
2. Fixed inputs are not variable: In the short run, fixed inputs cannot be changed. Hence, fixed inputs cannot be increased with increase in variable inputs, output gradually declines.
3. Lack of Perfect Substitutes: One factor of production cannot be substituted for another.

Uses of Law of diminishing returns

1. The law of diminishing returns helps to calculate the optimum production.
2. It helps in cost benefit analysis.
3. It helps to know the various input output combinations.

4. The law applies quickly to agriculture, mining, forests, fisheries and building industries.
5. Malthusian theory of population[3] is based on the law of diminishing returns.

B. Law of Returns to Scale

'Law of returns to scale' is used for long-run analysis of production. The law describes the relationship between inputs and output when all the inputs are increased in the same proportion. There is no fixed factor of production in the long run.

When there is a proportionate change in the amounts of inputs, the behavior of output varies. The output may increase by a great proportion, same proportion or in a smaller proportion to its inputs. Accordingly there are three stages: Increasing, constant and decreasing returns.

a) **Increasing returns:** Increase in output is more than proportionate to increase in input. For eg. If the inputs are doubled, the output increases by more than double.
b) **Constant returns:** Increase in output is proportionate to increase in input. For eg. If the inputs are doubled, the output also doubles.

[3] Malthusian theory states that production of food grains does not increase in the same proportion in which population increases.

c) **Diminishing returns:** Increase in output is less than proportionate to increase in input. For eg. If the inputs are increased by 100%, the output increases by 80% or less.

The following table3.2 [4] explains the law of returns to scale:

Input-1 (Labor)	Input-2 (Capital)	Total Product (in units)	Marginal Product (in units)	Stages
10	200	100	100	Stage 1 increasing returns
20	400	225	125	
30	600	425	200	
40	800	675	250	
50	1000	925	250	Stage 2 (constant returns)
60	1200	1175	250	
70	1400	1375	200	Stage 3 (Diminishing returns)
80	1600	1525	150	
90	1800	1625	100	

Table 3.2

Assumptions of Law of Returns to Scale

a) All the factors of production are variable.
b) No change in technology during the time period.
c) Outputs are measured in physical terms.

[4] Drawing tip: Set marginal product first

Isoquant Curve

Also known as:

Equal Product Curve / Production Indifference Curve / Iso Product Curve

An isoquant is a curve that shows all the combinations of inputs that yield the same level of output. 'Iso' means equal and 'quant' means quantity. Therefore, an isoquant represents ‘equal quantity’ of output. The following table 3.3 explains isoquant schedule:

Input combination	Units of labor	Units of capital	Output in units
A	5	13	100
B	10	10	100
C	15	7	100
D	20	5	100
E	25	4	100
F	30	3	100

Table 3.3

Isoquant curve is the graphic representation of isoquant schedule. Figure 3.2 is the isoquant curve

of the above table. All the combinations from A to F give the same level of output- 100.

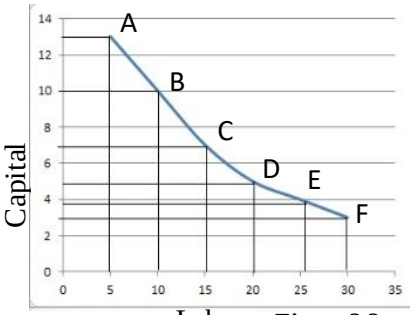


Figure 3.2

In case if the firm wants to increase the level of output to 200 or 300, the following figures given in Table 3.4 will be combination.

Units of labor	Units of capital	Output in units	Units of labor	Units of capital	Output in units
15	39	300	10	26	200
30	30	300	20	20	200
45	21	300	30	14	200
60	15	300	40	10	200
75	12	300	50	8	200
90	9	300	60	6	200

Table 3.4

In that case we will get the following isoquant curves:

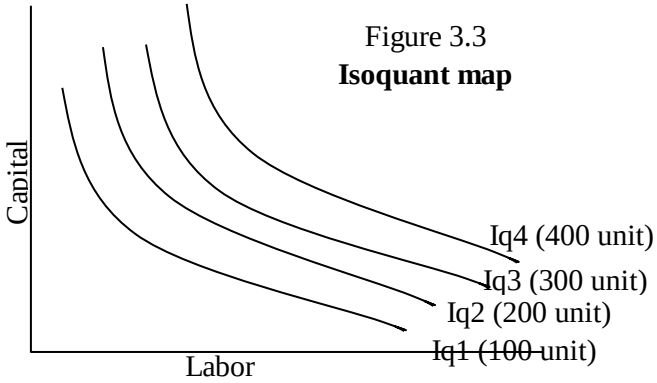


Figure 3.3
Isoquant map

Isoquant Maps

A graph which shows isoquant curves of different levels of output is called 'isoquant map' or 'equal product map'.

Properties of Isoquants

1. Isoquants slops downward from left to right.
2. Isoquants are convex to the origin.
3. Two isoquants never intersects.
4. No isoquants can touch either axis.

Iso-cost Curve/line

An isocost line represents a combination of inputs which all cost the same amount. The isocost line shows all the possible cost combinations of two factors - Labour and capital. It gives the lowest-cost combination of inputs that can produce the level of output of that isoquant.

Eg. A producer has a total budget of Rs.500/- for a certain level of output. The cost of L is Rs 50 and C is Rs 100 for each unit.

Combination	L @Rs50		C @Rs100		Total Cost
	Units	Rs	Units	Rs	
A	0	0	5	500	500
B	1	50	4.5	450	500
C	2	100	4	400	500
D	3	150	3.5	350	500
E	4	200	3	300	500
F	5	250	2.5	250	500
G	6	300	2	200	500
H	7	350	1.5	150	500

Table 3.5

Thus isocost line presents the various input combinations for a given budget. It can be graphically represented as:

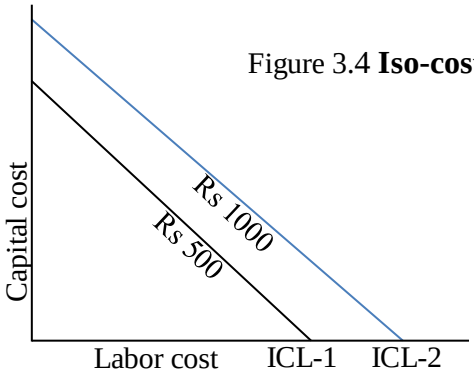


Figure 3.4 **Iso-cost line**

In the above figure there are two iso-cost lines: ICL-1and ICL-2. ICL-1 shows the input combinations for a budget of Rs. 500/- and ICL-2 for a budget of Rs.1000/-

Optimum Combination of Inputs

The optimal input combination is that input combination which maximizes output at minimum costs. This combination lays at a point where the firm's isoquant is tangent to the iso-cost curve.

Eg. Consider the isoquant in table 3.3. Assume the cost of 'L' as Rs.50 and 'C' as Rs.100. We will get the following table 3.6.

The least cost is derived at combination 'C'. This combination of isoquant curve and iso-cost curve is shown in figure 3.5.

Combination	L @Rs50		C @Rs100		Total Cost
	Units	Rs	Units	Rs	
A	5	250	13	1300	1550
B	10	500	10	1000	1500
C	15	750	7	700	1450
D	20	1000	5	500	1500
E	25	1250	4	400	1650
F	30	1500	3	300	1800

Table 3.6

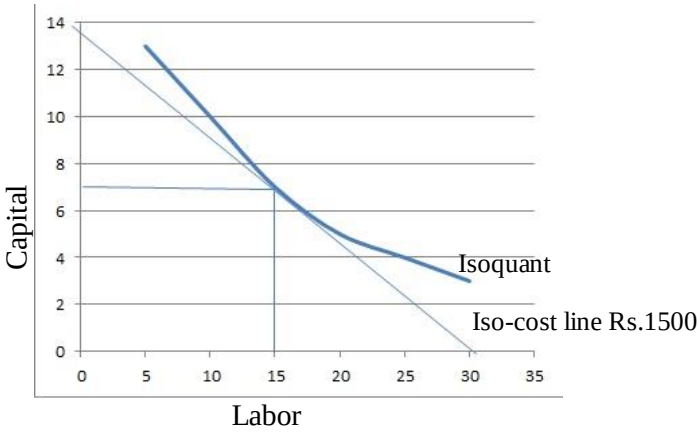


Figure 3.5

Economies and Diseconomies of Scale

- **Economies of Scale**

'Economies of Scale' refers to the cost advantage of a firm when it increases its level of output. This advantage is mainly due to the reduction in per unit fixed cost. As the efficiency increases average variable cost will also reduce to an extent. Figure 3.6 explains economies to

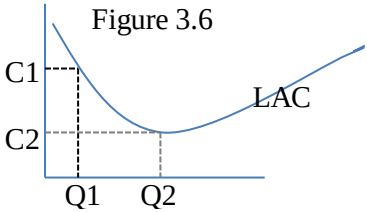


Figure 3.6

scale graphically.

Economies of scale are classified into two: internal economies and external economies.

A. Internal Economies

Internal economies are those that are unique to a firm. For eg. Patent right, good will, managerial skill, brand, etc. Other common examples of internal economies are given below:

1. Specialization / division of labor

   Division of labor is possible in large scale operations. This brings specialization and efficiency.

2. Technology

   A large firm can afford latest technologies which will reduce the cost of production. This will also improve the efficiency.

3. Commerce

   A large scale firm can avail the benefits of bulk purchases. It can also avail economies of large scale marketing.

4. Financial

   Large firms have more credit worthiness. Hence they can avail credit easily at a cheaper rate.

5. Risk-bearing

   Large firm are healthier to bear the associated risk of business.

6. Managerial

Large firm can employ efficient and talented managers.

B. External Economies

External economies of scale originate outside the firm. They occur within an industry. It is available to all local firms. They benefit the entire industry. No single firm has control over these costs. Examples of external economies of scale include:

1. Economies of concentration

With the development of an industry in an area, each firm enjoys some benefits like, transportation, communication, availability of raw materials, banks, research and invention etc.

2. Economies of information

As the industry develops, industry associations will conduct R&D for the entire industry. This information will be shared through journals, websites and meetings.

3. Economies of Disintegration:

As an industry develops, all the firms engaged in it may concentrate on specific areas. For instance, in case of moped industry, some firms specialize in rims, hubs, some others in chains, pedals, tires etc.

- **Diseconomies of scale**

Diseconomies of scale are the cost disadvantages due to an increase in firm size or output, resulting in increased per-unit costs. Firms can become less efficient if they become too large. Diseconomies can be internal or external:

A. Internal Diseconomies

1. Poor communication

   Complexity of larger firms may leads to poor communication.

2. Coordination

   Coordination of departments and staff are difficult when the firm becomes larger.

3. Management inefficiency

   Large size of the organization may be beyond the control of the management. Change in management is always not practical with the change in size of the organization.

4. Motivation

   Workers may not feel their work creative or meaningful. This demotivation of workers in large firms is a potential diseconomy of scale.

5. Complacency (self-satisfied)

   In large and uncompetitive markets, large firms tend to become complacent as a result of their

size. Eg. In the in digital photography, Kodak made significant advances. They stick-on to their core business. This led to their decline.

B. External Diseconomies

The development of an industry beyond a level will result into the following diseconomies to scale:

1. Increased cost of living

Rent of building, cost of electricity, etc. will increase as the area is crowded because of industrialization. This will increase the cost of living in that area.

2. Increased labor cost.

As a result of increase in cost of living, workers will demand more wages and salaries.

3. Pollution and social interventions.

Industrial development will gradually result into pollution, and the industry has to face social objections and government interventions as a result.

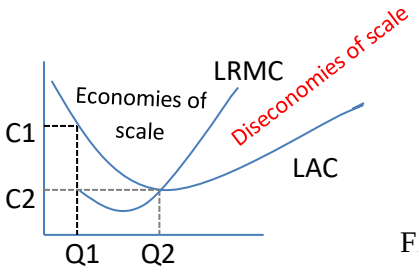


Figure 3.7

REVIEW QUESTIONS

2 mark questions

1. What is marginal product? 2020
2. What is meant by constant returns to scale? 2020
3. What is meant by economies of scale? 2020
4. What is production theory? 2019
5. What is meant by diseconomies of scale? 2019
6. What is Isoquant? 2019
7. List different stages of product life cycle. 2019
8. What are internal economies? 2018
9. What is ISO-Cost? 2018

5 mark questions

10. Explain graphically the concept of Isoquant. 2020
11. Explain graphically the concept of ISO cost line. 2018

15 mark questions

12. Explain the law of diminishing returns with the help of an example. 2020
13. Explain the law of returns to scale with the help of an example. 2019
14. Discuss the concept of production function with one variable input along with illustrations. 2018

REFERENCES

http://www.economicsdiscussion.net/economies-of-scale/economies-of-scale-internal-and-external/6917

Module III

Cost Analysis

Cost analysis

"Cost is defined as the amount of expenditure (actual or notional) incurred on or attributable to a given thing." - British Institute of Cost & Works Accountants

Cost analysis (also called cost minimization, cost identification, or cost consequence) measures the economic burden incurred by a project. Cost analysis is the basis of all economic studies because it quantifies the costs associated with a given project. In economics, the Cost Analysis refers to the measure of the cost – output relationship.

Cost Concepts

Certain concepts of costs are used by accountants for accounting purposes. These are called accounting costs. But certain cost concepts are used for financial and economic analysis. They are called economic costs.

I. Cost Concepts Used for Accounting Purposes

Accounting costs are used for taxation purposes and calculating the profit and loss of the firm.

1. Business Cost -Direct and Indirect Costs
2. Private cost
3. Full Cost
4. Out-of-Pocket Cost
5. Book Cost

Business Cost:

The Business Cost includes all the costs (direct, indirect costs) incurred in the operations of the business. It is similar to the real or actual costs. It includes all the payments and contractual obligations. It also covers the book cost of depreciation on both the plant and equipment. This is also called explicit costs.

Private Cost:

It is the cost related to the working of the firm. It is used in the cost-benefit analysis of the business decisions. These costs are borne by the firm itself. The private cost is the actual cost incurred in the day to day operations of the business. It includes both fixed and variable costs. Eg. Payment of interest, insurance premium, raw materials, wage, rent, etc.

Full Cost:

It means the full production cost of a product. It is the total of cost of materials, labor, and manufacturing overhead.

Out of Pocket Cost: They are expenses that require a cash payment in the current period.

Book Cost: They are expenses that do not require a cash payment. Eg. Provisions created, depreciation

II. Cost Concepts Used for Economic Analysis:

1. Opportunity Cost
2. Implicit Cost
3. Fixed Cost
4. Variable Cost
5. Total Cost
6. Average Cost
7. Marginal Cost
8. Short-run Cost
9. Long-Run Cost
10. Incremental Cost
11. Sunk Cost
12. Historical Cost
13. Replacement Cost
14. Past and Future cost
15. Avoidable cost
16. Unavoidable cost
17. Relevant Costs
18. Shut down cost
19. Abandonment cost
20. Social Cost

Opportunity Costs:

This is the loss of other alternatives when one alternative is chosen. OC is a benefit, profit, or value of something that must be given up to achieve something else. Every resource (land, money, time, etc.) can be put to alternative uses. Hence every action, choice, or decision has an associated opportunity cost. They are used in computing cost benefit analysis of a project. For example:

The price of a movey ticket can be used for many other.

If one decide not to go for work, opportunity cost is the lost wages.

Implicit (imputed, implied, or notional) Cost:

They are also opportunity costs associated with a decision. For eg. Rent of own building, interest on capital, etc. If a person decides to go for tour for 2 days his explicit cost includes all out of pocket costs like, travel, hotel bill, etc. His implicit cost is the wages he has forgone for these days.

Incremental Cost:

The cost of producing one additional unit of a product or service is called incremental cost.

Sunk/Historical Cost:

A Sunk Cost is the cost already incurred by the firm and cannot be recovered or refunded. The cost

which was incurred in the past and is now permanently lost is called as a Sunk Cost. For eg. Suppose, a firm has spent ₹50,000 in the construction of a building, but due to some government law the construction has to be stopped, then the amount spent till date is a sunk cost.

Relevant Costs:

In a multi-product firm, relevant costs are those costs that are directly traceable to an individual product. They are direct costs attributable to a particular product. In a single product firm all costs are relevant costs.

Shut down cost:

Cost incurred at the time of temporary shutdown of a project. A shut down helps to eliminate all variable expenses, but fixed costs will be incurred.

Shut-Down Price: Price is the price at which the company will begin to lose money for making the product. At this stage a firm may take a shutdown decision.

Abandonment (Decommissioning) cost

(Abandonment expenditure -ABEX):

They are costs associated with the abandonment of a business venture. Traditionally it refers to the process of abandoning an under-producing or non-producing oil or gas well.

Short run Cost:

It refers to the costs that remain fixed in the short period. These costs do not change with the change in the level of output. Eg. rent, interest, and salaries.

Long run Cost:

It refers to the cost having a long-term implication. They are spread over the long period of time.

Eg. cost of building, land

Replacement Cost:

It refers to the cost of replacing an asset based on its current market price.

Avoidable Cost:

An avoidable cost is a cost that is not incurred if the activity is not performed. For example, variable costs are avoidable, if production is not performed.

Social Cost:

Social Cost is the cost related to the working of the firm, but is not explicitly borne by the firm. Instead it is the cost to the society due to the production of a commodity. The social costs include:

- The cost of natural resources for which the firms does not pay. Eg. river, lake, atmosphere, etc.
- The use of public utility services such as roadways, drainage systems, etc.

- The cost of 'disutility' created through pollution (air, water, noise, environment).

Social-Cost-Benefit Analysis

Cost-benefit analysis[1] is the process of comparing the estimated costs and benefits associated with a project decision. It helps to determine whether to invest or not. The following steps are involved in cost-benefit analysis[i]:

1. Specify the options (projects) to compare
2. Decide the impacted persons whose cost and benefits needs to be compared.
3. Identify the projected costs and projected benefits for the options.
4. Assess how costs and benefits will change each year over the life of the project.
5. Convert future costs and benefits into present value. This is called social discount rate.
6. Compute net present value of all options under consideration.
7. Conduct sensitivity analysis: This analysis helps to analyze the changes in output due to changes in input variables.
8. Reach a conclusion.

[1] Financial analysis is the process of evaluating businesses, projects, budgets and other finance-related transactions to determine their performance. It is used to analyze whether an entity is stable, solvent, liquid, or profitable.

Cost function

It is the relationship between cost and output. It depends on the price of inputs and production function. TC=TFC+TVC (Total Cost=Total Fixed Cost + Total Variable Cost)

Average Cost = TC/units of output

Marginal cost is the change in total cost, due to change in output. $\Delta TC/ \Delta Q$

MC-AC Relationship AC will be falling, when MC <AC. AC will be rising, when MC >AC.

Cost output relations[ii]

Cost- output relationship has two aspects:

(a) Cost –output relationship in short run

(b) Cost –output relationship in long run.

(a) Cost –output relationship in short run

The short run is a period which does not permit alterations in the fixed equipment and in the size of the organization. Here a change in output is possible only by making changes in the variable inputs like raw materials, labour, etc. Inputs like land and buildings, plant and machinery etc. are fixed in the short-run. Short-run is a period not sufficient enough to expand the quantity of fixed inputs. Thus Total Cost (TC) in the short-run is composed of two elements – Total Fixed Cost (TFC) and Total Variable Cost (TVC).

TFC remains the same throughout the period, even if the output is zero. It is not influenced by the level of activity. But, naturally, fixed cost per unit varies with changes in the level of output.

TVC increases with increase in the level of activity, and decreases with decrease in the level of activity. But, variable cost per unit is constant.

So in the short-run an increase in TC implies an increase in TVC only. Thus:

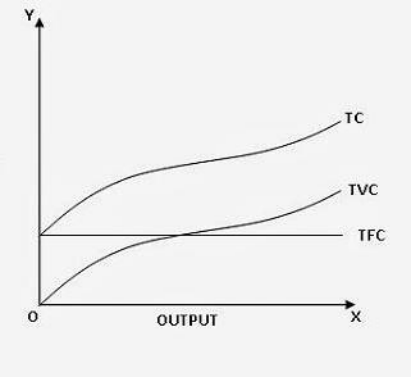
TC = TFC + TVC

TFC = TC – TVC

TVC = TC – TFC

TC = TFC when the output is zero.

The graph below shows Short-run cost output relationship.



In the graph X-axis measures output and Y-axis measures cost. TFC is a straight line parallel to X-axis, because TFC does not change with increase in output.

TVC curve is upward rising from the origin because TVC is zero when

there is no production and increases as production increases. The shape of TVC curve depends upon the productivity of the variable factors. The TVC curve above assumes the Law of Variable Proportions[2], which operates in the short-run.

TC curve is also upward rising not from the origin but from the TFC line. This is because even if there is no production the TC is equal to TFC.

The vertical distance between the TVC curve and TC curve is constant throughout because the distance represents the amount of fixed cost which remains constant. Hence TC curve has the same pattern of behaviour as TVC curve.

How this Curve is obtained

See the example of an imaginary manufacturing concern given in Table 1.

Table 1 shows the construction of short run cost curve. The table shows that:

1. FC remains fixed, irrespective of production.
2. FC is always above from zero.

   Hence FC curve is straight line
3. VC increases with increase in output.

[2] **The law of variable proportions** states that if the quantity of one factor is increased, keeping the other factors fixed, the marginal product of that factor will eventually decline.

Table1				
Output	FC	VC	TC	MC
0	1000	0	1000	
1	1000	50	1050	50
2	1000	90	1090	40
3	1000	120	1120	30
4	1000	140	1140	20
5	1000	170	1170	30
6	1000	210	1210	40
7	1000	270	1270	60
8	1000	340	1340	70
9	1000	420	1420	80
10	1000	510	1510	90

4. Increase in VC is not proportional to output.

   Hence there is a bend on the VC curve.

5. Initially, MC decreases with increase in output, but later it increases.
   Hence MC curve shall have ‘U’ shape.

6. The increase in TC is proportional to the increase in VC.

   Hence the distance between TC curve and VC curve are always equal.

Marginal Cost:

The increase or decrease in the total cost of a production, for making one additional unit of item. It is the cost of producing one more unit of a good.

Average Cost Concepts

Table 2							
Output	FC	VC	TC	MC	AFC	AC(ATC)	AVC
			FC+VC		FC/output	TC/output	VC/output
0	1000	0	1000				
1	1000	50	1050	50	1000	1050	50
2	1000	90	1090	40	500	545	45
3	1000	120	1120	30	333.3	373.3	40
4	1000	140	1140	20	250.0	285.0	35
5	1000	170	1170	30	200.0	234.0	34
6	1000	210	1210	40	166.7	201.7	35
7	1000	270	1270	60	142.9	181.4	38.6
8	1000	340	1340	70	125.0	167.5	42.5
9	1000	420	1420	80	111.1	157.8	46.7
10	1000	510	1510	90	100	151	51
11	1000	630	1630	120	90.91	148.2	57.27
12	1000	770	1770	140	83.33	147.5	64.17
13	1000	940	1940	170	76.92	149.2	72.31
14	1000	1140	2140	200	71.43	152.9	81.43
15	1000	1350	2350	210	66.67	156.7	90
16	1000	1580	2580	230	62.5	161.3	98.75
17	1000	1820	2820	240	58.82	165.9	107.1
18	1000	2080	3080	260	55.56	171.1	115.6

Consider the calculation of AFC, AVC and ATC for the above table 2:

1. AFC decreases with increase in output.

   Hence, we will get a downward line for AFC.

2. AVC decreases initially with increase in output, and later it gets increasing.

   Hence, we will get a 'U' shape curve for AVC.

3. MC decreases initially with increase in output, and later it gets increasing.

   Hence, we will get a 'U' shape curve for MC.

4. AC also decreases initially, but slowly, at a later stage, it also increases.

   Hence, we will get a 'U' shape curve for AC.

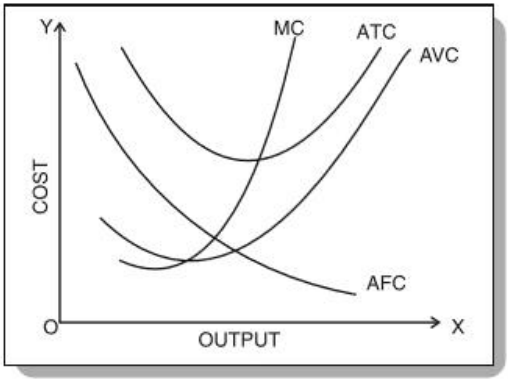


Fig. 1 : Short run Average and Marginal Cost Curves

Reason for 'U' shape of average cost

Short run average cost curve falls in the beginning, reaches a minimum and then begins to rise. The reasons for this phenomenon are:

1. Fixed factors of a firm remain the same.
2. Change takes place in the variable factors only.
3. Average cost diminishes till the plant utilizes its full capacity (plant size/optimum capacity).
4. At this optimum capacity average cost will be the minimum.
5. If the firm continues to increase the production, even after this optimum level, the economies of that scale of production change into diseconomies. Hence the average cost begins to rise sharply.
6. In short, law of returns to scale is the reason for 'U' shape.

(b) Cost –output relationship in long run

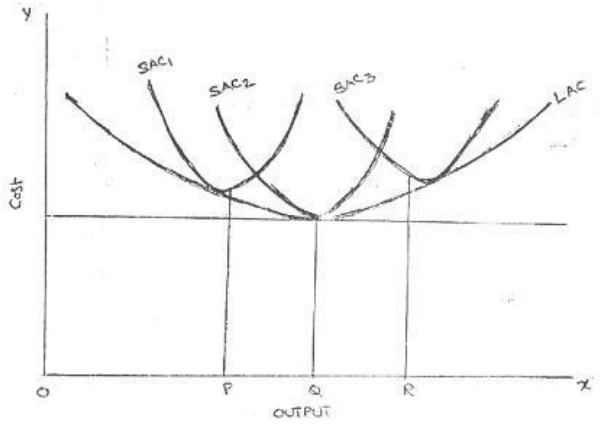
Long run does not refer to 'some date in the future. It simply refers to a period of time during which all inputs can be varied. Here all inputs are variable. A change in output is possible only by making changes in the both fixed and variable. Inputs like land and buildings, plant and machinery etc. are also variable in the long-run. Long-run is a period sufficient

enough to expand or contract (shrink) the quantity of fixed inputs.

The long-run cost-output relations therefore imply the relationship between the total cost and the total output. In the long-run cost-output relationship is influenced by the law of returns to scale.

In the long run a firm has a number of alternatives in regards to the scale of operations. For each scale of production or plant size, the firm has an appropriate short-run average cost curves. The short-run average cost (SAC) curve applies to only one plant whereas the long-run average cost (LAC) curve takes in to consideration many plants.

The long-run cost-output relationship is shown graphically with the help of "LAC' curve.



In the above figure it is assumed that technologically there are only three sizes of plants – small, medium and large.

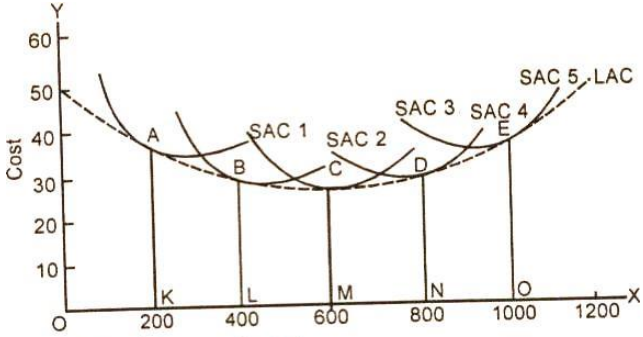
'SAC1', for the small size, 'SAC2' for the medium size plant and 'SAC3' for the large size plant. If the firm wants to produce 'OP' units of output, it will choose the smallest plant. For an output beyond 'OQ' the firm wills optimum for medium size plant. It does not mean that the OQ production is not possible with small plant. Rather it implies that cost of production will be more with small plant compared to the medium plant.

For an output 'OR' the firm will choose the largest plant as the cost of production will be more with medium plant. Thus the firm has a series of 'SAC' curves. The 'LCA' curve drawn will be tangential (peripheral/loose) to the entire family of 'SAC' curves. i.e. the 'LCA' curve touches each 'SAC' curve at one point, and thus it is known as **envelope curve**. It is also known as **planning curve** as it serves as guide to the entrepreneur in his planning to expand the production in future. With the help of 'LCA' the firm determines the size of plant which yields the lowest average cost of producing a given volume of output it anticipates.

Long Run Average Cost Curve:

The shape of the long run average cost curve is also U-shaped. But it is flatter than the short run curve. It can be diagrammatically shown as:

If the firm expects an output of 200 units it may opt for plant A. If the expectation is for 400 units, it must opt for plant B. And so on.



Long run average cost curve LAC is obtained by drawing a tangent to each of the short run cost curve. The LAC is also 'U' shaped. But it is flatter than tile short run cost curves. Long-run average cost curve is the envelope of the SAC curves.

The long-run average cost curve of the firm is lowest at point C. CM is the minimum cost at which optimum output OM can be, obtained.

REVIEW QUESTIONS

2 mark Questions

1. What is future cost? 2020
2. Write an example of opportunity cost. 2020
3. Differentiate between short term cost and long term cost. 2019
4. What is sunk cost? 2018
5. Write notes on cost output relationship? 2018

5 marks Questions

6. Explain the concept of average cost and marginal cost. What is the relationship between the two? 2020
7. The short run cost-output is the relationship between output and variable costs. Discuss. 2019
8. Distinguish between accounting cost and economic cost with the help of examples. 2018

15 mark Questions

9. What is cost-benefit analysis? How is it different from financial analysis? Discuss briefly the steps involved in social-cost-benefit analysis of project? 2018

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[i] https://www.pmc.gov.au/ria-mooc/extra-detail/cba/major-steps-cost-benefit-analysis

[ii] http://subinkolannoor.blogspot.com, http://www.economicsdiscussion.net/theory-of-cost/cost-in-short-run-and-long-run-with-diagram/19965 https://www.mbaknol.com/managerial-economics/cost-output-relationship/

Module V

Pricing in Different Markets

Every individual is interested in prices. Everyone whether he is a consumer or a producer is affected by rise or fall in prices. A consumer is anxious to find out whether the goods of his interest have become cheaper. Similarly, producer is interested in whether the prices of the products he produces and the inputs he uses, have gone up or down.

Price: Price is the amount of money expected, required, or given in payment for something. Pricing is deciding the amount required as payment for something offered for sale. A price is the quantity of payment or compensation given by one party to another in return for one unit of goods or services. In modern economies, prices are generally expressed in units of some form of currency.

Selling price usually depends on the firm's average costs, and on the customer's perceived value of the product in comparison to his perceived value of the competing products.

According to Philip Kotler: “Price is the amount of money charged for a product or service.” Broadly, price is the total amount that being exchange by the customer to obtain a benefit of the product or service.

Price Theory

The theory of price is a microeconomic principle. It uses the concept of supply and demand to determine the appropriate price point for a good or service. The goal is to achieve equilibrium in which the quantities of goods or services provided match the corresponding market's desire and ability to acquire the good or service. The concept allows for price adjustments as market conditions change. Price theory explains how prices are determined and why and when they are high or low.

Limitations of Price Theory:

1. It simply provides a theoretical analysis of the working of the individual parts of the economy.
2. It only lays down guidelines based on a given data. Often the data are not reliable.
3. The assumption of rational decision-making (to achieve the most efficient use of scarce resources) is seldom observed by businessmen and consumers.

4. Price theory may not give a description of the real world since it is based on limited data and unrealistic assumptions.

Price mechanism

It refers to the system where the forces of demand and supply determine the prices of commodities and the changes therein. It is the buyers and sellers who actually determine the price of a commodity. Price mechanism is the outcome of the free play of market forces of demand and supply. However, sometimes the government controls the price mechanism to make commodities affordable for all people.

Objectives of Pricing

Traditionally profit maximization was the sole objective of pricing. Under traditional pricing theories, price was determined at a point where MR=MC. Marginal revenue=Marginal Cost. It was assumed that firms have perfect knowledge about their cost, revenue and demand.

But in modern business, sales maximization, revenue maximization, target ROI, ensuring market share, etc. are also the objectives of pricing. Moreover, the assumptions of traditional pricing are also wrong in a competitive economy.

1. Ensure target return on investment (ROI) – Pricing for profit

2. Retain or increase market share- Maximise sales
3. Market penetration- Low price to stimulate the market growth
4. Prevention of Competition- low price, considering competition
5. Price Stability- Increase reputation
6. Profit maximization- Monopoly market
7. Pricing based on customer's ability- Price discrimination.
8. Differential pricing – different prices for different customers
9. Market skimming- High price at initial stage
10. Product line promotion- Promotes the entire line of products.

Market:

A market is defined as the sum total of all the buyers and sellers in the area or region under consideration. The area may be the earth, or countries, regions, states, or cities.

The value, cost and price of items traded are as per forces of supply and demand in a market. The market may be a physical entity, or may be virtual. It may be local or global, perfect and imperfect.

Concept of Free Market

In economics, **a free market** is an idealized system in which the prices for goods and services are determined by the open market and consumers, in which the laws and forces of supply and demand are free from any intervention by a government, price-setting monopoly, or other authority.

Available market:- The number of people who are both willing and capable of buying a particular product or service in a particular market.

Market Potential: It is the maximum market size that will buy goods, subject to greatest marketing action. Beyond this market potential, the costs outweigh the gains. The market potential is therefore the upper limit for a marketplace and sales.

Concept of Market

4Ps of Market: Price, Product, Place and Promotion

A market is a medium that allows buyers and sellers of a specific good or service to interact in order to facilitate an exchange. This type of market may either be a **physical marketplace** where people come together to exchange goods and services in person, as in a bazaar or shopping

center, or a **virtual market** wherein buyers and sellers do not interact, as in an online market. Market can also refer to the **general market where securities** are traded. This form of the term may also refer to specific securities markets and may take place in person or online. The term "market" can also refer to people with the desire and ability to buy a specific product or service.

Essential requisites of Market

1. Commodities/Services
2. An Area- Place, region,
3. Buyers and sellers
4. Interaction between buyers and sellers
5. Demand and supply

Supply and Demand

Supply and demand is one of the most fundamental concepts of economics. It is the backbone of a market economy.

Demand

It refers to the amount of a product that people are willing to buy at a certain price. The relationship between price and quantity demanded is known as the **demand relationship**.

Supply

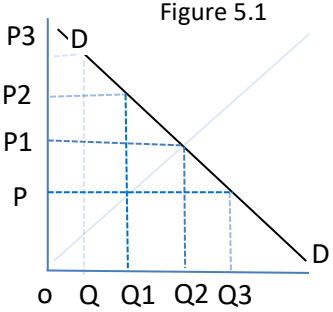
It represents how much quantity the market can offer. The correlation between price and the quantity of a good or service is supplied to the market is known as the **supply relationship**.

Therefore price is a reflection of supply and demand.

A. The Law of Demand

The law of demand states that, if all other factors remain equal, the higher the price, the lower the quantity demanded. The chart below shows that the curve is a downward slope.

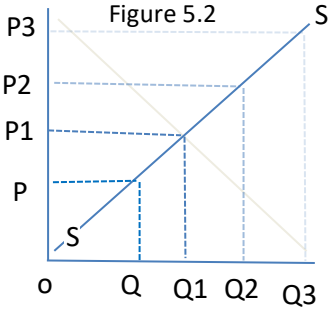
Figure 5.1



B. The Law of Supply

C. Like the law of demand, the law of supply demonstrates (determines) the quantities that will be sold at a certain price. Q The higher the price, the higher the quantity supplied.

Figure 5.2



D. Equilibrium Price

When supply and demand are equal the economy is said to be at equilibrium. At this point, the amount of goods being supplied is exactly the same as the amount of goods being demanded.

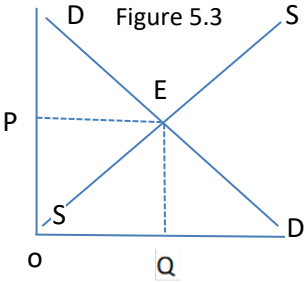


Figure 5.3

Equilibrium occurs at the intersection of the demand and supply curve. At this point, the price of the goods will be 'P' and the quantity will be 'Q'. **These figures are referred to as equilibrium price and quantity.** Price stability occurs at this point.

Time and Supply

Unlike the demand relationship, the supply relationship is a factor of time. Time is important to supply because suppliers cannot always, react quickly to a change in demand or price. So it is important to try and determine whether a price change caused by demand, is temporary or permanent.

E. Disequilibrium

Disequilibrium occurs whenever the price or quantity is not equal to 'P' or 'Q'.

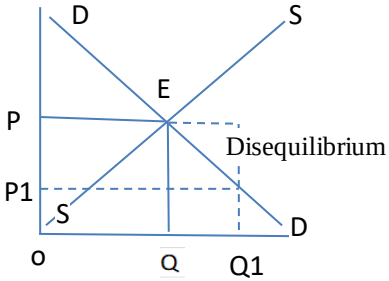


Figure 5.4

1. Excess Supply

If the price is set too high, demand may be affected to create excess supply within the economy.

2. Excess Demand

Excess demand is created when price is set below the equilibrium price.

Various Market Forms and Pricing

Perfect competition, monopoly, monopolistic competition and oligopoly are the market forms in an economy.

Market conditions

[i]Characteristic of a market into which a firm or product is entering are called market conditions. It includes number of competitors, level or intensity of competitiveness, and the market's growth rate.

A market system is the network of buyers, sellers and other actors that come together to trade in a given product or service. There are broadly classified into two: Perfect Competition, and imperfect competition. Imperfect competition includes monopoly, oligopoly, monopolistic competition and monopsony.

Various market forms:

With a view to determine the equilibrium price and output, the market is classified into three forms:

(a) Perfect competition, (b) Monopoly and,
(c) Imperfect competition.

Imperfect competition may be of:

(a) Duopoly, (b) Oligopoly,

(c) Monopsomy, (d) Duopsony,

(e) Olygopsony, (f) Bilateral monopoly, and
(g) Monopolistic competition.

PERFECT COMPETITION

PC is the market situation in which buyers and sellers are so numerous and well informed that all elements of monopoly are absent and the market price of a commodity is beyond the control of individual buyers and sellers. Perfect competition describes a market structure where competition is at its greatest possible level. To make it more

clear, a market which exhibits the following characteristics in its structure is said to show perfect competition:

1. Large number of buyers and sellers
2. Homogenous/identical product by every firm.
3. Free entry and exit of firms.
4. Buyers and sellers have perfect knowledge about the market. They are well aware of any changes in the market.
5. Buyers and sellers take rational decision making.
6. Perfect mobility of all the factors of production.
7. No government intervention.
8. No transportation costs.
9. Zero advertising cost.
10. Each firm earns normal profits and no firms can earn super profits.
11. No firm/Consumer can influence the price of the product. Every firm is a price taker. It takes the price as decided by the forces of demand and supply.

Ideally, perfect competition is a hypothetical situation which cannot possibly exist in a market. However, perfect competition is used as a base to compare with other forms of market structure. No industry exhibits perfect competition in India.

Pure competition

It is a situation, where the first three conditions of perfect competition exist. I.e. Large number of buyers and sellers, homogenous/identical products, free entry and exit of firms.

Pricing Under Perfect Competition

In a perfectly competitive market, price is determined by the market forces of demand and supply. Demand conditions are subject to rapid changes. But supply conditions are not easily changed, because production cannot be adjusted in the short run.

According to Prof. Alfred Marshall[1] there are three time periods for the determination of price under perfect competition:

(a) Market (very short) Period,
(b) Short Period, and (c) Long Period.

[1] Alfred Marshall (26 July 1842 – 13 July 1924) was one of the most influential economists of his time. His book, Principles of Economics (1890), was the dominant economic textbook in England for many years. It brings the ideas of supply and demand, marginal utility, and costs of production into a coherent whole.

(a) Pricing in the Market (very short) Period

Market Period is a very short period extending up to one week, depending on the nature of the product. Here supply is limited to the existing stock by all firms. There for pricing depends on the nature of commodities- perishable and non-perishable.

Perishable goods:

The time period for perishable commodities is only a day. For instance, if the demand for a vegetable increases, its supply cannot be increased on the same day. Therefore, the supply of vegetable being fixed, its price is determined by demand on that day. The price of a perishable commodity like milk, vegetables, fish, etc., is primarily influenced by its demand. Supply has no influence on price because it is fixed. Therefore, the price of a perishable commodity rises with the increase in its demand, and falls with the decrease in its demand.

If the demand for fish rises from D to D1 the new equilibrium is established at E1 and the price increases to OP1. On the other hand, if the demand falls from D to D2 price also falls from OP to OP2.

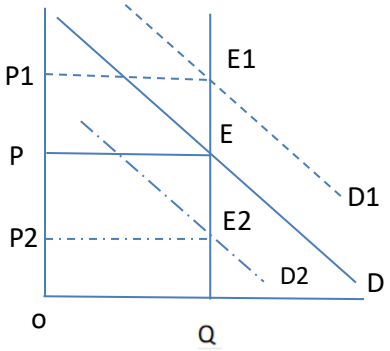


Figure 5.5

Thus the market price is determined by demand alone while the supply (OQ) is fixed. We also find in reality that the prices of perishable commodities like vegetables, milk, fish, etc. rise or fall many times a day in summer with the rise or fall in the demand for them.

Durable Commodities:

Most commodities are durable which can be kept in stock. When the price of a durable commodity increases with the increase in its demand, its supply can be increased out of the given stock. Such commodities are cloth, wheat, tea, etc.

They have two price levels. First, a minimum price below which a seller will not sell his commodity. This is also known as the **reserve price**. Second, a minimum price at which the seller will be prepared to sell the entire quantity of his commodity.

While fixing the reserve price for his commodity, any seller would take into consideration the following factors:

a. Durability of the Commodity
b. Prices in Future
c. Future Cost of Production
d. Expenses on Storage
e. Liquidity Preference
f. Demand in Future

Thus there being two price levels, the seller will not sell any quantity of his commodity at the reserve price, whereas he would be prepared to sell the entire quantity at the maximum price.

As the price of the commodity increases with the rise in its demand, the seller will continue to sell larger quantity of his commodity till the demand rises to the level of the maximum price where he will dispose of his entire stock of the product. After this, it is not possible to increase the supply to match any increase in demand. This also explains the vertical shape of the supply curve for a durable commodity.

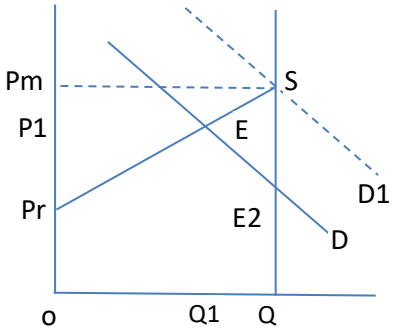


Figure 5.6

PrS is the supply curve during 76 the market period in Figure 5.6. OQ is the total supply of the commodity. OPr is the minimum or reserve price at which the seller does not sell his commodity. OPm is the price at which he is prepared to sell the entire stock. When the price decreases to P1, he will sellout only OQ1 quantity. Q1Q quantity will be kept in stock.

Thus in the market period demand has a greater influence than supply in price determination.

(b) Short Period Price:

The short period relates to a period in which supply can be changed by changing the variable factors. This can be done by starting two or three shifts and by employing more labour, raw materials, etc. In the short period, it is not possible to change the fixed factors, the scale of

production and organisation. Therefore, supply can be increased or decreased to an extent only.

In the short period also, price is determined by the forces of demand and supply.

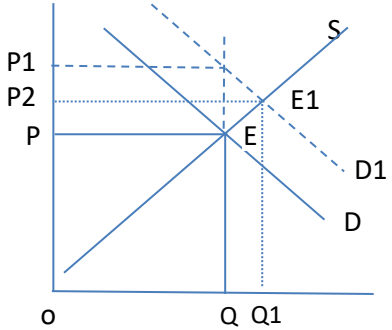


Figure 5.7

Its determination is shown in Figure. 5.7. D is the original demand curve and S is the market period supply curve. With this supply and demand equilibrium is established at E at price P.

Suppose the demand rises from D to D1. The immediate effect will be that the price will rise from P to P1.

Within the short period supply will be adjusted from OQ to OQ1. As a result, price will be decreased from P1 to P2. A new equilibrium will be established at E1.

Now, suppose the demand falls from D to D2, as shown in figure 5.8.

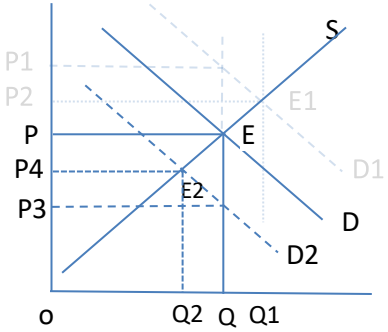


Figure 5.8

The market price immediately falls from P to P3. Within the short period, supply will be reduced to OQ2. Price will be increased from P3 to P4. As a result, the new equilibrium is established at E2.

Thus supply is more important than demand in the short period.

(C) Long Period Price or Normal Price:

The long period is a period in which supply can be fully adjusted to demand. Long period price is also known as the normal price. **Normal price** is that price which is likely to prevail in the long-run.

> "Normal or natural value is that which economic forces would tend to bring about in the long-run." Marshall

Long period price (normal price) is determined by the equilibrium of demand and supply. At this equilibrium, normal price would be equal to the long-run marginal cost and average cost. If the price is above the minimum long-run average cost, all the firms would be earning super-normal profits. These extra profits would attract new firms into the industry. As a result, supply would increase and price would come down to the level of the minimum long-run average cost.

On the contrary, if the price falls below the minimum long-run average cost, firms would incur losses. Some of the firms that cannot sustain losses would leave the industry. Supply would be reduced and price would rise to the level of the minimum long-run average cost.

Thus the long period or normal price is always equal to the minimum long-run average cost.

This is depicted in Figures 5.9 and 5.10, where:

LS is the long run supply curve.

SS is the Short run supply curve.

QMS is the market period supply curve.

E is the equilibrium price for demand curve D.

Increase in Demand:

When the demand shifts from D to D1, it has three types of responses in the long period (as shown in figure 5.9):

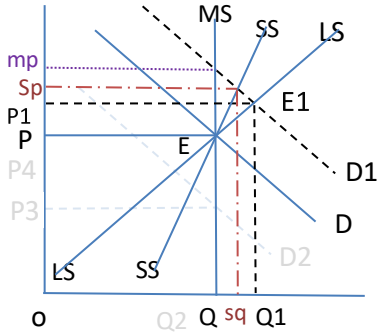


Figure 5.9

(a) Market period impact: Price will increase from op to omp.

(b) Short period impact: Supply will be adjusted to osq (short run supply curve) and price will reduce from omp to osp.

(c) Long Period impact: Supply will be increased to oQ1 and price will reduce from osp to op1. Here the new long run equilibrium will be established at E1.

Decrease in Demand:

When the demand shifts from D to D2, it has also three types of responses in the long period (as shown in figure 5.10):

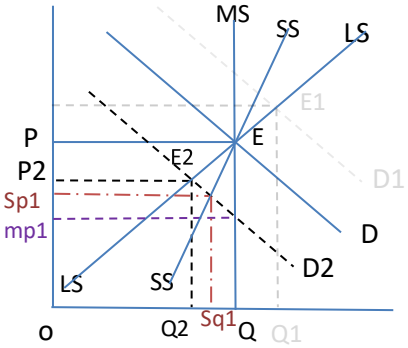


Figure 5.10

(a) Market period impact: Price will reduce from op to omp1.

(b) Short period impact: Supply will be adjusted to osq1 (short run supply curve) and price will increase from omp1 to osp1.

(c) Long Period impact: Supply will be decreased to oQ2 and price will increase from osp1 to oP2. Here the new long run equilibrium will be established at E2.

The long-run equilibrium point is always established at a point where long run demand curve intersects long run supply curve. At this point MR=AR=Price. This is the normal price which has the tendency to prevail in the long-run.

(d) Secular Period:

The secular period is very long. According to Marshall, it is a period of more than ten years in which changes in demand fully adjust themselves to supply. Since it is not possible to estimate the changes in demand due to changes in techniques of production, population, raw materials, etc. over a very long period, Marshall did not analyse pricing under the secular period.

Conclusion:

The above analysis shows the importance of time element in price theory. There are two main forces in the determination of price- demand and supply. Generally, the shorter the time period, the greater will be the influence of demand on pricing. Longer the time period, the greater will be the influence of supply on the determination of prices.

MONOPOLY

The word monopoly has been derived from the combination of two words i.e., 'Mono' and 'Poly'. Mono means single and poly means control. Thus, monopoly refers to a market situation in which there is only one seller of a commodity.

"Monopoly is a market situation in which there is a single seller. There are no close substitutes of the commodity it produces, there are barriers to entry".

–Koutsoyiannis

Features:

1. One Seller and Large Number of Buyers:

2. No Close Substitutes: The cross elasticity of demand between the product of the monopolist and others must be negligible or zero.

3. Difficulty of Entry of New Firms: There are either natural or artificial restrictions on the entry of firms into the industry, even when the firm is making abnormal profits.

4. Monopoly is also an Industry: One firm constitutes the industry.

5. Price Maker: Monopolist has full control over the supply. Therefore, buyers have to pay the price fixed by the monopolist.

6. The monopolist charges a uniform price for his product.

7. The monopoly price is uncontrolled.

Kinds of monopoly

1. Simple and Discriminating Monopolies:

A simple monopoly firm charges a uniform price for its output sold to all the buyers. Eg. India Post before liberalization

Discriminating monopoly firm charges different prices for the same product to different buyers. Eg. KSEB

2. Pure Monopoly and Imperfect Monopoly:

In a pure monopoly, a single firm controls the supply of a commodity which has not even a remote substitute. It possesses an absolute/perfect monopoly power. Such a monopoly is very rare.

Imperfect monopoly means a limited degree of Monopoly. Here a single firm produces a commodity having no close substitutes. But the degree of monopoly is less than perfect. It relates to the availability of the closeness of a substitute. Eg. Ambassador cars in 1980s, Maruti cars in 1990s, Windows, etc.

3. Natural Monopoly:

When a Monopoly is established due to natural causes then it is called natural monopoly. Today India has got monopoly in ‘mica’ production and Canada has got monopoly in ‘nickel’ production.

Nature has provided this monopoly to these countries.

4. Legal Monopoly:

When anybody receives or acquires Monopoly due to legal provisions in the country. For Example: patents, trade-marks, copyrights etc.

5. Industrial/Public Monopolies:

Industrial/public monopolies are created through the nationalization of industries. For eg. In India, certain industries like arms and ammunition, atomic energy, and railways are the sole monopoly of the Central Govt. as per The Industrial Policy Resolution 1956. KSBC (Kerala State Beverages Corporation).

Price and output determination under Monopoly

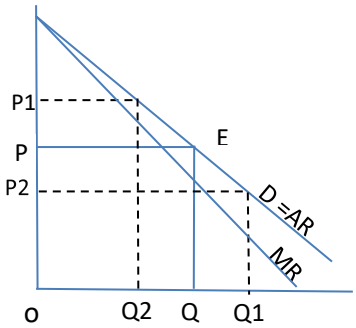


Figure 5.11

Demand curve of the firm indicates the demand curve of the industry. The demand curve of the monopolist is also the average revenue curve (AR). As shown in figure 5.11, a monopolist can sell

more quantities at a lower price only. The demand will fall at higher prices. AR is equal to price. Marginal Revenue (MR) is less than AR.

Numerical calculation is given below:

Price	Q (qty sold)	T Revenue P*Q	MR	AR TR/Q
20	1	20	20	20
18	2	36	16	18
16	3	48	12	16
14	4	56	8	14
12	5	60	4	12

Drawing tip: Demand increases when price decreases.

Equilibrium under monopoly

Equilibrium under monopoly is attained at the point where profit is maximum, i.e. where MR=MC.

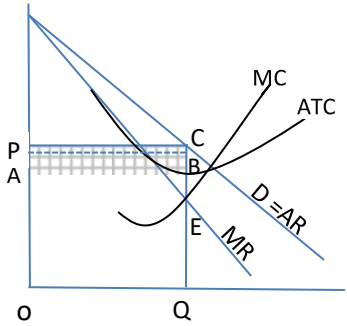


Figure 5.12

In the given figure 5.12, MR=MC at point E, where the firm is in equilibrium. The firm get normal profit if the price is fixed at 'A', where Price=AR=ATC.

If the price is above

the Average Total Cost (P), the firm gets super profit. The super profit is represented by the shaded rectangle of ABCP. Here Price is above the Average Total Cost. If the price is fixed below the ATC, the firm will incur a loss.

PRICE DISCRIMINATION

Price discrimination is a pricing strategy that charges customers different prices for the identical good or service. Existence of different price elasticity is the major condition for the implementation of price discrimination. Eg. Price slabs of KSEB, triple slab system of rationing by civil supplies corporation, Fare system of Indian Railway, airline industry, etc.

Objectives of Price Discrimination

1. Maximisation of profit.
2. Maximisation of revenue.
3. Market penetration: Low price to induce the market.
4. Control demand: as in the case of KSEB.
5. To ensure social justice: Eg. triple layer ration card system of Kerala Civil Supplies Corporation.
6. To recognize the services of certain categories: eg. concession to senior citizen.

Conditions of Price Discrimination

1. Possibility to identify clear different market segments.
2. Different price elasticity of different market segments.
3. Separation of market segments, either by time, physical distance and nature of use, etc. Eg. MS Office 'Schools' edition, at a lower price; Time based pricing in dynamic pricing.
4. No seepage between the two markets. I.e. reselling by the customer not allowed.
5. Existence of monopoly, duopoly or oligopoly.

Degree of price discrimination (Types of PD)

There are three types of price discrimination – first-degree, second-degree, and third-degree.

1. First Degree (Perfect) Price Discrimination: Here the company charges different price for every good or service sold. Eg. dynamic pricing by Indian airline industry.
2. Second Degree Price discrimination: Here a company charges a different price for different quantities consumed. Eg. quantity discounts on bulk purchases.
3. Third-degree price discrimination: Here a company charges a different price to different groups of consumers. Eg. discount prices to

students, senior citizen, defense personnel, etc. by Indian Railway.

Price determination under discrimination

Market segmentation and different price elasticity are the basic conditions for price discrimination. A monopolist use price discrimination to increase in his total revenue and profits. He compares the total revenues under price discrimination and under uniform price.

The following figure (5.13) explains the revenue of a single price firm and firm which uses price discrimination. For the single price firm, single

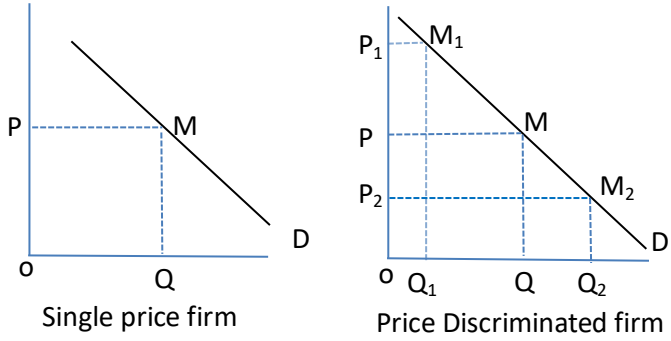


Figure 5.13

price (P) is available to all customers. The amount of revenue is represented by area PMQO. The consumer surplus is the area above line segment PM but below the demand curve (D).

With price discrimination, the demand curve is divided into three segments (M, M1 and M2). A higher price (P1) is charged to the low elasticity segment, and a lower price (P2) is charged to the high elasticity segment. The total revenue from the first segment is equal to the area P1,M1,Q1,O. The total revenue from the second segment is equal to the area PMQO. The total revenue from the third segment is equal to the area P2M2Q2O. The sum of these areas will always be greater than the area without discrimination.

The following diagram (figure 5.14) explains the pricing under price discrimination. Assume that the monopolist sells his product in two segmented markets. Each of them has different price elasticity.

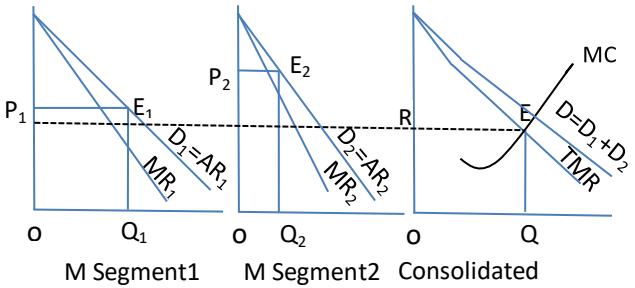


Figure 5.14

In the given figure, MR1 is the Marginal Revenue of market segment A. MR2 is the Marginal

Revenue of market segment B. TMR is the Total Marginal Revenue of total market (segment A & B). The Marginal Cost curve is MC. Equilibrium is attained at the point where profit is maximum, i.e. where TMR=MC.

Monopolistic competition

Monopolistic competition characterizes an industry in which many firms offer products or services that are similar, but not perfect substitutes. Barriers to entry and exit in a monopolistic competitive industry are low, and the decisions of any one firm do not directly affect those of its competitors.

Features

1. Large number of buyers.
2. Large number of sellers.
3. Product differentiation through quality, color, brand, design, shape, size, etc.
4. Non price competition. Competition based on product differentiation.
5. Varying preferences of customers, on the basis of product differentiation.
6. Free entry and exit of firms.
7. Firms are price setters. They have independent price policy.

8. Absence of perfect knowledge among consumers.
9. High selling costs.
10. Homogeneous products constitute the industry.

Price-output determination

Equilibrium under monopolistic competition is attained at the point where profit is maximum, i.e. where MR=MC.

(a) Super profit: A firm will make super profit, if it could fix the price above the ATC.

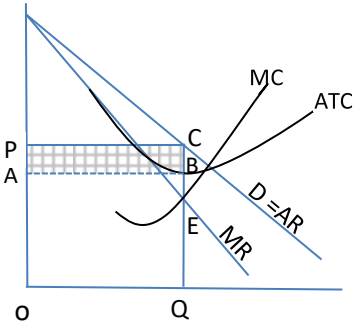


Figure 5.15

In the given figure 5.15, MR=MC at point E, where the firm is in equilibrium. AR also represents the demand curve. The firm gets normal profit if the price is fixed at 'A', where Price=AR=ATC. Since the price is above the Average Total Cost, the firm gets super profit. The super profit is represented by the shaded rectangle of ABCP. Here Price is above the Average Total Cost.

(b) Normal Profit: The firm would earn normal profit if the price is fixed at ATC.

In the given figure 5.16, the firm earns a normal profit if price is fixed at 'op'.

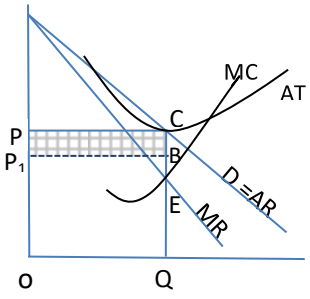


Figure 5.16

(c) Loss: If the price is below the ATC, then the firm will incur loss.

In the given figure 5.16, the firm will incur a loss, if price is fixed at 'op_1'. The loss is represented by the shaded area, $PCBP_1$.

OLIGOPOLY

An oligopoly is a market form where an industry is dominated by a small number of large sellers. Thus Oligopoly Market is characterized by few sellers, selling the homogeneous or differentiated products. Eg. tooth paste market, telecom market, civil aviation market

Features of Oligopoly

1. Few Sellers and large customers. Few firms dominating the market enjoy a considerable control over the price of the product.
2. Interdependence: If any firm makes changes in the price or promotional scheme, all other firms in the industry will also do it, to remain in the competition.

3. Heavy Advertising: Under Oligopoly market, each firm spends lots of money on advertisement.
4. Competition: Since there are only few players in the market, there will be an intense competition among the sellers. Any move taken by the firm will have a considerable impact on its rivals.
5. Entry and Exit Barriers: The firms can easily exit the industry whenever it wants. But it has to face certain barriers to enter the market. These barriers could be Government license, Patent, high capital requirement, complex technology, etc.
6. Lack of Uniformity: There is a lack of uniformity among the firms in terms of their size, some are big, and some are small.
7. Indeterminate demand curve: Any step taken by the rivals may change the demand curve.
8. Stability in price: This is because the oligopolist avoids experimenting with price changes.

Price output determination under oligopoly

Price and output determination under oligopoly can be studied with the three models: Kinked Demand Curve, Price Leadership, and Pricing under Collusion.

A. Kinked Demand Curve

The model explains the reasons for price rigidity in oligopoly market. An oligopolist will have two demand curves — one that is relatively elastic for prices (present price) and one that is relatively inelastic for prices. Thus demand curve has a kink at the current price.

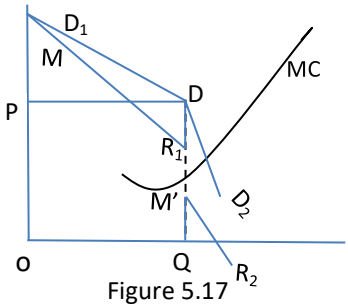


Figure 5.17

Since there are two demand curves, there will be two marginal revenue curves also.

The given figure explains kinked demand curve.

D_1D represents elastic portion of the demand curve. MR_1 represents the corresponding revenue curve.

DD_2 represents inelastic portion of the demand curve. $M'R_2$ represents the corresponding revenue curve.

MR curve does not have a kink. But there is a gap between the elastic and inelastic segments of the Marginal Revenue Curve. This gap is denoted by dotted lines between R_1M'. This gap is due to the differences in elasticity.

Reason for kink in Demand Curve

When the firm increases price, competing firms will not increase price. Hence the firm may loss price elastic customers. This is explained in DD_1 and MR_1

When the firm decreases price, competing firms will also reduce the price. Hence the firm will fail to increase its sales. Therefore there will be a reduction in the revenue. This is explained in DD_2 and $M'R_2$

B. Price Leadership

Under this model one firm is considered as the leader and is allowed to fix price. This form of collusion (conspiracy) is basically a secret affair among firms. Price leadership maybe considered as an imperfect form of collusion. Price leadership takes three different forms viz., low cost price leadership, dominant price leadership, barometric price leadership.

(a) Price Leadership by a Low-Cost Firm

The low-cost firm in the industry has the power to set prices than the high-cost firms. As a result, the high-cost firms will not be able to sell their product at the higher price. Thus the low -cost firm becomes the price leader.

The given figure explains this price leadership.

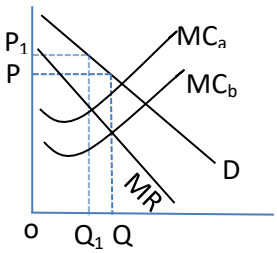


Figure 5.18

(b) Price Leadership of the Dominant Firm:

Here the firms which has lion portion of market share will become the price leader. This firm owing to its market share dominates the market.

(c) Price Leadership by a Barometric Firm:

Here a firm an old, matured, experienced, largest or most prestigious firm becomes the price leader. This firm undertakes the responsibility of a guardian to protect the interests of the other firms. The barometric price leader assesses the changes in the market conditions and takes initiatives to meet the challenges, keeping in view interest and welfare of all the firms in the industry.

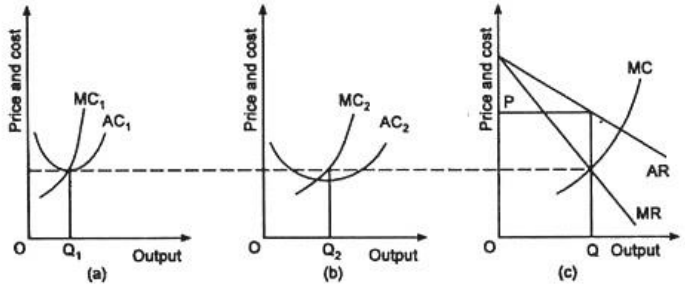
(d) Aggressive Price Leadership

The aggressive price leader forces other firms in the industry accept its leadership. It often threatens the others firms to throw them out of market, if they do not follow its leadership.

C. Pricing under Collusion

Collusion is a situation where firms join hands to gain the advantages of monopoly. It results into a cartel (association). A cartel is a formal agreement among firms regarding pricing and/or market sharing. Eg. OPEC.

The marginal cost curves of each firm are summed horizontally to derive an industry marginal cost curve. The profit-maximizing output and equilibrium price (P0) are determined simultaneously by equating the cartel's total marginal cost with the industry marginal revenue curve.



The aggregate marginal cost curve of the industry SMC is drawn by the lateral summation of the MC curves of firms A and B, so that SMC = MCa+ MCb.

The cartel solution that maximises joint profit is determined at point E where the SMC curve

intersects the industry MR curve. Consequently, the total output is OQ which will be sold at price Qp = (Qf). As under monopoly, the cartel board will allocate the industry output by equating the industry MR to the marginal cost of each firm.

Budget Line

A budget line is a straight line that slopes downwards. It consists of all the possible combination of the two goods which a consumer can buy at a given market price by allocating all his income. It is also called the budget constraint. Budget line in economics is based on two components:

(a) Purchasing power of the consumer, and

(b) Market price of the two commodities under consideration.

REVIEW QUESTIONS

2 mark Questions

1. What are the types of price discrimination? 2020
2. What is bilateral monopoly? 2020
3. Explain cost plus pricing. 2020
4. What is duopoly? 2018, 2019
5. What is Monopsony? 2019
6. Define equilibrium price? 2018
7. State the meaning of budget line. 2018

5 marks Questions

8. Describe kinked demand curve with a graph. 2018
9. Explain how a firm under perfect competition reaches equilibrium? 2020
10. Discuss the sources of monopoly. 2020
11. What is non-price competition? 2020
12. Discuss the problems in pricing a new product. 2020
13. Graphically explain the concept of equilibrium price. 2019
14. What is monopoly? What are its features? 2019
15. What are the objectives of price discrimination? 2019
16. Explain skimming pricing and penetration pricing for new products. 2019
17. What are the various types of market structure? 2018

15 marks Questions

18. What is oligopoly? What are the characteristics of oligopoly? 2020
19. Explain how price is determined under monopolistic competition. 2019

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[i] ttp://www.businessdictionary.com/definition/market-condition.html

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