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**KARAIKUDI – 630 003**

## ONLINE PROGRAMMES

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### III - SEMESTER

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## MANAGERIAL ECONOMICS

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# UNIT – I

## MEANING AND IMPORTANCE OF MANAGERIAL ECONOMICS

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- 1.6 Scopes of Managerial Economics
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### 1.1. INTRODUCTION: MANAGERIAL ECONOMICS

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The aim of studying Managerial Economics is to study the process of decision making of using the currently available resources, wherein the demand of resources are huge, but the supply of resources is limited. For instance, in a hotel, to make out a masala dosa, the owner has to keep in mind, the cost and availability involved in making up a dosa. i.e. flour, availability of cook, counter boys, utility boys, masala ingredients, customers and then fixing up the price of dosa. He needs to make choices arising from scarcity. In short, we can sum up that the Managerial Economics helps us to make out the decision, by looking at the demand and the supply of the available resources and its allocation and utilization. Let us study more in details in coming chapters.

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### 1.2. OBJECTIVES

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After going through the unit, you will be able to

1. Understanding the meaning of Managerial Economics
2. Get to know the Importance of Managerial Economics
3. Identify the various scopes of Managerial Economics
4. Study the importance of the Managerial Economist
5. Focus on the two major functions of the Managerial Economist

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### 1.3 MEANING

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Managerial Economics deals with the study and its applications of the economic concepts, theories, tools and methodologies to solve day to day problems encountered in a business.

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In other words, Managerial Economics is a combined study of economics theory and managerial theory. It supports the Manager to take up a decision in the allocation and utilization of resources available in the business.

Also, Managerial Economics is a combination of applying economics theory and quantitative techniques (Mathematics and Statistics) to support Manager in taking up decisions in business.

The areas of decision in business includes

- assessment of investable funds
- selecting business area
- choice of product
- determining optimum output
- sales promotion

Almost any business decision can be analyzed by applying managerial economics techniques, but it is most commonly applied to:

- *Risk analysis* – various models are used to quantify risk and asymmetric information and to employ them in decision rules to manage risk.
- *Production analysis* – microeconomic techniques are used to analyze production efficiency, optimum factor allocation, costs, economics of scale and to estimate the firm's cost function.
- *Pricing analysis* – microeconomic techniques are used to analyze various pricing decisions including transfer pricing, joint product pricing, price discrimination, price elasticity estimations, and choosing the optimum pricing method.
- *Capital budgeting* – investment theory is used to examine a firm's capital purchasing decisions.

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### 1.4 DEFINITION

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Managerial economics is the synthesis of microeconomic theory and quantitative methods to find optimal solutions to managerial decision-making problems.

According to various experts, Managerial Economics is defined:

“Managerial economics is the application of economic theory and methodology to decision-making problems faced by both public and private institutions”.

- **McGutgan and Moyer**

"The purpose of managerial economics is to show how economic analysis can be used in formulating business policies".

-**Joel Dean**

“The integration of economic theory with business practice for the purpose of facilitating decision-making and forward planning by management”.

- **Spencer and Siegelman**

### **Check your Progress I**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Define Managerial Economics

## **NOTES**

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### **1.5 IMPORTANCE OF MANAGERIAL ECONOMICS**

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Managerial economics is the study of how scarce resources are directed most efficiently to achieve managerial goals. It is a valuable tool for analyzing business situations to take better decisions.

Every business and industrial enterprises aims at earning maximum outcomes. In order to attain this objective, a Manager has to focus in his decision making of selecting a specified course of actions from a number of alternatives. In such case, Manager requires to possess good knowledge in the aspects of economic theory and the tools of economic analysis, which are directly involved in the process of decision making.

Spencer and Siegelman have discussed on the importance of Managerial Economics at Business and Industries as follows:

**(i) Accommodating traditional theoretical concepts to the actual business behavior and conditions:**

Managerial economics combines tools, techniques, models and theories of traditional economics with the actual business practices and with the environment in which a firm has to operate. According to Edwin Mansfield, “Managerial Economics attempts to bridge the gap between purely analytical problems that intrigue many economic theories and the problems of policies that management must face”.

**ii) Estimating economic relationships:**

Managerial economics estimates economic relationships between different business factors such as income, elasticity of demand, cost volume, profit analysis etc.

**(iii) Predicting relevant economic quantities:**

Managerial economics helps and supports the management in predicting various economic quantities such as cost, profit, demand, capital, production, price etc. As a business manager has to function in an environment of uncertainty, it is important to look forward the future working environment in terms of the said quantities.

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### **(iv) Understanding significant external forces:**

The management has to identify all the important factors that influence a firm. These factors can broadly be divided into two categories such as External and Internal factors. Managerial economics plays an important role by assisting management in understanding these factors, thoroughly.

#### **(a) External factors:**

A firm cannot exercise any control over these factors. The plans, policies and programs of the firm should be framed by looking into these factors. Significant external factors such as economic system of the country, business cycles, fluctuations in national income and national production, industrial policy of the government, trade and fiscal policy of the government, taxation policy, licensing policy, trends in foreign trade of the country, general industrial relation in the country and so on may influence negatively over the decision making process of the firm.

#### **(b) Internal factors:**

These factors fall under the control of a firm. These factors are associated with the daily business operation. A deep study of these factors helps the management in framing sound business decisions.

### **(v) Basis of business policies:**

Managerial economics is the founding principle of business policies. Business policies are prepared based on studies and findings of managerial economics, which cautions the management against potential violent or sudden changes occurring in national as well as international economy. Thus, managerial economics is helpful to the management in its decision-making process.

### **Nature of Managerial Economics:**

1. Managerial economics is concerned with the analysis of finding optimal solutions to decision making problems of businesses/firms (micro economic in nature).
2. Managerial economics is a practical subject therefore it is sensible and realistic.
3. Managerial economics describes, what is the observed economic phenomenon (positive economics) and prescribes what ought to be (normative economics)
4. Managerial economics is based on strong economic concepts. (conceptual in nature)
5. Managerial economics analyses the problems of the firms in the perspective of the economy as a whole ( macro in nature)

6. It helps to find optimal solution to the business problems (problem solving)

### **Managerial Economics and Other Disciplines**

Managerial economics has its relationship with the other disciplines for suggesting its theories and concepts for managerial decision making. Essentially it is a branch of economics. Managerial economics is closely related to certain subjects like statistics, mathematics, accounting and operations research.

#### **Check your Progress II**

**Note:**

- a. Write your answer in the space given below
- b. Compare your answer with those given at the end of the unit

1. What are the two factors influence the Firm?

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## **1.6 SCOPES OF MANAGERIAL ECONOMICS**

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The Managerial Economics has two major branches. They are

1. Micro Economics
2. Macro Economics

Both micro and macro economics are applied to business analysis, which can be used to analyse the business environment and to find solutions to practical business problems.

### **Micro Economics**

It deals with the analysis of small individual units of economy such as individual firm, an individual consumer, an individual industry and etc.,

### **Macro Economics**

It is the study of the entire economy. It also gives an understanding of the various factors like business cycles, national income economic policies of Government like those relating to taxation, foreign policy, labour relations etc.,

Business Issues:

The major business issues are:

1. Operational or internal issues
2. Environment or external issues

### **Micro economics applied to operational issue:**

It includes all the problems which arises within the organization. For example: Some of the basic internal issues are

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- i. Choice of business and nature of product
- ii. Choice of the size of the firm
- iii. Choice of technology
- iv. Choice of Price
- v. How to promote sales
- vi. How to face price competition
- vii. How to decide on new investments
- viii. How to manage profit and capital
- ix. How to manage inventory

Micro economic theories, which deals with most of these issues are the following

### **Theory of Demand and Supply:**

It explains the consumer behavior. How does the consumer decide whether to buy a commodity or not? How do the consumers react to the changes occurring to price of the commodity, their income, tastes and fashions etc.,?

In short, it includes

- i. Forecasting demand
- ii. Demand responses with changes of price and supply, impact of income and alternatives of demand, profit and demand relation and etc.,

### **Theory of Production**

It explains the relationship between input and output. It explains under what conditions, costs increase or decrease; how total output of production constant when units of one factor of input of production are increased keeping other factors constant; how one output of production can be maximum from a given quantity of resources, how can be optimum of output of production be determined

In short, we can say that theory of productions includes factors like Input relation with output to maximize profit, production function, factors of production, cost and production relationship, analyse cost – output relationship in the short run and long run of the business to meet out the desired objectives.

### **Market Analysis**

This analysis explains on how prices are determined under different market conditions, when price determination is desirable, feasible and



profitable; how advertising can be expanding sales in a competitive market and et al factors.

In short, this analysis focuses on units of production to determine price, understand price at different market structures, pricing policies, methods and strategies etc.,

### **Profit Analysis**

This analysis works out on the factors that are determined by demand for the product, input prices in the factor market, nature and degree of competition in the product market, price behavior under changing conditions in the product market.

In short, the decisions are taken on the analysis resulting to the production to determine price at different market structures, pricing policies, methods and strategies etc., The decisions taken out of this analysis includes Break- even point analysis, cost reduction and control, ratio analysis, production needed to gain profit, reduce wastage etc.,

### **Theory of Capital**

Success of the firm is determined by the efficient allocation and management of the capital. Major issues related to capital are choice of investment project, assessing the efficiency of capital and the most efficient allocation of capital.

### **Investment Decisions**

Capital budgeting decisions, allocation and utilization of investment, cost of capital, capital structure, to maximize return on capital etc.,

### **Economic Forecasting and Forward Planning**

This planning requires understanding the major external factors like Government Policy, Competition, Employment, Labour, Price and Income levels and so on. With the Internal factors like finance, People, Market and Products, It is necessary to forecast to trends in the economy to plan for the future in terms of the investment, profits, products and the markets.

### **Macro Economy applied to Business Environment**

It includes overall economic, social and political atmosphere of the country. Economic environment of the country include the following factors:

- Type of Economic system of the country
- General trends in the production, employment, income, prices, savings and investments

## **NOTES**

## NOTES

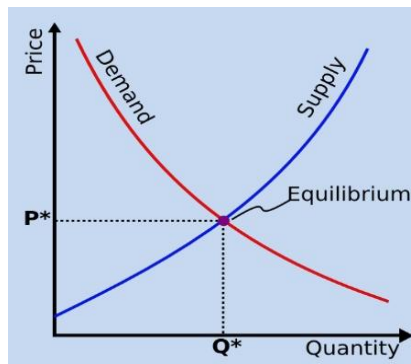
- Structure and trends of working of the financial institutions eg. Banks, Insurance Companies
- Magnitude and trends in the foreign trade. Example. Fluctuations in the price of the crude oil in international market affect on price of diesel and petrol in India.
- Government Economic Policies are designed to control and regulate economic activities of private firms .e.g. Industrial Policy, Price Policy
- Social Factor example Property Rights and customs
- Political Environment – Government attitude towards business example Democrat, Socialist
- Degree of openness of the economy and influence of Multi-national Corporation's on the domestic market.

### Importance of Managerial Economist

A managerial economist assists the management by employing his analytical skills and highly developed techniques. He tries to solve complex issues of successful decision-making and future advanced planning.

The **role of managerial economist** can be summarized as follows:

1. He studies the economic patterns at macro-level and analysis the significance to the specific firm he is employed in.
2. He has to consistently examine the probabilities of transforming an ever-changing economic environment into profitable business avenues.
3. He assists the business firm planning process of a and executes cost-benefit analysis.
4. He assists the management in the decisions pertaining to internal functioning of a firm such as changes in price, investment plans, type of goods /services to be produced, inputs to be used, techniques of production to be employed, expansion/ contraction of firm, allocation of capital, location of new plants, quantity of output to be produced, replacement of plant equipment, sales forecasting, inventory forecasting, etc.



5. In addition, a managerial economist analyzes the changes in macro-economic indicators such as national income, population, business cycles, and their possible effect on the firm's functioning.
6. His advice to the management on public relations, foreign exchange, and trade and guidance the firm on the likely impact of changes in monetary and fiscal policy on the firm's functioning are important.
7. He also makes an economic analysis of the firms in competition. He has to collect economic data and examine all crucial information about the environment in which the firm operates.
8. The most significant function of a managerial economist is to conduct a detailed research on industrial market.
9. In order to perform all these roles, a managerial economist has to conduct an elaborate statistical analysis.
10. He must be vigilant and must have ability to cope up with the pressures.
11. He also provides management with economic information such as tax rates, competitor's price and product, etc. They give their valuable advice to government authorities as well.

## NOTES

### **Check your Progress III**

**Note:**

- a. Write your answer in the space given below
  - b. Compare your answer with those given at the end of the unit
1. Define the role of Managerial Economist in a firm?

## **1.7 FUNCTIONS OF MANAGERIAL ECONOMIST:**

The functions of the Managerial Economist are required to look in on two factors i.e. Internal Factors and External Factors influencing a business firm.

Managerial Economist can advise Management on following questions relating to

### **Internal factors:**

1. What should be the sales budget for the ensuing financial year?
2. What would be the policy related to inventory next year?
3. What should be the production schedule for the next year?
4. What should be the Wage Policy?

## NOTES

5. What type of change is required in the credit policy of the enterprise?
6. What should be the policy regarding cash for the next year?
7. What should be the profit budget for the next year?

### **External Factors:**

These are the factors that Managerial Economist has a least control over. These are the factors related to business environment in which a firm has to operate such as:

1. Business Policy of the Government
2. Competition
3. Economic Policy of the Government
4. Cyclical fluctuations in the Business Market

On pondering over above factors, Managerial Economist can suggest Management on the problems

1. What changes have been taking place in the policies of the government and what more changes that is likely in near future in this field?
2. What type of cyclical fluctuations is expected in the national economy in future?
3. What are the expectations of demand of goods being produced by the enterprise?
4. What changes are expected to take place in the cost of production?

### **Functions of Managerial Economist**

1. Sales forecasting and Market Research
2. Economic analysis of the Companies
3. Pricing policy of the Industry
4. Capital Projects and Production Programme
5. Security analysis and Forecasts
6. Advice on trade and Public relations
7. Analysis of underdeveloped economies
8. Environmental forecasting

## **Responsibilities of Managerial Economist**

A Managerial Economist, to assist and support Management, has to know his responsibilities clearly well. He must keep in mind, the main objective of making the reasonable profit on the invested capital in his firm.

Firms do not always look in for profit maximation, but to continue profit in business consistently in the growing line.

### **1. Making Successful Forecasts**

Management has to make decisions concerning the future, which is uncertain. This uncertainty cannot be eliminated altogether but it cannot be reduced through scientific forecasts of the economic environment.

He can revise his forecasts time to time in terms of the new developments in his business.

As soon as he finds a change in his prediction, he has to alert the Management in accordance.

### **2. Maintaining Contacts:**

A Managerial Economist must establish and maintain contacts with data sources for his analysis and forecasts

He must have familiarity with individuals who are specialists in the field having some link with his work.

He must join professional associations and subscribe to the journals which give him fresh information.

### **3. Knowing the Management fully**

A Managerial Economist has to participate in decision making and forward planning. He needs to claim acceptance among his team members for the effective team participation.

He must be able to take assignments on special projects also.

He must clearly express his ideas both technically and non-technically to his stake holders.

#### **Check your Progress IV**

##### **Note:**

- a. Write your answer in the space given below
- b. Compare your answer with those given at the end of the unit
  1. State any two responsibilities of a Managerial Economist

## NOTES

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### 1.8 SUMMARY

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This Unit gives an overall orientation to the graduates on the introduction of the Managerial Economics by providing a good insight on the meaning, various experts' definition about the Managerial Economics, Importance, Nature, and Scope of the Managerial Economy. It also states out the interdisciplinary approaches of the Managerial Economy in link with the other discipline subjects. It creates and emphasizes the role of Managerial Economics and his vital importance on the decision making process of the firms especially with the gray areas influencing the business firm year after year.

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### 1.9 UNIT END EXERCISES

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1. Define Managerial Economics
2. Give any two definitions of Managerial Economics
3. State the two branches of Managerial Economics
4. Write a short note on micro economics
5. Write a short note on macro economics

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### 1.10 ANSWERS TO CHECK THE PROGRESS

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1. "Managerial economics deals with the use of economic modes of thought to analyze business situation"
2. Internal Factors and External Factors
3. A managerial economist assists the management by employing his analytical skills and highly developed techniques. He tries to solve complex issues of successful decision-making and future advanced planning.
4. a. Making Successful Forecasts  
b. Maintaining Contacts

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### 1.11 SUGGESTED READINGS

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

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## UNIT II DEMAND ANALYSIS

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- 2.1 Introduction
- 2.2. Objectives
- 2.3 Meaning and Law of Demand
- 2.4 Demand Analysis
- 2.5 Elasticity of Demand
- 2.6 Summary
- 2.7 Unit End Exercises
- 2.8 Answers to check the progress
- 2.9 Suggested Readings

## NOTES

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### 2.1 INTRODUCTION

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Every market transaction involves an exchange and many exchanges occur every day. A market is a place where the buying and selling of goods and service takes place. A buyer (one who buys) demands goods and services from the market and the sellers supply goods and services to the buyer.

As per the Economy, the demand is termed as “the quantity of goods and services that will be bought for a given price over a period of time”. For example, if 10,000 cars are purchased in India at a average price of Rs.6,00,000/- then we can say that the annual demand for cars is 10000 units at the rate of 6,00,000/-.

Demand and Supply becomes the driving force behind a market economy. As such, it becomes the most important managerial factor, for the managers to predict changes in production and input prices. The knowledge of demand and supply helps the manager to take better decisions regarding the kind of the products to be produced, the quantity, the cost of the product and its selling price.

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### 2.2 OBJECTIVE

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By reading this Unit, the student will understand that Demand analysis is an important part of the economic analysis. Besides, he also shall understand the concept that demand and supply is equal, the economic conditions of the country is in equilibrium position. The changes in demand or elasticity of demand gives room for the managerial decision making like what to produce, how much to produce, when to produce and where to distribute the products.

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### 2.3 MEANING AND LAW OF DEMAND

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Demand: Demand means the ability and willingness to buy a specific quantity of a commodity at the prevailing price in a given period of time.

## NOTES

Therefore, demand for a commodity implies the desire to acquire it, willingness and the ability to pay for it. Precisely, we can say that Demand is the quantity of a good that consumers are willing and able to purchase at various prices during a given period of time. The relationship between price and quantity demanded is also known as the demand curve.

Any sort of business always try to spend considerable amount and time to determine the amount of demand, people has for their products and services. How much of their goods will they actually be able to sell at any given price? Incorrect estimations either result in money left on the table if demand is underestimated or losses if demand is overestimated. Demand is what helps energize the economy, and without it, businesses would not produce anything.

Demand is closely related to supply. While consumers try to pay the lowest prices they can for goods and services, suppliers try to maximize profits. If suppliers charge too much, the quantity demanded drops and suppliers cannot sell enough products to earn sufficient profits. If suppliers charge too little, the quantity demanded increases but lower prices may not cover suppliers' costs or allow for profits.

Some factors like the appeal of a good or service, the availability of competing goods, the availability of financing, and the perceived availability of a good or service affects demand.

**Law of demand:** The quantity of a commodity demanded in a given time period increases as its price falls, *ceteris paribus*. (I.e. other things remaining constant)

### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. State Law of Demand

## 2.4 DEMAND ANALYSIS

**Demand schedule:** The following table showing the quantities of a good that a consumer is willing and able to buy at the prevailing price in a given time period.



**Table – 1: The Demand Schedule For Bovonto**

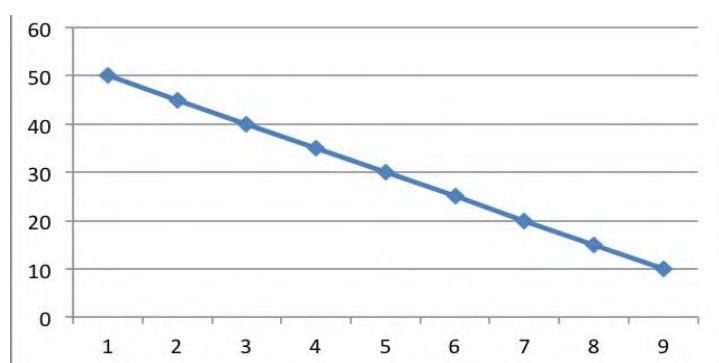
Price of Bovonto (200 ml) In Rupees	Quantity Demanded
50	1
45	2
40	3
35	5
30	7
25	9
20	12
15	15
10	20

**Demand Curve:**

A curve indicating the total quantity of a product that all consumers are willing and able to purchase at the prevailing price level, holding the prices of related goods, income and other variables remains constant.

A demand curve is a graphical representation of a demand schedule. The price is quoted in the 'Y' axis and the quantity demanded over time at different price levels is quoted in 'X' axis. Each point on the curve refers to a specific quantity that will be demanded at a given price. If for example the price of a 200 ml Bovonto is Rs. 10, this curve tells us that the consumer (the students in a class of 50) would purchase 20 units. When the price rises to Rs. 50 there was only one student would buy it.

The demand curve, (DD) is downward sloping curve from left to right showing that as price falls, quantity demanded rises. This inverse relationship between price and quantity is called as the law of demand. When price changes, there is said to be a movement along the curve from point A to B.

**Graph – Demand Curve**

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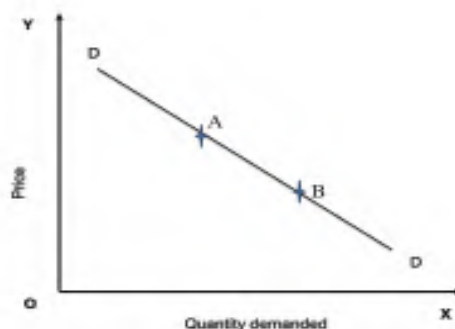
**NOTES**

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**Shifts in Demand:**

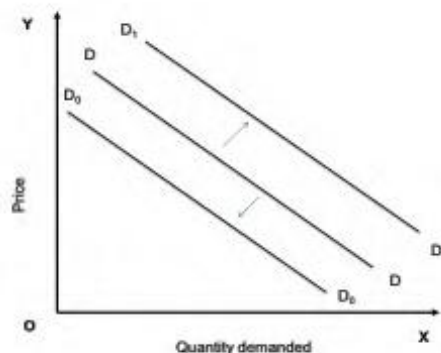
Shift of the demand curve occurs when the determinants of demand change. When tastes and preferences and incomes are altered, the basic relationship between price and quantity demanded changes (shifts). This shifts the entire demand curve upward (rightward) and is called as increase in demand because more of that commodity is demanded at that price. The downward shift (leftward) is called as decrease in demand.

**Graph – Shift In Demand Curve**



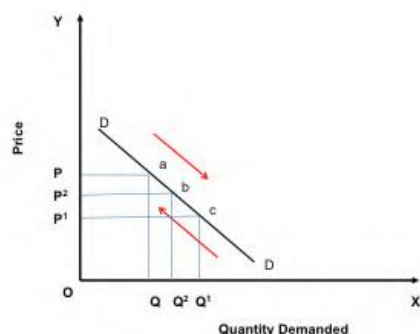
Therefore we understand that a shift in a demand curve may happen due to the changes in the variables other than price. The movement along a demand curve takes place (extension or contraction) due to price rise or fall.

**Extension and Contraction of Demand Curve:**



When with a fall in price, more of a commodity is bought, and then there is an extension of the demand curve. When lesser quantity is demanded with a rise in price, there is a contraction of demand.

## Graph –Extension and Contraction in Demand Curve



From the above graph we can understand that an increase in prices result in the contraction of demand. If the price increases from P<sub>2</sub> to P then the demand for the commodity fall from OQ<sub>2</sub> to OQ. Therefore the demand curve DD contracts from 'b' to 'a' on the other hand when there is a fall in price; it results in the extension of demand. Let us assume that the price falls from P<sub>2</sub> to P<sub>1</sub> then the quantity demanded OQ<sub>2</sub> increases to OQ<sub>1</sub> and the demand curve extends from point 'b' to 'c.'

**Demand function** is a function that describe how much of a commodity will be purchased at the prevailing prices of that commodity and related commodities, alternative income levels, and alternative values of other variables affecting demand. Price is not the only factor which determines the level of demand for a good. Other important factor is income. The rise in income will lead to an increase in demand for a normal commodity. A few goods are named as inferior goods for which the demand will fall, when income rises. Another important factor which influences the demand for a good is the price of other goods. Other factors which affect the demand for a good apart from the above mentioned factors are:

- Changes in Population
- Changes in Fashion
- Changes in Taste
- Changes in Advertising

A change in demand occurs when one or more of the determinants of demand change and it is expressed in the following equation.

$$Q_d X = f(P_x, P_r, Y, T, E_y, E_p, Adv \dots)$$

Where,

$Q_d X$  = quantity demanded of good 'X'

$P_x$  = the price of good X

$P_r$  = the price of a related good

$Y$  = income level of the consumer

## NOTES

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T = taste and preference of the consumers

E<sub>y</sub> = expected income

E<sub>p</sub> = expected price

Adv = advertisement cost

The above mentioned demand function expresses the relationship between the demand and other factors. The quantity demanded of commodity X varies according to the price of commodity (P<sub>x</sub>), income (Y), the price of a related commodity (P<sub>r</sub>), taste and preference of the consumers (T), expected income (E<sub>y</sub>) and advertisement cost(Adv) spent by the organization.

### **Determinants of Demand:**

There are various factors affecting the demand for a commodity. They are:

1. Price of the good: The price of a commodity is an important determinant of demand. Price and demand are inversely related. Higher the price less is the demand and vice versa.
2. Price of related goods: The price of related goods like substitutes and complementary goods also affect the demand. In the case of substitutes, rise in price of one commodity lead to increase in demand for its substitute. In the case of complementary goods, fall in the price of one commodity lead to rise in demand for both the goods.
3. Consumer's Income: This is directly related to demand. A change in the income of the consumer significantly influences his demand for most commodities. If the disposable income increases, demand will be more.
4. Taste, Preference, fashions and habits: These are very effective factors affecting demand for a commodity. When there is a change in taste, habits or preferences of the consumer, his demand will change. Fashions and customs in society determine many of our demands.
5. Population: If the size of the population is more, demand for goods will be more. The market demand for a commodity substantially changes when there is change in the total population.
6. Money Circulation: More the money in circulation, higher the demand and vice versa.
7. Value of money: The value of money determines the demand for a commodity in the market. When there is a rise or fall in the value of money there may be changes in the relative prices of different goods and their demand.
8. Weather Condition: Weather is also an important factor that determines the demand for certain goods.

9. Advertisement and Salesmanship: If the advertisement is very attractive for a commodity, demand will be more. Similarly if the salesmanship and publicity is effective then the demand for the commodity will be more.

10. Consumer's future price expectation: If the consumers expect that there will be a rise in prices in future, he may buy more at the present price and so his demand increases.

11. Government policy (taxation): High taxes will increase the price and reduce demand, while low taxes will reduce the price and extend the demand.

12. Credit facilities: Depending on the availability of credit facilities the demand for commodities will change. When the facilities are more, higher is the demand.

13. Multiplicity of uses of goods: if the commodity has multiple uses then the demand will be more than if the commodity is used for a single purpose.

### **Demand Distinctions: Types of Demand**

Demand may be defined as the quantity of goods or services desired by an individual, supported by the ability and willingness to pay.

#### **Types of Demand:**

1. Direct and indirect demand: (or) Producers' goods and consumers' goods:

Demand for goods that are directly used for consumption by the ultimate consumer is known as direct demand (example: Demand for T shirts). On the other hand demand for goods that are used by producers for producing goods and services. (example: Demand for cotton by a textile mill)

2. Derived demand and autonomous demand:

When a produce derives its usage from the use of some primary product it is known as derived demand. (example: demand for tyres derived from demand for car) Autonomous demand is the demand for a product that can be independently used. (example: demand for a washing machine)

3. Durable and non durable goods demand:

Durable goods are those that can be used more than once, over a period of time (example: Microwave oven) Non durable goods can be used only once (example: Band-aid)

4. Firm and industry demand:

Firm demand is the demand for the product of a particular firm. (example: Dove soap) The demand for the product of a particular industry is industry demand (example: demand for steel in India )

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### 5. Total market and market segment demand:

A particular segment of the markets demand is called as segment demand (example: demand for laptops by engineering students) the sum total of the demand for laptops by various segments in India is the total market demand. (example: demand for laptops in India)

### 6. Short run and long run demand:

Short run demand refers to demand with its immediate reaction to price changes and income fluctuations. Long run demand is that which will ultimately exist as a result of the changes in pricing, promotion or product improvement after market adjustment with sufficient time.

### 7. Joint demand and Composite demand:

When two goods are demanded in conjunction with one another at the same time to satisfy a single want, it is called as joint or complementary demand. (example: demand for petrol and two wheelers) A composite demand is one in which a good is wanted for several different uses. ( example: demand for iron rods for various purposes)

### 8. Price demand, income demand and cross demand:

Demands for commodities by the consumers at alternative prices are called as price demand. Quantity demanded by the consumers at alternative levels of income is income demand. Cross demand refers to the quantity demanded of commodity 'X' at a price of a related commodity 'Y' which may be a substitute or complementary to X.

**Price Demand:** The ability and willingness to buy specific quantities of a good at the prevailing price in a given time period.

**Income Demand:** The ability and willingness to buy a commodity at the available income in a given period of time.

**Market Demand:** The total quantity of a good or service that people are willing and able to buy at prevailing prices in a given time period. It is the sum of individual demands.

**Cross Demand:** The ability and willingness to buy a commodity or service at the prevailing price of the related commodity i.e. substitutes or complementary products. For example, people buy more of wheat when the price of rice increases.

### **Exceptional demand curve:**

The demand curve slopes from left to right upward if despite the increase in price of the commodity, people tend to buy more due to reasons like fear of shortages or it may be an absolutely essential good.

The law of demand does not apply in every case and situation. The circumstances when the law of demand becomes ineffective are known as exceptions of the law. Some of these important exceptions are as under.

### **1. Giffen Goods:**

Some special varieties of inferior goods are termed as Giffen goods. Cheaper varieties millets like bajra, cheaper vegetables like potato etc come under this category. Sir Robert Giffen of Ireland first observed that people used to spend more of their income on inferior goods like potato and less of their income on meat. After purchasing potato the staple food, they did not have staple food potato surplus to buy meat. So the rise in price of potato compelled people to buy more potato and thus raised the demand for potato. This is against the law of demand. This is also known as Giffen paradox.

### **2. Conspicuous Consumption / Veblen Effect:**

This exception to the law of demand is associated with the doctrine propounded by Thorsten Veblen. A few goods like diamonds etc are purchased by the rich and wealthy sections of society. The prices of these goods are so high that they are beyond the reach of the common man. The higher the price of the diamond, the higher its prestige value. So when price of these goods falls, the consumers think that the prestige value of these goods comes down. So quantity demanded of these goods falls with fall in their price. So the law of demand does not hold good here.

### **3. Conspicuous Necessities:**

Certain things become the necessities of modern life. So we have to purchase them despite their high price. The demand for T.V. sets, automobiles and refrigerators etc. has not gone down in spite of the increase in their price. These things have become the symbol of status. So they are purchased despite their rising price.

### **4. Ignorance:**

A consumer's ignorance is another factor that at times induces him to purchase more of the commodity at a higher price. This is especially true, when the consumer believes that a high-priced and branded commodity is better in quality than a low-priced one.

### **5. Emergencies:**

During emergencies like war, famine etc, households behave in an abnormal way. Households accentuate scarcities and induce further price rise by making increased purchases even at higher prices because of the apprehension that they may not be available. . On the other hand during depression, fall in prices is not a sufficient condition for consumers to demand more if they are needed.

### **6. Future Changes in Prices:**

Households also act as speculators. When the prices are rising households tend to purchase large quantities of the commodity out of the

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apprehension that prices may still go up. When prices are expected to fall further, they wait to buy goods in future at still lower prices. So quantity demanded falls when prices are falling.

### 7. Change in Fashion:

A change in fashion and tastes affects the market for a commodity. When a digital camera replaces a normal manual camera, no amount of reduction in the price of the latter is sufficient to clear the stocks. Digital cameras on the other hand, will have more customers even though its price may be going up. The law of demand becomes ineffective.

### 8. Demonstration Effect:

It refers to a tendency of low income groups to imitate the consumption pattern of high income groups. They will buy a commodity to imitate the consumption of their neighbors even if they do not have the purchasing power.

### 9. Snob Effect:

Some buyers have a desire to own unusual or unique products to show that they are different from others. In this situation even when the price rises the demand for the commodity will be more.

### 10. Speculative Goods/ Outdated Goods/ Seasonal Goods:

Speculative goods such as shares do not follow the law of demand. Whenever the prices rise, the traders expect the prices to rise further so they buy more. Goods that go out of use due to advancement in the underlying technology are called outdated goods. The demand for such goods does not rise even with fall in prices

### 11. Seasonal Goods:

Goods which are not used during the off-season (seasonal goods) will also be subject to similar demand behaviour.

### 12. Goods in Short Supply:

Goods that are available in limited quantity or whose future availability is uncertain also violate the law of demand.

#### Check your Progress II

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by Price Demand?

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## 2.5 ELASTICITY OF DEMAND

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In economics, the term elasticity means a proportionate (percentage) change in one variable relative to a proportionate (percentage) change in another variable. The quantity demanded of a good is affected by



changes in the price of the good, changes in price of other goods, changes in income and changes in other factors. Elasticity is a measure of just how much of the quantity demanded will be affected due to a change in price or income.

Elasticity of Demand is a technical term used by economists to describe the degree of responsiveness of the demand for a commodity due to a fall in its price. A fall in price leads to an increase in quantity demanded and vice versa.

The elasticity of demand may be as follows:

- Price Elasticity
- Income Elasticity and
- Cross Elasticity

### Price Elasticity

The response of the consumers to a change in the price of a commodity is measured by the price elasticity of the commodity demand. The responsiveness of changes in quantity demanded due to changes in price is referred to as price elasticity of demand. The price elasticity of demand is measured by dividing the percentage change in quantity demanded by the percentage change in price.

**Price Elasticity** = Proportionate change in the Quantity Demanded / Proportionate change in price

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

$$= \frac{\Delta Q / Q}{\Delta P / P} = \frac{10}{20} = 0.5$$

$\Delta Q$  = change in quantity demanded

$\Delta P$  = change in price

P = price

Q = quantity demanded

### For example:

Quantity demanded is 20 units at a price of Rs.500. When there is a fall in price to Rs. 400 it results in a rise in demand to 32 units. Therefore the change in quantity demanded is 12 units resulting from the change in price of Rs.100.

The Price Elasticity of Demand is =  $500 / 20 \times 12/100 = 3$

### The Determinants of Price Elasticity of Demand

The exact value of price elasticity for a commodity is determined by a wide variety of factors. The two factors considered by economists are

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the **availability of substitutes** and **time**. The better the substitutes for a product, the higher is the price elasticity of demand. The longer the period of time, the more is the price elasticity of demand for that product. The price elasticity of necessary goods will have lower elasticity than luxuries.

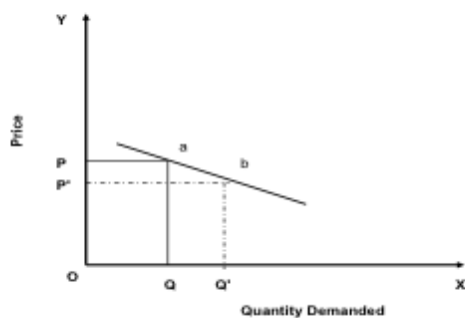
The elasticity of demand depends on the following factors:

1. Nature of the commodity: The demand for necessities is inelastic because the demand does not change much with a change in price. But the demand for luxuries is elastic in nature.
2. Extent of use: A commodity having a variety of uses has a comparatively elastic demand.
3. Range of substitutes: The commodity which has more number of substitutes has relatively elastic demand. A commodity with fewer substitutes has relatively inelastic demand.
4. Income level: People with high incomes are less affected by price changes than people with low incomes.
5. Proportion of income spent on the commodity: When a small part of income is spent on the commodity, the price change does not affect the demand therefore the demand is inelastic in nature.
6. Urgency of demand / postponement of purchase: The demand for certain commodities are highly inelastic because you cannot postpone its purchase. For example medicines for any sickness should be purchased and consumed immediately.
7. Durability of a commodity: If the commodity is durable then it is used it for a long period. Therefore elasticity of demand is high. Price changes highly influences the demand for durables in the market.
8. Purchase frequency of a product/ recurrence of demand: The demand for frequently purchased goods are highly elastic than rarely purchased goods.
9. Time: In the short run demand will be less elastic but in the long run the demand for commodities are more elastic.

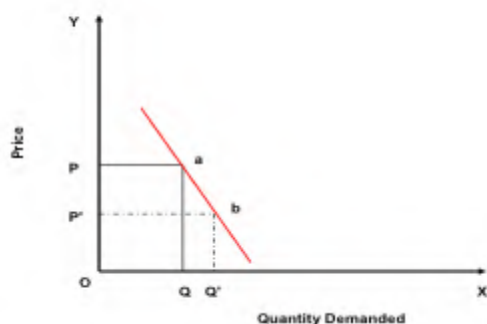
The following are the possible combination of changes in Price and Quantity demanded. The slope of each combination is depicted in the following graphs.

1. Relatively Elastic Demand ( $E_d > 1$ ) a small percentage change in price leading to a larger change in Quantity demanded.

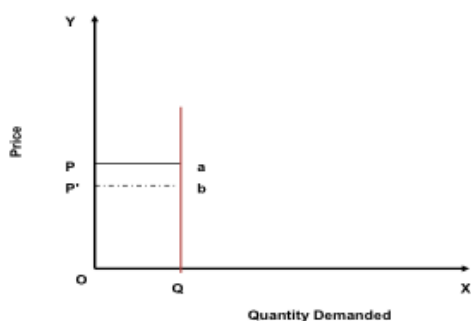
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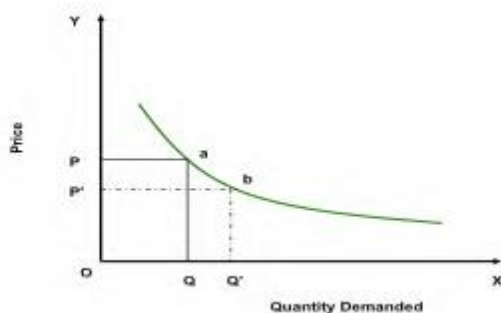
2. Perfectly Elastic Demand ( $E_d = \infty$ ) a small change in price will change the quantity demanded by an infinite amount.



3. Relatively Inelastic Demand ( $E_d < 1$ ) a change in price leads to a smaller Percentage change in quantity demanded.

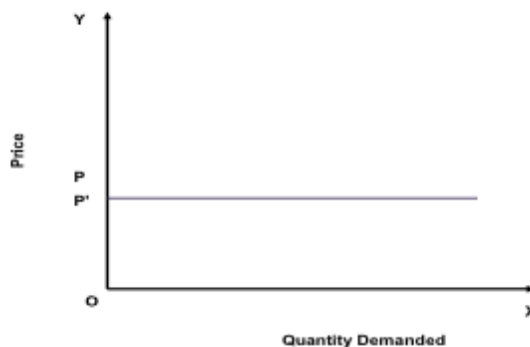


4. Perfectly Inelastic Demand ( $E_d = 0$ ) the quantity demanded does not change regardless of the percentage change in price.



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5. Unit Elasticity of Demand ( $E_d = 1$ ) the percentage change in quantity demanded is the same as the percentage change in price that caused it.



### Income Elasticity

Income elasticity of demand measures the responsiveness of quantity demanded to a change in income. It is measured by dividing the percentage change in quantity demanded by the percentage change in income. If the demand for a commodity increases by 20% when income increases by 10% then the income elasticity of that commodity is said to be positive and relatively high. If the demand for food were unchanged when income increases, the income elasticity would be zero. A negative income elasticity of demand is said to have a fall in demand for a commodity when income rise results in.

The following are the various types of income elasticity:

**Zero Income Elasticity:** The increase in income of the individual does not make any difference in the demand for that commodity. ( $E_i = 0$ )

**Negative Income Elasticity:** The increase in the income of consumers leads to less purchase of those goods. ( $E_i < 0$ ).

**Unitary Income Elasticity:** The change in income leads to the same percentage of change in the demand for the good. ( $E_i = 1$ ).

**Income Elasticity is Greater than 1:** The change in income increases the demand for that commodity more than the change in the income. ( $E_i > 1$ ).

**Income Elasticity is Less than 1:** The change in income increases the demand for the commodity but at a lesser percentage than the change in the Income. ( $E_i < 1$ ).

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## Cross Elasticity

The quantity demanded of a particular commodity varies according to the price of other commodities. Cross elasticity measures the responsiveness of the quantity demanded of a commodity due to changes in the price of another commodity. For example the demand for tea increases when the price of coffee goes up. Here the cross elasticity of demand for tea is high.

If two goods are substitutes then they will have a positive cross elasticity of demand. In other words if two goods are complementary to each other then negative income elasticity may arise.

The responsiveness of the quantity of one commodity demanded to a change in the price of another good is calculated with the following formula.

$$E_c = \frac{\% \text{ change in demand for commodity A}}{\% \text{ change in price of commodity B}}$$

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If two commodities are unrelated goods, the increase in the price of one good does not result in any change in the demand for the other goods. For example the price fall in Tata salt does not make any change in the demand for Honda Amaze.

### Significance of Cross Elasticity of Demand

The cross elasticity of demand goes significant with the decision making activities for the Managers.

1. In deciding the quantity of goods to be produced at the Production.
2. In fixing the prices not only on the cost basis but also on the basis of prices of related goods. (Price Fixation)
3. To decide as to where, when, and how much etc. In distribution
4. What to export, where to export In international trade
5. in foreign exchange
6. for nationalizing an industry
7. In public finance

### Check your Progress III

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by Cross elasticity?

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## 2.6 LET US SUM UP

In this unit, you have learnt about the meaning of the demand, determinants of demand and various types of demand and its elasticity of demand. This knowledge will make you understand what is demand and how should it be calculated in a firm, to ascertain the sales of the commodity.

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## 2.7 UNIT END EXERCISES

1. Define Demand
2. Write a short note on the determinants of demand
3. What are the types of demand
4. What do you mean by elasticity of demand
5. How do you ascertain the sales of the commodity?

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## **2.8 ANSWERS TO CHECK YOUR PROGRESS**

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1. The quantity of a commodity demanded in a given time period increases as its price falls, *ceteris paribus*. (I.e. other things remaining constant)
2. The ability and willingness to buy specific quantities of a good at the prevailing price in a given time period.
3. Cross elasticity measures the responsiveness of the quantity demanded of a commodity due to changes in the price of another commodity. For example the demand for tea increases when the price of coffee goes up. Here the cross elasticity of demand for tea is high.

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## **2.9 SUGGESTED READINGS**

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. G-upta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
- 4.Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

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# UNIT III DEMAND FORECASTING

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- 3.1 Introduction
- 3.2 Objectives
- 3.3 Demand Forecasting
- 3.4 Level of Demand Forecasting
- 3.5 Criteria for a good demand forecasting
- 3.6 Methods or Techniques of Demand Forecasting
  - 3.6.1 Survey Methods
  - 3.6.2 Statistical Methods
- 3.7 Demand Forecasting for a new products.
- 3.8 Summary
- 3.9 Unit End Exercises
- 3.10 Answers to check the progress
- 3.11 Suggested Readings

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## 3.1 INTRODUCTION

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Every organizations function in an uncertain atmosphere. An organization faces several internal and external risks, such as high competition, failure of technology, labor unrest, inflation, recession, and change in government laws. Decisions of today affect the future of the Organization. An organization can lessen the adverse effects of risks by determining the demand or sales prospects for its products and services in future.

These decisions are made by forecasting. Forecasts are made in various ways. Demand forecasting is a systematic process that involves anticipating the demand for the product and services of an organization in future under a set of uncontrollable and competitive forces.

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## 3.2 OBJECTIVES OF DEMAND FORECASTING

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### **i. Fulfilling objectives:**

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

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

### **ii. Preparing the budget:**

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



**iii. Stabilizing employment and production:**

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

**iv. Expanding organizations:**

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

**v. Taking Management Decisions:**

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

**vi. Evaluating Performance:**

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

**vii. Helping Government:**

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

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### 3.3. DEMAND FORECASTING

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Demand forecast will help the manager to take the following decisions effectively.

Short run decisions include

- Purchase of inputs
- Maintaining of economic
- level of inventory
- Setting up sales targets
- Distribution network
- Management of working
- Capital
- Price policy
- Promotion policy

Long run decisions include

- Expansion of existing capacity

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- Diversification of the product mix
- Growth of acquisition
- Change of location of plant
- Capital issues
- Long run borrowings
- Manpower planning

To forecast effectively, the following steps are to be taken:

- Identification of objectives
- Nature of product and market
- Determinants of demand
- Analysis of factors
- Choice of technology
- Testing the accuracy

The following are needed for demand forecasting:

- Appropriate production scheduling
- Suitable purchase policy
- Appropriate price policy
- Setting realistic sales targets for salesmen
- Forecasting financial requirements
- Business planning
- Financial planning
- Planning man-power requirements

To select the appropriate forecasting technique, the manager/forecaster must be able to accomplish the following:

1. Define the nature of the forecasting problem
2. Explain the nature of the data under investigation
3. Describe the capabilities and limitations of potentially useful forecasting techniques.
4. Develop some predetermined criteria on which the selection decision can be made.

### **Check your Progress I**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

### 3.4 LEVEL OF DEMAND FORECASTING

Apart from aforementioned factors, following are some of the other important factors that influence demand forecasting:

#### a. Time Period of Forecasts:

It acts as a crucial factor that affect demand forecasting. The accuracy of demand forecasting depends on its time period.

Forecasts can be of three types, which are explained as follows:

#### 1. Short Period Forecasts:

This forecast refers to the forecasts that are generally for one year and based upon the judgment of the experienced staff. Short period forecasts are important for deciding the production policy, price policy, credit policy, and distribution policy of the organization.

#### 2. Long Period Forecasts:

This refers to the forecasts that are for a period of 5-10 years and based on scientific analysis and statistical methods. The forecasts help in deciding about the introduction of a new product, expansion of the business, or requirement of extra funds.

#### 3. Very Long Period Forecasts:

This refers to the forecasts that are for a period of more than 10 years. These forecasts are carried to determine the growth of population, development of the economy, political situation in a country, and changes in international trade in future.

Among the aforementioned forecasts, short period forecast deals with deviation in long period forecast. Therefore, short period forecasts are more accurate than long period forecasts.

#### 4. Level of Forecasts:

It influences demand forecasting to a larger extent. A demand forecast can be carried at three levels, namely, macro level, industry level, and firm level. At macro level, forecasts are undertaken for general economic conditions, such as industrial production and allocation of national income. At the industry level, forecasts are prepared by trade associations and based on the statistical data.

Moreover, at the industry level, forecasts deal with products whose sales are dependent on the specific policy of a particular industry. On the other hand, at the firm level, forecasts are done to estimate the demand of those products whose sales depends on the specific policy of a particular firm. A firm considers various factors, such as changes in income, consumer's tastes and preferences, technology, and competitive strategies, while forecasting demand for its products.

#### 5. Nature of Forecasts:

This constitutes an important factor that affects demand forecasting. A forecast can be specific or general. A general forecast

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provides a global picture of business environment, while a specific forecast provides an insight into the business environment in which an organization operates.

Generally, organizations opt for both the forecasts together as over-generalization restricts accurate estimation of demand and too specific information provides an inadequate basis for planning and execution.

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### 3.5 CRITERIA FOR GOOD DEMAND FORECASTING

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A forecast is said to be successful when the expected demand is equal to the actual demand. This can only be possible if the right method of demand forecasting is selected.

The criteria that need to be considered before forecasting the demand for a product are as follows:

**i. Accuracy:**

This implies that an organization should make forecasts close to real figures to arrive the real picture of the demand, which needs to be determined. For example, there would be an increase in sales in the coming years is an inaccurate forecast. On the other hand, there would be an increase in sales by 30% in the next year is an accurate forecast.

**ii. Durability:**

This implies that forecasts should be done in such a way that they can be used for long periods as forecasts involves a lot of time, money, and efforts.

**iii. Flexibility:**

This implies that the forecasts should be adjustable and adaptable to changes. In today's uncertain and risk oriented business environment, there is a rapid change in the tastes and preferences of consumers, which affect the demand for products. Therefore, the demand forecasts made by an organization should reflect those changes.

**iv. Acceptability:**

This refers to one of the most important criterion of demand forecasting. An organization should forecast its demand by using simple and easy methods. In addition, the methods should be such that organizations do not face any complexities. However, organizations generally prefer advanced statistical methods, which may prove difficult and complex.

**v. Availability:**

This mentions that adequate and up-to-date data should be available for forecasts. The forecasts should be done in timely manner so that necessary arrangements should be made related to the market demand.

**vi. Plausibility:**

This reasons out that the demand forecasts should be reasonable, so that they are easily understood by individuals who are using it.

**vii. Economy:**

Demand forecasting should be economically effective. The forecasting should be done in such a manner that the costs should be minimized and benefits should be maximized.

**Check your Progress II**

**Note:** a. Write your answer in the space given below

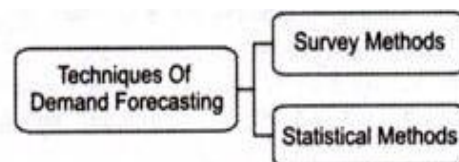
b. Compare your answer with those given at the end of the unit

1. List out any two criteria that need to be considered before forecasting the demand for a product

**3.6 DEMAND FORECASTING METHODS:**

Selection of an effective technique turns out to be the main challenge for any demand forecasting. There is no particular method that enables organizations to anticipate risks and uncertainties in future. Generally, there are two approaches to demand forecasting.

The first approach involves forecasting demand by collecting information regarding the buying behavior of consumers from experts or through conducting surveys. On the other hand, the second method is to forecast demand by using the past data through statistical techniques.

**Demand forecasting techniques**

Generally speaking, the demand forecasting techniques are of two types.

1. Survey method
2. Statistical method

**3.6.1 SURVEY METHOD:**

Survey method is one of the most common and direct methods of forecasting demand. It is used in the short term. This method includes the future purchase plans of consumers and their intentions. In this method, an organization conducts surveys with consumers to determine the demand for their existing products and services and predicts the future demand accordingly.

This method takes up exercise in three ways:

1. Experts' opinion Poll

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2. Market Experiment Method
3. Delphi Method

### **i. Experts' Opinion Poll:**

Here, in this method, experts are requested to provide their qualitative opinion about the product. Generally, in an organization, sales representatives act as experts who can assess the demand for the product in different areas, regions, or cities. As Sales representatives are in close touch with consumers; they are well aware of the consumers' future purchase plans, their reactions to market change, and their perceptions for other competing products. They provide an approximate estimate of the demand for the organization's products.

This method is quite simple and less expensive. On contrary, this method faces following limitations:

- a. Provides estimates that are dependent on the market skills of experts and their experience. These skills differ from individual to individual. In this way, making the accurate demand forecasts becomes difficult.
- b. Involves subjective judgment of the assessor, which may lead to over or under-estimation.
- c. Depends on data provided by sales representatives who may have inadequate information about the market.
- d. Ignores factors, such as change in Gross National Product, availability of credit, and future prospects of the industry, which may prove helpful in demand forecasting.

### **ii. Delphi Method:**

In this method, questions are individually asked from a group of experts to obtain their opinions on demand for products in future. These questions are repeatedly asked until a consensus is obtained.

In addition, each expert is provided information regarding the estimates made by other experts in the group, so that he/she can revise his/her estimates with respect to others' estimates. In this way, the forecasts are cross checked among experts to reach more accurate decision making.

Every expert is allowed to react or provide suggestions on others' estimates. However, the names of experts are kept anonymous while exchanging estimates among experts to facilitate fair judgment and reduce halo effect.

The main advantage of this method is that it is time and cost effective as a number of experts are approached in a short time without

spending on other resources. However, this method may lead to subjective decision making.

### iii. Market Experiment Method:

This method involves collecting the necessary information related to the current and future demand for a product. This method carries out the studies and experiments on consumer behavior under actual market conditions. In this method, some areas of markets are selected with similar features, such as population, income levels, cultural background, and tastes of consumers.

The market experiments are carried out with the help of changing prices and expenditure, so that the resultant changes in the demand are recorded. These results help in forecasting future demand.

#### **There are various limitations of this method, which are as follows:**

- a. Refers to an expensive method; therefore, it may not be affordable by small-scale organizations
- b. Affects the results of experiments due to various social-economic conditions, such as strikes, political instability and natural calamities.

### **3.6.2 STATISTICAL METHODS:**

Statistical methods are complex set of methods of demand forecasting. These methods are used to forecast demand in the long term. In this method, demand is forecasted on the basis of historical data and cross-sectional data. Historical data refers to the past data obtained from various sources, such as previous years' balance sheets and market survey reports. On the other hand, cross-sectional data is collected by conducting interviews with individuals and performing market surveys. Unlike survey methods, statistical methods are cost effective and reliable as the element of subjectivity is less found in these methods.

#### **Trend Projection Method:**

Trend projection or least square method is the classical method of business forecasting. In this method, a large amount of reliable data is required for forecasting demand. In addition, this method assumes that the factors, such as sales and demand, responsible for past trends would remain the same in future.

In this method, sales forecasts are made through analysis of past data taken from previous year's books of accounts. In case of new organizations, sales data is taken from organizations already existing in the same industry. This method uses time-series data on sales for forecasting the demand of a product.

Time Series Data on Sales of XYZ Organisation

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Year	Sales (in 1000 tones)	Year	Sales in 1000 units
2000	20	2005	28
2001	24	2006	40
2002	22	2007	36
2003	30	2008	42
2004	36	2009	50

The trend projection method undertakes three more methods in account, which are as follows:

**i. Graphical Method:**

It helps in forecasting the future sales of an organization with the help of a graph. The sales data is plotted on a graph and a line is drawn on plotted points.

Let us learn this through a graph:

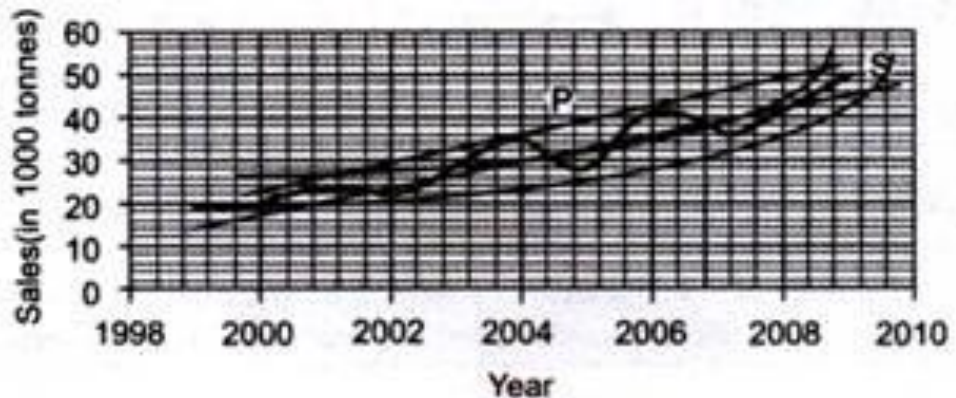


Figure shows a curve which is plotted by taking into the account the sales data of XYZ Organization (Table-1). Line P is drawn through mid-points of the curve and S is a straight line. These lines are extended to get the future sales for year 2010 which is approximately 47 tons. This method is very simple and less expensive; however, the projections made by this method may be based on the personal bias of the forecaster.

**ii. Fitting Trend Method:**

In this least square method, the trend line (curve) is fitted to the time-series data of sales with the help of statistical techniques. There are two types of trends taken into account. It is explained as follows:

**a. Linear Trend:**

Implies a trend in which sales show a rising trend.

**In linear trend, following straight line trend equation is fitted:**

$$S = A + BT$$

Where

S= annual sales

T=time (in years)

A and B are constant



B gives the measure of annual increase in sales

### **b. Exponential Trend:**

In this method, the trends projects the sales increase over the past years at an increasing rate or constant rate.

**The appropriate trend equation used is as follows:**

$$Y = aT^b$$

Where

Y= annual sales

T= time in years

a and b are constant

**Converting this into logarithm, the equation would be:**

$$\text{Log } Y = \text{Log } a + b \text{ Log } T$$

The main advantage of this method is that it is simple to use. Moreover, the data requirement of this method is very limited (as only sales data is required), thus it is inexpensive method.

**However, this method also suffers from certain limitations, which are as follows:**

1. It assumes that the past rate of changes in variables will remain same in future too, which is not applicable in the practical situations.
2. Fails to be applied for short-term estimates and where trend is cyclical with lot of fluctuations
3. Fails to measure relationship between dependent and independent variables.

### **iii. Box-Jenkins Method:**

It refers to a method that is used only for short-term predictions. This method forecasts demand only with stationary time-series data that does not reveal the long-term trend. It is used in those situations where time series data depicts monthly or seasonal variations with some degrees of regularity. For instance, this method can be used for estimating the sales forecasts of woolen clothes during the winter season.

### **Barometric Method:**

In barometric method, demand is predicted on the basis of past events or key variables occurring in the present. This method is also used to predict various economic indicators, such as saving, investment, and income. This technique helps in determining the general trend of business activities. The main advantage of this method is that it is applicable even in the absence of past data. However, this method is not applicable in case of new products. In addition, it loses its applicability when there is no time lag between economic indicator and demand.

### **Econometric Methods:**

Econometric methods combine statistical tools with economic theories for forecasting. The forecasts made by this method are very

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reliable than any other method. An econometric model consists of two types of methods: regression model and simultaneous equations model.

**i. Regression Methods:**

In regression method, the demand function for a product is estimated where demand is dependent variable and variables that determine the demand are independent variable.

If only one variable affects the demand, then it is called single variable demand function. Thus, simple regression techniques are used. If demand is affected by many variables, then it is called multi-variable demand function. Therefore, in such a case, multiple regression is used.

**The simple and multiple regression techniques are discussed as follows:**

**a. Simple Regression:**

Refers to studying the relationship between two variables where one is independent variable and the other is dependent variable.

**The equation to calculate simple regression is as follows:**

$$Y = a + bx$$

Where, Y = Estimated value of Y for a given value of X

b = Amount of change in Y produced by a unit change in X

a and b = Constants

**The equations to calculate a and b are as follows:**

$$a = Y - bX$$

$$b = \frac{\sum x_i y_i}{\sum x_i^2}$$

$$\sum x_i^2 = \sum X_i^2 - nX^2$$

$$\sum x_i y_i = \sum X_i Y_i - nXY$$

For instance, a researcher wants to study the relationship between the employee (sales group) satisfaction and sales of an organization.

He/she has taken the feedback from the employees in the form of questionnaire and asked them to rate their satisfaction level on a 10-pointer scale where 10 is the highest and 1 is the lowest. The researcher has taken the sales data for every individual member of the sales group. He/she has taken the average of monthly sales for an year for every individual.

The collected data is arranged in Table-2:

Table-2: Data to Calculate Simple Regression				
Number of Observations	Employee Satisfaction (Xi)	Sales (in Lacs), Yi	$X_i^2$	$X_i Y_i$
1	2	2	4	4
2	4	3	16	12
3	5	6	25	30
4	7	8	49	56
5	8	6	64	48
6	10	9	100	90

Table-2: Data to Calculate Simple Regression				
Number of Observations	Employee Satisfaction (Xi)	Sales (in Lacs), Yi	$X_i^2$	$X_i Y_i$
7	9	10	81	90
8	3	2	9	6
9	1	3	1	3
10	2	4	4	8
11	4	5	16	20
12	6	8	36	48
13	8	9	64	72
14	10	11	100	110
15	4	5	16	20
16	7	12	49	84
17	9	15	81	135
18	5	6	25	30
19	8	16	64	128
20	9	20	81	180
21	10	20	100	200
22	7	6	49	42
23	6	5	36	30
24	8	14	64	112
25	9	19	81	171
Total	161	224	1215	1729

The calculation of mean for employee satisfaction (X) and sales is as follows:

$$\text{Mean for } X = \sum X_i / n \quad \text{Mean for } Y = \sum Y_i / n$$

$$X = 6.44 \quad Y = 8.96$$

Following equation is used to calculate the value of b:

$$\sum x_i^2 = \sum X_i^2 - nX^2 \text{ and}$$

$$\sum x_i y_i = \sum X_i Y_i - nXY$$

Calculating the value of b for the preceding data is as follows:

$$\sum x_i^2 = \sum X_i^2 - nX^2$$

$$\sum x_i^2 = 1215 - 25 * 6.44^2$$

$$\sum x_i^2 = 178.16$$

$$\sum x_i y_i = \sum X_i Y_i - nXY$$

$$\sum x_i y_i = 1729 - 25 * 6.44 * 8.96$$

$$\sum x_i y_i = 286.44$$

$$b = \sum x_i y_i / \sum x_i^2$$

$$b = 286.44 / 178.16$$

$$b = 1.61$$

$$a = Y - bX$$

$$a = 8.96 - 1.61 * 6.44$$

$$a = -1.39$$

$$Y = a + bX$$

$$Y = -1.39 + 1.61X$$

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This is the regression equation in which the researcher can take any value of X to find the estimated value of Y.

**For example, if the value of X is 9, then the value of Y would be calculated as follows:**

$$Y = -1.39 + 1.61X$$

$$Y = -1.39 + 1.61(9)$$

$$Y = 13.1$$

With the help of preceding example, it can be concluded that if an employee is satisfied, then his/her output would increase.

**b. Multiple Regression:**

It studies the relationship between more than one independent and dependent variables.

**In case of two independent variables and one dependent variable, following equation is used to calculate multiple regressions:**

$$Y = a + b_1X_1 + b_2X_2$$

Where, Y (Dependent variable) = Estimated value of Y for a given value of X1 and X2

X1 and X2 = Independent variables

b1 = Amount of change in Y produced by a unit change in X1

b2 = Amount of change in Y produced by a unit change in X2

a, b1 and b2 = Constants

**The equations used to calculate a and b values are as follows:**

$$\sum Y_i = na + b_1 \sum X_{1i} + b_2 \sum X_{2i}$$

$$\sum X_{1i} Y_i = a \sum X_{1i} + b_1 \sum X_{1i}^2 + b_2 \sum X_{1i} X_{2i}$$

$$\sum X_{2i} Y_i = a \sum X_{2i} + b_1 \sum X_{1i} X_{2i} + b_2 \sum X_{2i}^2$$

The number of equations depends on the number of independent variables. If there are two independent variables, then there would be three equations and so on.

For example: Suppose the researcher wants to study the relationship between intermediate percentage, graduation percentage, and MAT percentile of a group of 25 students.

It is important to note that intermediate percentage and graduation percentage are independent variables and MAT percentile is dependent variable. The researcher wants to find out whether the percentile in MAT depends on the percentage of intermediate and graduation or not.

The collected data is shown in Table-3:

Table-3: Data to Calculate Multiple Regression			
Number of observations	Intermediate percentage (X1i)	Graduation percentage (X2i)	MAT percentile (Yi)
1	60	72	78
2	61	75	75
3	63	78	80
4	66	80	85
5	70	85	84
6	72	86	82
7	74	84	80
8	75	89	81
9	67	90	92
10	69	75	93
11	68	74	96
12	65	72	86
13	64	71	87
14	63	70	88
15	62	86	85
16	79	85	94

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Table-3: Data to Calculate Multiple Regression			
Number of observations	Intermediate percentage (X1i)	Graduation percentage (X2i)	MAT percentile (Yi)
17	80	89	96
18	84	90	97
19	95	91	98
20	75	88	99
21	92	94	86
22	86	86	85
23	81	94	98
24	85	99	99
25	95	99	99
<b>Total</b>	$\sum X_{1i}=1851$	$\sum X_{2i}=2102$	$\sum Y_i=2223$

The equations required to calculate multiple regression are as follows:

$$\sum Y_i = na + b_1 \sum X_{1i} + b_2 \sum X_{2i}$$

$$\sum X_{1i} Y_i = a \sum X_{1i} + b_1 \sum X_{1i}^2 + b_2 \sum X_{1i} X_{2i}$$

$$\sum X_{2i} Y_i = a \sum X_{2i} + b_1 \sum X_{1i} X_{2i} + b_2 \sum X_{2i}^2$$

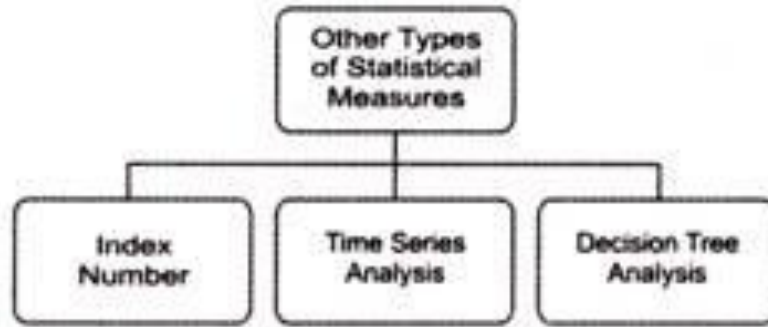
These equations are used to solve the multiple regression equation manually.

### Other Statistical Measures:

Apart from statistical methods, there are other methods for demand forecasting. These measures are very specific and used for only particular datasets. Therefore, their usage cannot be generalized for all types of research.

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These measures are shown in following figure:



The different types of statistical measures can be discussed as follows:

### Index Number:

It indicates the measures that is used to study the fluctuations in a variable or group of related variables with respect to time period/base period. Price and quantity of a product are the most commonly used in economics and financial research to study various factors that are responsible for the problem are identified and calculated.

There are mainly four types of index numbers, which are as follows:

#### a. Simple index number:

It refers to the number that measures a relative change in a single variable with respect to the base year.

#### b. Composite index number:

It refers to the number that measures a relative change in a group of related variables with respect to the base year.

#### c. Price index number:

It refers to the number that measures a relative change in the price of a commodity in different time periods.

#### d. Quantity index number:

It refers to the number that measures a relative change in the physical quantity of goods produced, consumed or sold for a commodity in different time periods.

### Time Series Analysis:

The analysis of a series of observations over a period of equally spaced time intervals is referred for demand forecasting. For example : analyzing the growth of a company from its inception to the present situation. Time series analysis is applicable in various fields, such as public sector, economics, and research.

Various components of time series analysis are as follows:

#### a. Secular Trend:

It refers to the trend that is denoted by T and prevalent over a period of time. Secular trend for a data series can be upward or downward.

The upward trend shows the increase in a variable, such as increase in prices of commodities; whereas, the downward trend shows the declining phases, such as decline in the rate of diseases and sales for a particular product.

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### b. Short Time Oscillation:

Shorter period of time trends are analyzed through this method.

**It can be classified into the following three trends:**

#### 1. Seasonal trend:

It refers to the trend that is denoted by S and occurs year after year for a particular period. The reason for such trends is weather conditions, festivals, and some other customs. Examples of seasonal trend are the increase in the demand for woollens in winters and increase in sales for sweet near Diwali.

#### 2. Cyclical Trend:

It refers to the trend lasting for more than for a year that is denoted by C. Cyclical trends are neither continuous nor seasonal in nature. An example of cyclical trend is business cycle.

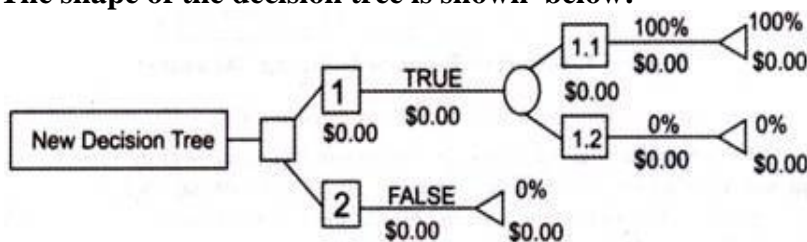
#### 3. Irregular trend:

Refers to the trend that is short and unpredictable in nature and is denoted by I. Examples of irregular trends are earthquakes, volcano eruptions, and floods.

#### Decision Tree Analysis:

It refers to the model that is used to take decision in an organization. In the decision tree analysis, a tree-type structure is drawn to decide the best solution for a problem. In this analysis, the different options are first identified so that we can apply to solve a particular problem. After that, we can find out the outcome of each option. These options/decisions are connected with a square node while the outcomes are demonstrated with a circle node. The flow of a decision tree should be from left to right.

**The shape of the decision tree is shown below:**

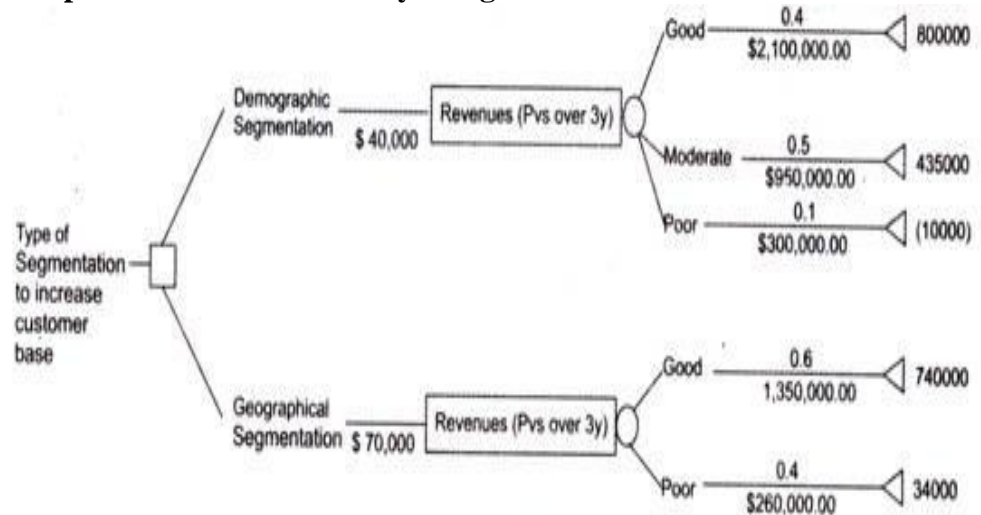


Suppose an organization wants to decide the type of segmentation to increase the customer base.



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**This problem can be solved by using the decision tree as shown below:**



In Figure above, the decision tree shows two types of segmentation, namely demographic segmentation and geographical segmentation.

To analyze the demographic segmentation, the company has to incur \$40,000 (estimated cost). The outcome of the demographic segmentation can be good, moderate, and poor.

**The estimated revenue projected for three years for the three options (good, moderate, and poor) are as follows:**

- Good = \$ 21500000
- Moderate = \$ 950000
- Poor= \$300000

The probabilities assigned to the outcomes are 0.4 for good, 0.5 for moderate, and 0.1 for poor.

**Now, we calculate the outcomes of demographic segmentation in the following manner:**

- Good= 0.4\*2100000 = 840000
- Moderate = 0.5\*950000=475000
- Poor = 0.1\*300000= 30000

Similarly, in case of geographical segmentation, the cost incurred is \$ 70000 (estimated cost). The outcome of the geographical segmentation can be good and poor.

**The estimated revenue projected for three years for the two options (good and poor) are as follows:**

- Good = \$ 1350000
- Poor= \$ 260000

The probabilities assigned to the outcomes are 0.6 for good and 0.4 for poor.



**Now, we calculate the outcomes of geographical segmentation in the following manner:**

$$\text{Good} = 0.6 * 1350000 = \$ 810000$$

$$\text{Poor} = 0.4 * 260000 = \$ 104000$$

**Now, we would analyze the two outcomes for taking a decision to select one segmentation out of the two segmentations in the following manner:**

**For demographic segmentation:**

$$\text{Good} = 840000 - 40000 = \$ 800000$$

$$\text{Moderate} = 475000 - 40000 = \$ 435000$$

$$\text{Poor} = 30000 - 40000 = \$ (10000)$$

**Similarly, for geographical segmentation:**

$$\text{Good} = 810000 - 70000 = \$ 740000$$

$$\text{Poor} = 104000 - 70000 = \$ 340000$$

As we can see from the calculation that if we select the demographic segmentation, then the maximum estimated profit would be \$ 800000. In demographic segmentation, there are chances of incurring losses (10,000), if the product is not successful in the market.

If we select geographical segmentation, then the maximum estimated profit would be \$ 740000. In geographical segmentation, we would earn less profit (\$ 340000), if the product is not successful in the market. Therefore, it is better to use geographical segmentation for marketing the product, as no loss is involved in it.

### **Check your Progress III**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What are the two techniques for demand forecasting?

## **3.7 DEMAND FORECASTING FOR NEW PRODUCTS:**

Demand forecasting for new products is a challenging task. It also requires special skills and techniques as they are new products. There is no reliable data to base demand calculations. Experiences of other firms also are not available.

Therefore, firms introducing new products will have to rely on new techniques of demand forecasting. The important methods of demand forecasting for new products are the following:

## **NOTES**

## NOTES

Joel Dean makes six possible approaches towards forecasting of new products. They are as follows:

### 1. Test marketing:

This is a proven method of demand forecasting for new products. It involves marketing the new products as a test case in some chosen markets. For test marketing, the product is either produced in small quantities, or imported. This is done through distributive channels like departmental stores or cooperative society, etc., or by direct mailing. Total demand is predicted on the basis of the sample market. But, the difficulty gets in determining the allowance to make for the immaturity of the sample market and full-fledged market.

### 2. Opinion poll:

Under this method, the demand for the new product can be estimated with a few potential customers. The potential buyers can be directly approached and asked whether they would be interested in buying the products. This is done as Sample survey method. Due to the sampling and probing into the real interest of customers, this method becomes difficult.

### 3. Evolutionary approach :

As the name implies the meaning, the new product is seen as evolution from an existing product. In computers, the lap top is an evolution from desk top and the tablet is an evolution from lap top. This approach turns useful, only when the new product is close to the existing product.

### 4. Substitute approach :

Substitute approach of demand forecasting is used when the new products is a substitute for the existing products. For example : liquid soap is a substitute for toilet soap cake , liquid mosquito vapouriser is a substitute for mosquito coil

### 5. Vicarious approach :

This approach relies on the product knowledge and experience of the dealers of the products. The dealers will be able to judge out the needs and preferences of the customers. Through this link, the dealer will be in a position to say whether a new product has gained attraction and acceptance of the customers.

#### Check your Progress IV

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by Substitute approach?

### LET US SUM UP

In this unit you have learnt how to forecast a demand in various level and various methods or techniques adhered for a good demand forecasting. Besides you have also learnt how to forecast demand for new products.

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### 3.9 Unit End Exercises

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1. What do you mean by forecast ?
  2. What are the various means of demand forecasting
  3. State any few techniques for a good demand forecasting
  4. How to forecast demand for new products?
  5. Write a short note on decision tree analysis
- 

### 3.10 ANSWERS TO CHECK YOUR PROGRESS

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1. Short run decisions and long run decisions
  2. Accuracy and durability
  3. Statistical method and survey method
  4. Substitute approach of demand forecasting is used when the new products is a substitute for the existing products. For example : liquid soap is a substitute for toilet. soap cake , liquid mosquito vapouriser is a substitute for mosquito coi
- 

### 3.11 SUGGESTED READINGS

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

**NOTES**

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## UNIT IV: SUPPLY & MARKET EQUILIBRIUM

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### NOTES

- 4.1 Introduction
- 4.2 Objectives
- 4.3 Supply and Market Equilibrium
- 4.4 Law of Supply
- 4.5 Exceptions to the Law of Supply
- 4.6 Changes or Shifts in Supply
- 4.7 Elasticity of Supply
- 4.8 Factors Determining Elasticity of Supply
- 4.9 Practical Importance
- 4.10 Market Equilibrium and Changes in Market Equilibrium
- 4.11 Summary
- 4.12 Unit End Exercises
- 4.13 Answers to check the progress
- 4.14 Suggested Readings

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#### 4.1 INTRODUCTION:

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The Supply of a commodity means the amount of that commodity which producers are able and willing to offer for sale at a given price. One important point worth noting is that supply is related to scarcity. This means that it is only the scarce goods which have a supply price; goods which are freely available have no supply price.

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#### 4.2 OBJECTIVES:

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This unit helps the student to learn the supply, supply schedule, law of supply and Elasticity of Supply. This learning helps the student to learn the practical application knowledge of Supply and supports his views in keeping up the market equilibrium and keeps himself flexible enough to match out the changes in Market Equilibrium.

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#### 4.3 SUPPLY & MARKET EQUILIBRIUM:

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Supply refers to the various quantities of a good or service that producers are willing to sell at all possible market prices. Supply can refer to the output of one producer or to the total output of all producers in the market

(market supply). The higher the price for a good, the more profit a business will make after paying the cost for resources.

#### **Market Equilibrium:**

When we put Demand (plan) and Supply (plan) together, we notice at one point, the supply and demand curves intersect. The intersecting

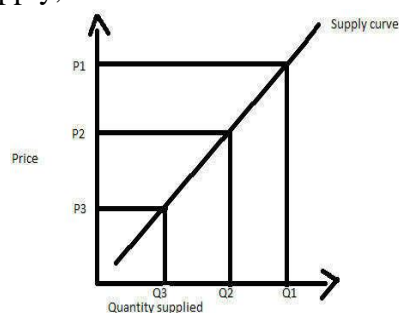
point is called the market's equilibrium. The price at this intersection is called the equilibrium price, and the quantity is called the equilibrium quantity.

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#### 4.4 LAW OF SUPPLY

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“Other things remaining the same, as the price of a commodity rises, its supply increases and as the price falls, its supply declines”. Thus the quantity offered for sale varies directly with price. i.e. the higher the price, the larger is the supply, and vice-versa.



This can be explained by two reasons:

1. An increase in price generally implies higher profits leading producers to offer increased quantities, and
2. In the long run, due to higher profitability, new producers may enter the field of production leading to an increase in output.

The normal law of supply is widely applicable to a large number of Products. There are certain exceptions to law of supply, like a change in the price of a good does not lead to a change in its quantity supplied in the positive direction.

#### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by law of supply?

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#### 4.5 EXCEPTIONS TO THE LAW OF SUPPLY:

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The law of supply is not a universal principle that applies to all circumstances. There are, in fact, various important exceptions to the law of supply. Some exceptions to law of supply are given below:

- Change in business
- Monopoly
- Competition
- Perishable Goods
- Legislation Restricting Quantity

## NOTES

- Agricultural Products
- Artistic and Auction Goods

### **1. Change in business**

It may happen that the seller may plan to enter into an entirely new business by exiting the current one. So when the present business is on the verge of closure then the seller may sell his goods at lower prices to clear them off. So here too the law of supply is not being followed.

### **2. Monopoly**

When a small number of producers control the supply of the market then the law of supply may not operate. For example, in the case of monopoly (single seller) may not necessarily offer a larger quantity supplied even though the price of goods is higher. Market control by the monopoly allows it to set the market price based on demand in the market.

### **3. Competition**

Other market structures like an oligopoly and monopolistic competition may be facing more competition, therefore offering to sell more quantities at lower prices and negating the law of supply.

### **4. Perishable Goods**

In cases of perishable goods, the supplier would offer to sell more quantities at lower price to avoid losses due to damage to the product.

### **5. Legislation Restricting Quantity**

Suppliers cannot offer to sell more quantities at higher prices where the government has put some regulations on the quantity of the good to be produced or the price ceiling at which the good is to be sold in the market.

### **6. Agricultural Products**

Since the production of agricultural products cannot be increased beyond a certain limit, the supply can also not be increased beyond this limit even if the prices are higher; the producer is unable to offer more quantities.

### **7. Artistic and Auction Goods**

The supply of such goods cannot be increased or decreased easily according to its demand. Thus, it is difficult to offer more quantities even if the prices shoot up.

### **8. Out of fashion goods**

When goods are in fashion then the sellers can sell at a high price. But there are some goods that go out of fashion and are no longer in vogue. Such goods are sold by the sellers at low prices in order to clear these goods.

### **9. Economic Slowdown**

The businesses pass through different phases and the sellers have to adapt to these business-related changes. During the low economic phases, the sellers may not have an advantage of incremental prices and hence

during such tough times, they sell goods even when they do not witness price rise in order to recover costs. So the law of supply is not applicable in this case also.

### 10. Immediate requirement of funds

The seller may face a time when there is in immediate need of funds. In this situation, he may supply the goods in the market even at lower prices.

#### Check your Progress II

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. State any two exceptions to the law of supply ?

---

### 4.6 CHANGES OR SHIFTS IN SUPPLY:

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‘Increase’ and ‘Decrease’ in supply would mean a change in quantity supplied without any change in price. This, therefore, implies a shift in supply schedule to the right implying increase in supply and to the left implying decrease in supply.

An increase in supply involving willingness to make and sell more at each price may be caused by

- i. Improvements in technology
- ii. Decreases in the prices of other commodities
- iii. Decreases in the prices of factors of production used in making the commodity concerned.
- iv. Increases in the prices of factors of production used in making the commodity concerned.

One must clearly distinguish between the increase in quantity supplied and increase in supply. Increase in supply means that the entire supply curve has shifted to a new position to the right.

It is a new curve altogether whereas increase in the quantity supplied means that more is being affected at a higher price. The supply curve is the same.

A movement along the same supply curve indicates changes in quantities offered as a result of a change in price. It does not represent any change in the supply schedule.

#### Backward sloping Supply Curve:

The law of supply states that more will be supplied at a higher price. But it sometimes happens that this holds good only upto a point and

## NOTES

## NOTES

thereafter less is offered at a higher price. The supply curve therefore begins sloping backward towards left.

Rising wages induce more work, but after a point, leisure is preferred to labour and hence higher wages induce workers to work less and even have holiday.

### **Special Supply Curve:**

Suppose the government supplies electricity at a constant rate and no more. The supply curve will look SS1 curve in the graph. This shows that at price OP, the quantity supplied is OQ and no more. The supply curve under the quota system also looks like SS1 curve.

### **Joint supply and Composite Supply**

When two or more that two commodities are supplied together, it is a joint supply. For example: wheat and husk, hides and bones. Here, when one is produced, the production of the other also takes place naturally.

### **Change in Supply:**

A change in supply is when the suppliers of a given good or service alter production or output. A change in supply occurs as a result of new technologies such as more efficient or less expensive production processes or a change in the number of competitors in the market.

A change in supply leads to a shift in the supply curve, causing an imbalance in the market that is corrected by changing prices and demand. If supply increases, the supply curve shifts to the right, while a decrease in supply shifts the supply curve left.

For example, if a new technology reduces the cost of gaming console production for manufacturers, according to the law of supply, the output of consoles will increase. With more output in the market, the price of consoles is likely to fall creating greater demand in the marketplace and higher overall sales of consoles.

### **Supply and Demand Curves**

The effects of changing supply and demand can be depicted by plotting the two variables on a graph. The horizontal X-axis represents quantity and the vertical Y-axis represents price. The supply and demand curves intersect to form an "X" in the middle of the graph; the supply curve points upward and the demand curve points downward. Where the two curves intersect is the price and quantity based on current levels of supply and demand.

A positive change in supply when demand is constant shifts the supply curve to the right, which results in an intersection that yields lower prices and higher quantity. A negative change in supply shifts the curve to the left, causing prices to rise and the quantity to decrease.



### Change in Supply Example

During the early 2010s, the development of hydraulic fracturing ("fracking") as a method to extract oil from shale rock formations in North America caused a positive change in supply in the oil market. Non-OPEC oil production rose by over one million barrels per day as most of the oil came from fracking in North America.

Because of the increase in the supply of oil, the per-barrel price of oil, which had reached an all-time high of \$147 in 2008, plunged as low as \$27 in February 2016. Economists predicted that lower prices would create greater demand for oil although this demand was tempered by deteriorating economic conditions in many parts of the world.

#### Check your Progress III

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. When a change in Supply occurs?

### 4.7 ELASTICITY OF SUPPLY

The elasticity of supply establishes a quantitative relationship between the supply of a commodity and its price. Hence, we can express the numeral change in supply with the change in the price of a commodity using the concept of elasticity. Note that elasticity can also be calculated with respect to the other determinants of supply.

The major factor influencing the supply of the commodity is its price. The price elasticity of supply is the ratio of the percentage change in the price to the percentage change in quantity supplied of a commodity.

$$Es = [(\Delta q/q) \times 100] \div [(\Delta p/p) \times 100] = (\Delta q/q) \div (\Delta p/p)$$

$\Delta q$  = The change in quantity supplied

$q$  = The quantity supplied

$\Delta p$  = The change in price

$p$  = The price

Example:

Firm A supplied 300 units of its output at a price of Rs.4. When price increases to Rs.8, the quantity supplied increases to 500 units. Find the elasticity of supply.

Elasticity of supply

$$= 200/4 \times 4/300$$

## NOTES

## NOTES

$$=200/300 = 0.67$$

The case of zero elasticity is one in which the quantity supplied does not change as price changes. This would be the case, for example, if suppliers persisted in producing a given quantity  $Oa$  and dumping it on the market for whatever it would fetch.

In the case of Infinite elasticity, the supply elasticity is infinite at the price  $Ob$  because nothing at all is supplied at lower prices but a small increase in price to  $Ob$  causes supply to rise from zero to an indefinitely large amount, indicating that producers will supply any amount demanded at that price.

In the case of unit elasticity of supply, any straight line supply curve drawn through the origin has a unit elasticity.

When the supply curve cuts the vertical axis, it is relatively elastic supply. When the supply curve cuts the horizontal axis, it is relatively inelastic supply.

### Elasticity from a Supply Curve

There are two more ways to calculate the price elasticity of supply, both of which make use of the supply curve. We can either calculate the elasticity at a specific point on the supply curve, known as point elasticity or between two prices, known as arc-elasticity.

The formula for calculating the point elasticity of supply is:

$$Es = (dq/dp) \times (p/q)$$

Here  $dq/dp$  is the slope of the supply curve.

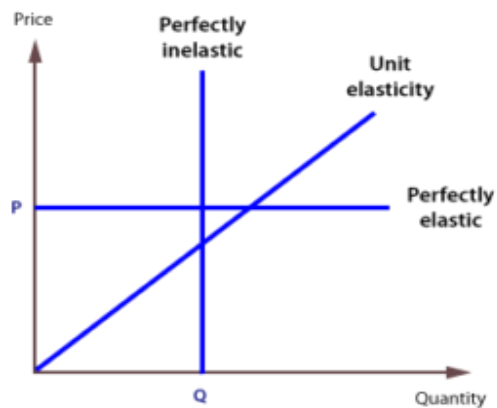
The formula for calculating the arc-elasticity of supply is:

$$Es = [(q1 - q2)/(q1 + q2)] \times [(p1 + p2)/(p1 - p2)]$$

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### 4.8 FACTORS DETERMINING ELASTICITY OF SUPPLY

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### 1. Perfectly Inelastic Supply

A service or commodity has a perfectly inelastic supply if a given quantity of it can be supplied whatever might be the price. The elasticity of supply for such a service or commodity is zero. A perfectly inelastic supply curve is a straight line parallel to the Y-axis. This is representative of the fact that the supply remains the same irrespective of the price.

The supply of exclusive items, like the painting of Mona Lisa, falls into this category. Whatever might be the price on offer, there is no way we can increase its supply.

### 2. Relatively Less-Elastic Supply

When the change in supply is relatively less when compared to the change in price, we say that the commodity has a relatively-less elastic supply. In such a case, the price elasticity of supply assumes a value less than 1.

### 3. Relatively Greater-Elastic Supply

When the change in supply is relatively more when compared to the change in price, we say that the commodity has a relatively greater-elastic supply. In such a case, the price elasticity of supply assumes a value greater than 1.

### 4. Unitary Elastic

For a commodity with a unit elasticity of supply, the change in quantity supplied of a commodity is exactly equal to the change in its price. In other words, the change in both price and supply of the commodity are proportionately equal to each other. To point out, the elasticity of supply in such a case is equal to one. Further, a unitary elastic supply curve passes through the origin.

### 5. Perfectly Elastic supply

A commodity with a perfectly elastic supply has an infinite elasticity. In such a case the supply becomes zero with even a slight fall in the price and becomes infinite with a slight rise in price. This is indicative of the fact that the suppliers of such a commodity are willing to supply any quantity of the commodity at a higher price. A perfectly elastic supply curve is a straight line parallel to the X-axis.

In short, we can summarize as follows:

S.No	When Elasticity of supply is	It is known as
1.	Equal to Zero	Perfectly inelastic supply
2.	Equal to infinity	Perfectly elastic supply
3.	Equal to one	Unitary elastic supply

4.	More than one but not infinity	Relatively elastic supply
5.	Less than one but not zero	Relatively inelastic supply

## NOTES

Supply elasticity is a useful concept. A given change in price will tend to have greater and greater effects on the amount supplied as one moves from momentary situation to a short run period and on to the long run period. Elasticity of supply tends to be greater in the long run when adjustments to the higher price have been made than in the shorter period of time.

### Cross Elasticity of Supply

Gruen, L.Ward and A. Powell have introduced this new concept of elasticity of supply while estimating elasticities of supply for Australian agricultural products.

The cross (price) elasticity of supply, however, measures change in quantity supplied of one commodity (ex.wheat) when the price of another commodity (say paddy) changes. It can be expressed as

Here,  $E_{sc}$  is the elasticity co-efficient. It is always negative indicating that a rise in the price of one good will lead to a fall in the quantity supplied of alternative good. For instance, a rise in the price of paddy by 1 percent may reduce the quantity supplied of wheat by 0.22 per cent.

The concept of cross elasticity of supply in real life is important, significantly in case of agricultural commodities. Since land is a scarce factor, farmers have to be careful about its use. For example, if price of paddy goes up, land will be diverted from wheat production causing fall in quantity of wheat supplied.

### Check your Progress IV

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What are the factors determining elasticity of supply?

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### 4.9 PRACTICAL IMPORTANCE:

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Price elasticity of supply is important in

- Housing supply – inelastic supply of new housing in response to rising demand – pushes up property prices with consequences for housing wealth, affordability etc

## NOTES

- Oil industry – can OPEC and non-OPEC countries step up crude oil output as global demand expands?
- Trade: I.e. the ability of a nation's export industries to respond to depreciation in the exchange rate if export demand grows – important for countries using the exchange rate as an instrument of macro policy
- Commodity prices: Inelastic supply of many hard and soft commodities – making prices more volatile – especially in markets where there is strong speculative activity - link to global food price inflation
- Labour market: Elasticity of supply of labour is a factor explaining wage differentials – i.e. migrant workers can help to relieve shortages of labour and improve the elasticity of supply
- Macroeconomics and the output gap: The changing elasticity of SRAS at different points of the economic cycle
- Elasticity of supply of renewable sources of energy as demand increases e.g. bio-fuels, solar power
- Quasi public goods – i.e. public goods such as the airwaves, motorways, beaches etc which become crowded and congested – causing the marginal cost of supplying to an extra user to rise
- Government intervention in a market – if you are answering questions on maximum and minimum prices or indirect taxes and subsidies, you can always make a useful analytical point about the importance of price elasticity of supply in affecting the results of any such market intervention.

Here is a mnemonic is for factors affecting price elasticity of supply (courtesy of Innes Robinson)

### BRITS

1. Barriers to entry – e.g. Patents or high cost of advertising could make it hard for new firms to enter the market
2. Raw materials – If raw materials are readily available, it will be relatively easy to expand production
3. Inventory – Businesses with plenty of stock can increase supply easily.
4. Time – Many agricultural products take time to make so supply is fixed in the short term.
5. Spare Capacity – If businesses are not running to full capacity they are more able to increase supply. The supply of goods and services is often most elastic in a recession when there is plenty of spare labour and capital resource

### Check your Progress V

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. State any two fields in which practical importance is required?

## NOTES

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### 4.10 MARKET EQUILIBRIUM AND CHANGES IN MARKET EQUILIBRIUM:

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In a competitive market, demand for and supply of a good or service determine the equilibrium price.

#### **Equilibrium Market :**

Equilibrium is achieved at the price at which quantities demanded and supplied are equal. We can represent a market in equilibrium in a graph by showing the combined price and quantity at which the supply and demand curves intersect.

For example, imagine that sellers of squirrel repellent are willing to sell 500500500 units of squirrel repellent at a price of \$5 per can. If buyers are willing to buy 500500500 units of squirrel repellent at that price, this market would be in equilibrium at the price of \$5 and at the quantity of 500500500 cans.

#### **Disequilibrium**

Whenever markets experience imbalances—creating disequilibrium prices, surpluses, and shortages—market forces drive prices toward equilibrium.

A surplus exists when the price is above equilibrium, which encourages sellers to lower their prices to eliminate the surplus.

A shortage will exist at any price below equilibrium, which leads to the price of the good increasing.

For example, imagine the price of dragon repellent is currently \$6 per can. People only want to buy 400400400 cans of dragon repellent, but the sellers are willing to sell 600600600 cans at that price. Sellers will lower their prices to attract buyers for their unsold cans of dragon repellent.

#### **Changes in equilibrium**

Changes in the determinants of supply and/or demand result in a new equilibrium price and quantity. When there is a change in supply or demand, the old price will no longer be equilibrium. Instead, there will be a shortage or surplus, and price will subsequently adjust until there is a new equilibrium.

For example, suppose there is a sudden invasion of aggressive unicorns. There will be more people who want to buy unicorn repellent at all possible prices, causing demand to increase. At the original price, there

will be a shortage of unicorn repellent, signaling sellers to increase the price until the quantity supplied and quantity demanded are once again equal.

### **Check your Progress VI**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by Equilibrium Market ?

## **NOTES**

### **4.11 LET US SUM UP**

This unit summarizes the concept of supply; its exceptions to the law of supply, Elasticity of supply along with the factors determining elasticity of supply. It also gives a clear picture of the Market Equilibrium and changes in market equilibrium.

### **4.12 UNIT END EXERCISES**

1. What do you mean by Supply
2. Write a short note on Law of Supply
3. What are the exceptions to the law of supply
4. Write a short note on Elasticity of Supply
5. What are the factors determining the elasticity of supply
6. Elucidate Market equilibrium with suitable examples
- 7.

### **4.13 ANSWERS TO CHECK YOUR PROGRESS:**

1. Other things remaining the same, as the price of a commodity rises, its supply increases and as the price falls, its supply declines”.
2. Monopoly and Competition
3. When two or more that two commodities are supplied together, it is a joint supply. For example: wheat and husk, hides and bones. Here, when one is produced, the production of the other also takes place naturally.
4. A change in supply occurs as a result of new technologies such as more efficient or less expensive production processes or a change in the number of competitors in the market.
5. Perfectly Inelastic Supply, Unit Elasticity and Perfectly elastic Supply
6. Commodity prices: Inelastic supply of many hard and soft commodities – making prices more volatile – especially in markets where there is strong speculative activity - link to global food price inflation

## NOTES

Labour market: Elasticity of supply of labour is a factor explaining wage differentials – i.e. migrant workers can help to relieve shortages of labour and improve the elasticity of supply

7. Equilibrium is achieved at the price at which quantities demanded and supplied are equal. We can represent a market in equilibrium in a graph by showing the combined price and quantity at which the supply and demand curves intersect.

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### 4.14. SUGGESTED READINGS

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi



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## UNIT V: PRODUCTION ANALYSIS

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- 5.1 Introduction
- 5.2 Objectives
- 5.3 Meaning of Production and
- 5.4 Production Function
- 5.5 Cost of Production
- 5.6 Summary
- 5.7 Unit End Exercises
- 5.8 Answers to check the progress
- 5.9 Suggested Readings

## NOTES

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### 5.1 INTRODUCTION:

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The term Production function refers to the relationship between the inputs and the outputs produced by them. The study of the production function is directed towards establishing the maximum output which can be achieved with a given set of resources or inputs and with a given state of technology

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### 5.2 OBJECTIVES:

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The student will be able to understand clearly on the meaning of Production, Production Function nuances and cost associated with.

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### 5.3 MEANING OF PRODUCTION:

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Inputs are transformed into outputs through a set of production processes that constitutes the production function. In short, the word "production" is used to imply creation or increasing the utility of a good, so that its value is increased.

#### **Factors of Production**

To produce wheat, one requires land, workers, tractors, tube well, seeds, pesticides, favourable climatic conditions and fertilizer, etc. All these are called the means of production or inputs to get the output or production.

*"The sources of services which enter into the process of production are called factors of production. The factors are broadly classified as land, labour, capital, organisation and enterprise .*

M.J. Ulmer

As per the modern economists, there are four factors of production namely:

(i) land (ii) labour (iii) capital (iv) Entrepreneurship.

## NOTES

### 1. Land:

Land is that factor of production which is freely available from nature. In it, not only on the surface of soil is included, but also all other free gifts of the nature below the surface and above the surface are included; for example, forests, minerals, fertility of soil, water, etc. According to Marshall, "Land means *the material and the forces which nature gives freely for man's aid, in land and water, in air, light and heat.*" Land is also called a natural resource.

### 2. Labour:

Labour is a human factor of production. In it all the mental and physical activities of man are included which are performed in order to earn money. The services of a carpenter, black-smith, weaver, teacher, lawyer and doctor, etc., are called labour.

### 3. Capital:

Capital is that man-made factor of production which is used for more production. Factors like machines, tools, raw materials, buildings, railways, factories, etc., are called capital. The saving of a man when invested to earn will also be called capital.

### 4. Entrepreneurship:

It is the secret sauce that combines all the other factors of production into a product or service for the consumer market. An example of entrepreneurship is the evolution of social media behemoth Facebook Inc. (FB). Mark Zuckerberg assumed the risk for the success or failure of his social media network when he began allocating time from his daily schedule towards that activity. At the time that he coded the minimum viable product himself, Zuckerberg's labor was the only factor of production.

#### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What are the factors of Production?

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### 5.4 PRODUCTION FUNCTION:

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This function relates one output to two inputs. If it were possible to imagine an industry which was so labour intensive that capital played an insignificant part and its effect on output could be ignored, it would be appropriate to have a production function with only one input, labour and the relationship would be two dimensional, i.e. of the form  $Y = f(X)$ , where Y is the output and X is the input. However, this situation is not likely to

be met in life and hence, in practice, the simplest case would be where output is a function of at least two inputs.

In economic theory, we are concerned with three types of production functions.

1. Production Function with one variable input
2. Production Function with two variable inputs
3. Production function with all variable inputs

Production Function with one variable input

Law of variable proportions:

In economics, the production function with one variable input is illustrated with the well known Law of variable proportions. The law of variable proportion is one of the fundamental laws of economics. It has also been called as the Law of Diminishing Marginal Returns.

One Factor fixed and others variable:

Law of variable proportion shows the input –output relationship or production function with one factor variable while other factors of production are kept constant.

For example, a farmer has 20 acres of land to cultivate. The land has some fixed investment, i.e., capital on it; a tubewell, a farm house and farm machinery. The amount of a land and capital is supposed as fixed factor of production. The farmer can, however, vary the number of men to be employed on its cultivation. Labour is thus the variable factor. The change in the number of men will change the output.

Law of eventually diminishing returns:

This law does not state that each and every increase in the amount of the variable factor employed in the production process will yield diminishing marginal returns. It is possible that initial increases in the amount of variable factor employed in the production process may yield increasing marginal returns. However, in increasing the amount of the variable factor employed, a point will be reached where the marginal increases in total output will begin declining or marginal return will begin declining.

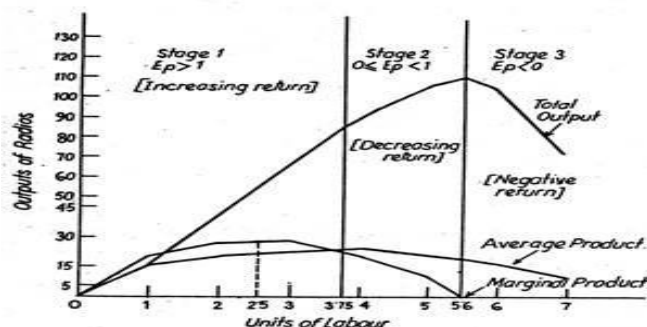
Three stages of Production:

The three stages of production are characterized by the slopes, shapes, and interrelationships of the total, marginal, and average product curves. The first stage is characterized by a positive slope of the average product curve, ending at the intersection between the average product and marginal product curves; the second stage continues up to the point in which the marginal product becomes negative, at the peak of the total product curve; and the third stage exists over the range of in which the total product curve is negatively sloped.

## NOTES

In Stage I, average product is positive and increasing. In Stage II, marginal product is positive, but decreasing. And in Stage III, total product is decreasing.

## NOTES



### Stage I:

1. Stage I is the segment from the origin to point X2. In this stage, fixed factors are excessive relative to variable factors. As such, voluntary operation in stage I is considered irrational.
2. At point X2, the marginal product of X equals its average product.
3. X2 is of course, also the point at which the average product is maximized.
4. In this stage, the production function is characterized first by increasing marginal returns to the variable factor from the origin to point X1 and then by diminishing marginal returns from X1 to X2.
5. In stage I, it is not correct to understand that only increasing marginal returns take place. For upto a point, increasing returns and thereafter diminishing returns take place. Stage I should not, therefore, be identified with increasing marginal returns only.

### Stage II:

The second stage lies in the range from X2 to X3. In other words, stage II begins where the average product of the variable factor is maximized and continues to the point at which total product is maximized and marginal product is zero. This stage is characterized by diminishing returns to the variable input over its entire range. That is, although total product is increasing in this range, it does so at a continuously decreasing rate.

### Stage III:

In Stage III, the area beyond where the total product curves starts decreasing. In this range, the marginal product of the variable factor is negative.

The following table sums up the three stages of variable proportions:

Behaviour of TPP, MPP and APP during three stages of Production

**NOTES**

Total Physical Product (TPP)	Marginal Physical Product (MPP)	Average Physical Product (APP)
Stage I Increases at an increasing rate	Increases, reaches its maximum and then declines till $MR = AP$	Increases and reaches its maximum
Stage II Increases at a diminishing rate till it reaches maximum	Is diminishing and becomes equal to zero	Starts diminishing
Stage III Starts declining	Becomes negative	Continues to decline

Production Function with two variable inputs

Isoquants:

To understand a production function, with two variable inputs, it is necessary to explain what an isoquant is. An isoquant is a firm's counterpart of the consumer's indifference curve. It is a curve that shows all the combinations of inputs, which yield the same level of output. 'Iso' means equal and 'quant' means quantity. Therefore, an isoquant represents a constant quantity of output.

The isoquant curve is also known as an "Equal Product Curve" or "Production Indifference Curve" or Iso-Product Curve."

An Isoquant Schedule

Combinations of Labour and Capital	Units of Labour (L)	Units of Capital (K)	Output of Cloth (meters)
A	5	9	100
B	10	6	100
C	15	4	100
D	20	3	100

The above table is based on the assumption that only two factors of production, namely, Labor and Capital are used for producing 100 meters of cloth.

Combination A =  $5L + 9K = 100$  meters of cloth

Combination B =  $10L + 6K = 100$  meters of cloth

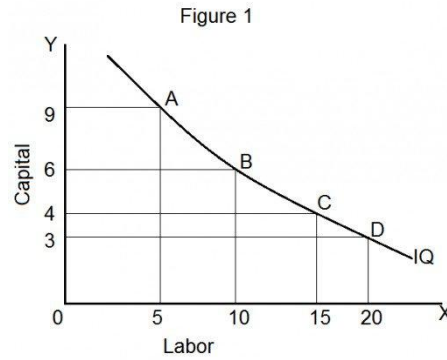
Combination C =  $15L + 4K = 100$  meters of cloth

Combination D =  $20L + 3K = 100$  meters of cloth

**NOTES**

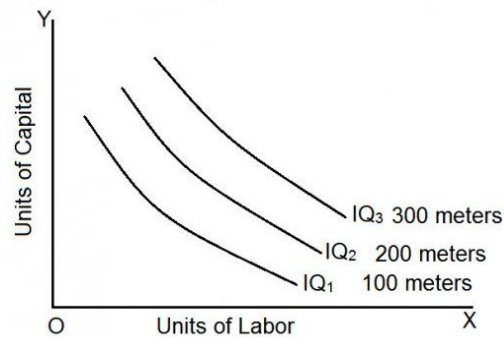
The combinations A, B, C and D show the possibility of producing 100 meters of cloth by applying various combinations of labor and capital. Therefore it is understood that, an isoquant schedule is a schedule of different combinations of factors of production yielding the same quantity of output.

An iso-product curve is the graphic representation of an iso-product schedule.



**Isoquant Map**

An isoquant map is a set of isoquants that shows the maximum attainable output from any given combination inputs.



**Properties of Isoquants**

1. An isoquant is downward sloping to the right. i.e. negatively inclined. This implies that for the same level of output,, the quantity of one variable will have to be reduced in order to increase the quantity of other variable.
2. A higher isoquant represents larger output. That is, with the same quantity of one input and larger quantity of the other input, larger output will be produced.
3. No two isoquants intersect or touch each other. If two isoquants intersect or touch each other, this would mean that there will be a common point on the two curves and this would imply that the

same amount of two inputs can produce two different levels of output. (i.e. 400 and 500 units) which is absurd

4. Isoquant is convex to the origin. This means that its slope declines from left to right along the curve. In other words, when we go on increasing the quantity of one input say labour by reducing the quantity of other input say capital, we see that less units of capital are sacrificed for the additional units of labour.

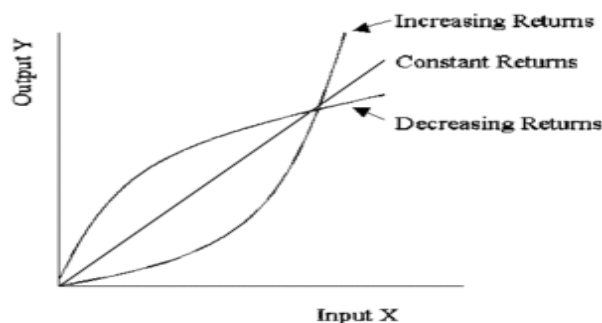
## NOTES

### Production function with all variable inputs

A closely related question in production economics is how a proportionate increase in all the input factors will affect total production. This is the question of returns to scale and one can think of three possible situations:

1. When the output increases exactly in proportion to an increase in all the inputs or factors of production, it is called constant returns to scale. For example, if twice the inputs are used in production, the output also doubles. Thus, constant returns to scale are reached when internal and external economies and diseconomies balance each other out.
2. When the output increases more than proportionately when all the inputs increase proportionately, it is known as increasing returns to scale. This represents a kind of decreasing the cost to the firm. External economies of scale might be one of the reasons behind such increase in output in increasing returns to scale. Thus, when inputs double, output more than doubles in this case.
3. When the output increases less than proportionately as all the inputs increase proportionately, we call it decreasing returns to scale or diminishing returns to scale. In this case, internal or external economies are normally overpowered by internal or external diseconomies. Thus, if we double the inputs, the output will increase but by less than double.

To sum up all the three variable inputs, the following figure shows the graph



NOTES

**Check your Progress II**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do an isoquant represents?

**5.5 COST OF PRODUCTION**

**Fixed and variable costs**

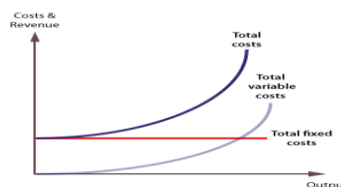
Fixed costs are those that do not vary with output and typically include rents, insurance, depreciation, set-up costs, and normal profit. They are also called *overheads*.

Variable costs are costs that do vary with output, and they are also called *direct costs*. Examples of typical variable costs include fuel, raw materials, and some labour costs.

Example: Consider the following hypothetical example of a boat building firm. The total fixed costs, TFC, include premises; machinery and equipment needed to construct boats, and are £100,000, irrespective of how many boats are produced. Total variable costs (TVC) will increase as output increases.

Output	Total Fixed Cost	Total Variable Cost	Total Cost
1	100	50	150
2	100	80	180
3	100	100	200
4	100	110	210
5	100	150	250
6	100	220	320
7	100	350	450
8	100	640	740

Plotting this total fixed cost, total variable cost and the total cost; we can derive the following graph:





### Total fixed costs

Given that *total fixed costs* (TFC) are constant as output increases, the curve is a horizontal line on the cost graph.

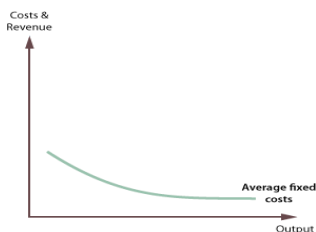
### Total variable costs

The *total variable cost* (TVC) curve slopes up at an accelerating rate, reflecting the law of diminishing marginal returns.

### Total costs

The *total cost* (TC) curve is found by adding total fixed and total variable costs. Its position reflects the amount of fixed costs, and its gradient reflects variable costs.

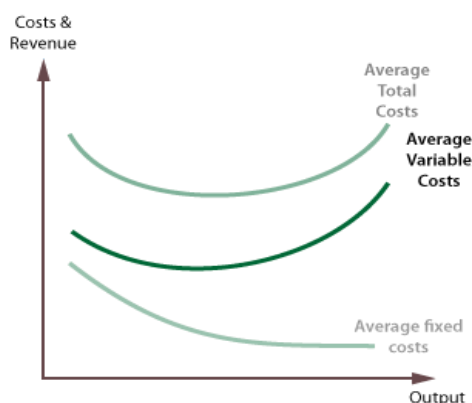
### Average fixed costs



Average fixed costs are found by dividing total fixed costs by output. As fixed cost is divided by an increasing output, average fixed costs will continue to fall. The *average fixed cost* (AFC) curve will slope down continuously, from left to right.

### Average variable costs

Average variable costs are found by dividing total fixed variable costs by output.



The *average variable cost* (AVC) curve will at first slope down from left to right, then reach a minimum point, and rise again.

## NOTES

**NOTES**

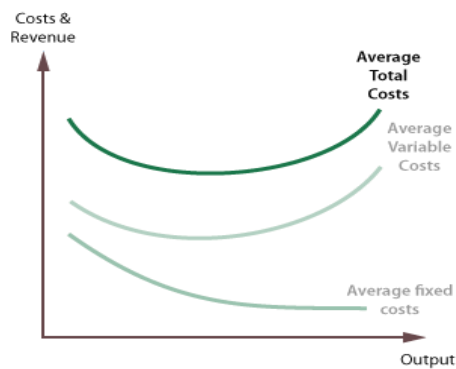
AVC is ‘U’ shaped because of the principle of variable Proportions, which explains the three phases of the curve:

1. Increasing returns to the variable factors, which cause average costs to fall, followed by:
2. Constant returns, followed by:
3. Diminishing returns, which cause costs to rise.

**Average total cost**

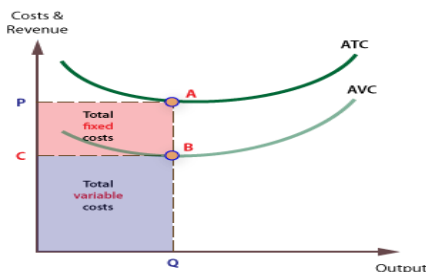
Average total cost (ATC) is also called average cost or *unit cost*. Average total costs are a key cost in the theory of the firm because they indicate how efficiently scarce resources are being used. Average variable costs are found by dividing total fixed variable costs by output.

Average total cost (ATC) can be calculated by adding average fixed costs (AFC) and average variable costs (AVC). The ATC curve is also ‘U’ shaped because it takes its shape from the AVC curve, with the upturn reflecting the onset of diminishing returns to the variable factor.



**Areas for total costs**

Total Fixed costs and Total Variable costs are the respective areas under the Average Fixed and Average Variable cost curves.

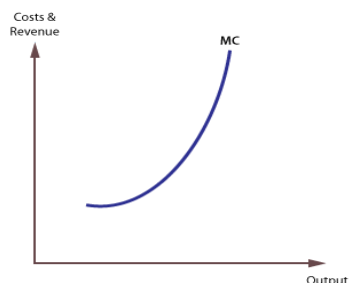


**Marginal costs**

Marginal cost is the cost of *producing one extra unit of output*. It can be found by calculating the change in total cost when output is

increased by one unit. Marginal costs are derived from variable costs and are subject to the principle of variable proportions.

## NOTES



### Managerial Use of Production Function

Though Production functions may seem to be highly abstract and unrealistic, in fact, they are both logical and useful. They are used as aids in decision making because they can give guidance in two directions:

1. How to obtain the maximum output from a given set of inputs
2. How to obtain a given output from the minimum aggregation of inputs.

Of course, in more complex problems, with larger numbers of inputs and outputs, the mathematics of optimization becomes complicated. But recently, the development of linear programming has made it possible to handle these complex problems. The use of complex production functions in managerial decision making is going to be further facilitated with the development of electronic computers.

#### Check your Progress III

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by Fixed Costs

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### 5.6 LET US SUM UP

This unit represents the entire concept of the Production as a function and its relativity with the output along with the cost of production.

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### 5.7. UNIT END EXERCISES

1. State out the factors of Production

## NOTES

2. Why production is termed as a function
3. In which manner does the production relate to the output.?
4. How the cost of production is calculated?

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### **5.8 ANSWERS TO CHECK YOUR PROGRESS**

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1. (i) land (ii) labour (iii) capital (iv) Entrepreneurship.
2. an isoquant represents a constant quantity of output.
3. Fixed costs are those that do not vary with output and typically include rents, insurance, depreciation, set-up costs, and normal profit. They are also called *overheads*

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### **5.9. SUGGESTED READINGS**

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

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## UNIT VI: COST ANALYSIS

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- 6.1 Introduction
- 6.2 Objectives
- 6.3 Types of Costs
- 6.4 Cost Function
- 6.5 Cost-Output Relationship
  - 6.5.1 Cost – output relationships in the short run
  - 6.5.2 Cost output relationships in the long run.
- 6.6 Summary
- 6.7. Unit End Exercises
- 6.8. Answers to check the progress
- 6.9. Suggested Readings

## NOTES

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### 6.1 INTRODUCTION:

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Business executives not infrequently wish to make use of cost figures for purposes other than the determination of profits and allied matters like payment of tax, bonuses and dividends. They may wish to determine, for instance, the most profitable rate of operation of a given plant or department; they may desire to know what price to quote to a prospective customer; often they need to know whether to accept a particular order; they may want to know whether it would be profitable to buy a new machine; they may have to decide what sales channels to use and so on. So far as these calculations are related to costs, the businessman is interested in the cost that will be incurred, those which lie ahead, and those which are contingent on the particular proposal being considered.

In operating a modern enterprise, the situations needed decisions are of varied nature, by looking into different concepts of costs are needed for significant comparison of the alternative plans.

For managerial control, costs may be classified according to areas of executive responsibility and according to the degree of authority over expenses delegated to the executive.

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### 6.2 OBJECTIVES

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The Student will be able to learn the Cost concepts; its classification and cost output relations. Besides, the student will be able to understand technically on the cost output relationship in the short and long run.

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### 6.3 TYPES OF COST CONCEPTS

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The business decisions are made as per to the given situation. Cost considerations enter into almost every business decision and it is important, to use the right kind of cost.

## NOTES

Defining and distinguishing cost concepts are necessary to focus on That cost estimates produced by conventional financial accounting are not appropriate for all managerial uses and

1. That different business problems call for different kinds of costs.

Different combinations of cost ingredients are appropriate for various kinds of Management Issues.

### **Actual Cost and Opportunity Cost:**

Actual Costs mean the actual expenditure incurred for acquiring or producing a good or service. These costs are the costs that are generally recorded in the books of account. For example, actual wages paid, cost of materials purchased, interest paid etc., these costs are also known as Absolute Costs or Outlay costs.

Opportunity Cost of a good or service is measured in terms of revenue which could have been earned by employing that good or service in some other alternative uses. It also can be defined as the revenue forgone by not making the best alternative use. The opportunity cost of a product having specialized use is zero.

In managerial decision making, it becomes necessary to consider not the actual cost of a commodity but its opportunity cost. For example, to determine the profitability of the weaving section of a composite textile mill, we have to consider the opportunity cost of the yarn and not the actual cost thereof.

The opportunity cost is useful to management in making out the decision among alternatives. For example, suppose A has two alternatives before him:

1. Having a shop in the central locality of the town after paying a pugree of Rs.1,00,000 and
2. Having a shop in any other locality without any pugree.

While comparing the two alternatives, A will have to take into consideration the additional earning that he can make by having a shop in the central locality an the profits he can achieve by employing the amount of pugree elsewhere. Thus, the opportunity cost of having a shop in the central locality is Rs.1,00,000 plus interest forgone thereon. A State Corporation was offered a choice of either 50 acres of land free of cost in a remote are or 2 acres at Rs.50,000 near the town. The opportunity cost of the free land consisted of

- a. Cost of building roads and
- b. Being permanently away from the railway station.

In effect, opportunity cost is an imputed cost.

Imputed costs are the costs which are not actually incurred but would have been incurred in the absence of employment of self owned factors. For example, in the case of owner manager, the cost of managerial functions is ignored quite often. This cost is a real cost even though it is not recorded in the account books of a company and management must not ignore it in making business decisions.

### **Incremental Cost (Differential Cost) and Sunk costs**

Incremental cost is the additional cost due to a change in the level or nature of business activity. The change may take several forms. Eg. Addition of a new product line,, adding a new machine, changing the channel of distribution, replacing a machine by a better machine etc., This cost is not suited to business which is set up afresh.

Sunk Cost is one which is not affected or altered by a change in the level or nature of business activity. It will remain the same whatever the level of activity. For example: the amortization of past expenses e.g. depreciation.

The distinction between sunk cost and incremental cost assumes importance in evaluation alternatives.

Incremental costs will be different in the case of different alternatives. Hence incremental costs are relevant to the management in the analysis for decision making.

Sunk cost, will remain the same irrespective of the alternative selected.

Thus, it need not be considered by the management in evaluating the alternatives as it is common to all of them.

Whether a cost is a sunk cost or a differential cost can be determined only in the light of the circumstances of each individual case. Thus a particular cost item can be a sunk cost in one case and a differential cost in another.

### **Past Cost and Future Costs**

Past Costs are actual costs incurred in the past and are included in the accounts. It is a essentially record keeping activity and an essentially passive function as to the management. The Management may look for the post mortem results, to find out the factors responsible for the excessive costs, if any, without being able to do anything for reducing them.

Future costs are costs that are incurred in some future period or periods. Their actual incurrence is a forecast and their management is an estimate. This costs are the only costs that matter for managerial decisions because they are the only costs subject to management control. If the future

## **NOTES**

## NOTES

costs are too high, the management can either plan to reduce them or find out ways and means to meet them.

### **Short run and Long run costs**

Short run costs vary with output when fixed plant and capital equipment remain the same. Long run costs vary with output when all input factors including plant and equipment vary.

Short run costs become relevant when a firm has to decide whether or not to produce more in the immediate future. In this case setting up of a new plant is ruled out and the firm has to manager with the given plant.

Long run costs become relevant when the firm has to decide whether to set up a new plant. Long run costs can help to plan the best scale of plant, or the best size of the firm for his purposes. Thus long run costs can be helpful both in the initiation of new enterprises as well as the expansion of existing ones.

### **Fixed Cost and Variable Cost**

Fixed cost remains constant in total regardless of changes in volume up to a certain level of output. They are not affected by changes in the volume of production. They will have to be incurred even when output is nil. There is an inverse relationship between volume and fixed costs per unit. Thus total fixed costs do not change with a change in volume but vary per unit of volume inversely with volume. If the total production increases, fixed costs per unit will go down and vice versa.

Total variable costs vary in direct proportion to changes in volume. An increase in volume means a proportionate increase in the total variable costs and decrease in volume results in a proportionate decline in the total variable costs. There is a linear relationship between volume and total variable costs, but variable costs are constant per unit.

It may be noted that the variability of costs is in relation to output and not to the time factor. Though in the long run, all costs tend to be variable.

Semi variable costs are the cost that fall between the two extremes of being fixed or variable. They are neither perfectly variable nor absolutely fixed in relation to changes in volume. They change in the same direction as volume but not in direct proportion thereto. For example: electricity bills often include both a fixed charge and a charge based on consumption; A Salesman may get both a monthly salary and a commission related to sales volume.

The distinction between fixed and variable costs is important in forecasting the effect of short run changes in volume upon costs and profits. This distinction has also given rise to the concepts of Break even charts, direct costing and Flexible Budgets.



**Direct Cost and Indirect Costs (Traceable and Common Costs)**

A direct or traceable cost is one which can be identified easily and indisputably with a unit of operation.

Common or indirect costs are those that are not traceable to any plant, department or operation, or to any individual final product. For example, the salary of a Divisional Manager, when division is a costing unit, will be a direct cost. The monthly salary of the general manager, when one of the divisions is a costing unit, would be an indirect cost.

The concepts of direct and indirect costs are meaningless without identification of the relevant costing unit. The distinction is important because in some situation, important costs which cannot be traced to individual units of a product are variable with output and are affected in complex ways by specific output decisions. Electric power for operating machines is frequently an example of a non traceable cost which is nevertheless variable with output.

**Common Production Costs (Costs of multiple products)**

In some manufacturing enterprises two or more different products emerge from a single, common production process and a single raw material. A familiar example is the variety of petroleum products derived from the refining of crude oil. They are identifiable as separate products only at the conclusion of common processing, generally known as split off point.

The costs incurred upto the split off point are common costs – costs which cannot be traced to the separate products in any direct or logical manner. These costs need not be identified with individual products unless it is meaningful and useful to identify them.

The identification of such costs becomes useful in decision like the discontinuance or otherwise of a product, introduction of a new product, modification or redesigning of the existing products and selection of the most appropriate price differential among members of an existing product line.

**Joint Cost:**

For product costing, it is desirable to distinguish two broad categories of common products: joint Products and alternative products. When an increase in the production of one product causes an increase in the output of another product, then the products and their costs are traditionally defined as joint. For example when gas is produced from coal, coke and other products also emerge. The latter will have as joint cost the purchase price of coal.

On contrary, when an increase in the output of a product is accompanied by a reduction in other products, the products may be called

## NOTES

alternative. Slag and Steel are joint products, but steel rails and steel bars are alternative products.

### **Urgent and Postponable costs**

Costs which can be postponed at least for some time are known as postponable costs, eg. Maintenance relating to building and machinery. During world war ii, most maintenance was virtually postponed due to the rush of work in railways as also in other factories. Such postponement of maintenance expenditure tends to create employment during periods of slack activity and thus serves as an anti-cyclical measure.

### **Out of Pocket and Book Costs**

Out of pocket costs refer to costs that involve current cash payments to outsiders. On the other hand, book costs such as depreciation do not require current cash payments. Book costs are in some case variable and in some cases readily traceable and hence become a part of direct costs.

Book costs can be converted into out of pocket costs by selling the assets and having them on hire. Rent would then replace depreciation and interest.

### **Replacement and Historical Cost**

Historical costs means the cost of a plant at a price originally paid for it. Replacement cost means the price that would have to be paid currently for acquiring the same plant. For example: if the price of a machine at the time of purchase, say in 1974 was Rs.15,000 and if the present price is Rs.85,000, the original cost of Rs.15,000 is the historical cost while Rs.85,000 is the replacement cost.

### **Controllable and non-controllable costs**

The controllability of a cost depends upon the levels of responsibility under consideration. A controllable cost may be defined as one which is reasonable subject to regulation by the executive with whose responsibility that cost is being identified.

A cost which is uncontrollable at one level of responsibility may be regarded as controllable at some other, usually higher level.

Direct material and direct labour costs are usually controllable. Some costs are controllable and others are not. Indirect labour, supplies and electricity are usually controllable.

### **Average Cost, marginal Cost and Total cost**

Average cost is the total cost divided by the total quantity produced. Marginal cost is the extra cost of producing one additional unit.

It may, at times, be impossible to measure marginal cost. For example. If a firm produces 10,000 metres of cloth, it may be impossible to determine the change in cost involved in producing 10001 metres of cloth. The difficulty can be solved by taking units of significant size.

### Check your Progress I

**Note:** a. Write your answer in the space given below  
b. Compare your answer with those given at the end of the unit

1. What do you mean by Average Costs

## NOTES

### 6.4 COST FUNCTIONS

The Managerial economist is faced with the choosing the type of equation or curve which fits the cost data best. There are three types of functions : Linear, quadratic and cubic.

#### Linear Cost functions:

A linear cost function may be expressed as follows:

$$TC = k + f(Q)$$

where TC is total cost, k is total fixed cost and which is a constant and  $f(Q)$  is variable cost which is a function of output.

It may alternatively be expressed as:

$$TC = Y = a + bQ.$$

The cost function here is derived from the basis of following (implicit) assumptions:

(i) When output is zero, total cost is equal to total fixed cost. Moreover, the shorter the short run, the more certain is the manager that fixed costs are sunk (historical) costs by definition. If total fixed cost remains constant at all levels of output up to capacity, any increase in total cost is traceable to change in total variable cost.

To be more specific, if factor prices remain constant over the relevant range of output, a doubling of inputs would lead to an exactly doubling of output. In other words, there would be constant returns to the variable factor.

(ii) We assume away the operation of the Law of Diminishing Returns. The linear cost function in Figure reflects the short run cost condition of

**NOTES**

the firm. In the short run, capacity (or plant size) is fixed. So the firm can vary its level of rate of output up to capacity (i.e., with the existing plant).

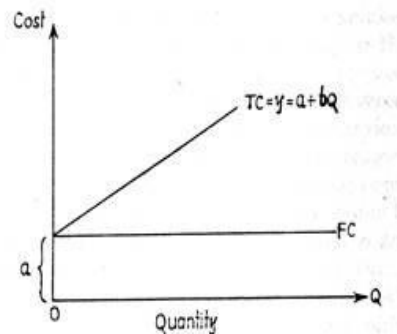
(iii) Average (total) cost declines with an expansion of output.

Average cost may be expressed as:

$$AC = Y/Q$$

where Y is total cost and Q is output.

Linear TC curve



Marginal cost may be expressed as:

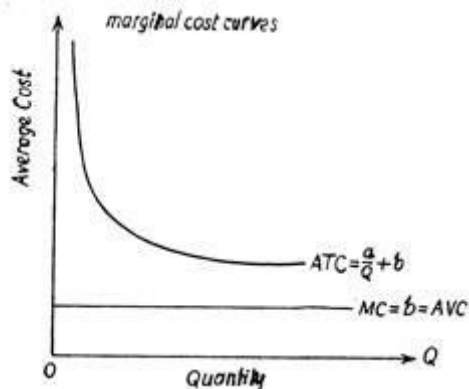
$$MC \Delta Y/\Delta Q = b$$

If the cost function is continuous, marginal cost may be expressed as

$$MC = d (TC)/ dQ$$

In both the situations,  $MC = b$  and  $MC$  is constant and is a linear cost equation. Such a constant  $MC$  curve appears as horizontal line parallel to the output axis as in Fig. 15.3.

Non-linear ATC curve:



The shorter the short run the greater the likelihood that statistical cost functions will have a bias towards linearity. This bias may, as Coyne argues, “may be justifiable and, in fact, reasonably valid if it occurs over the relevant range of a firm’s TPP curve. Extrapolation of linear cost

functions requiring output beyond the relevant range in either direction and used for predictive purposes will generate misleading and statistically insignificant results.”

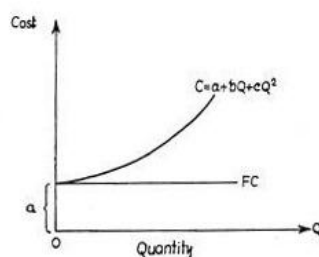
If we apply the linear cost function in the cricket bat example we observe that the cost curve assumes the existence of a linear production function. If a linear cost function is found to exist, output of cricket bat would expand indefinitely and there would be a one-to-one correspondence (relationship) between total output and total cost.

Diminishing returns to the variable factor would not be observed. Such a function would exist for the cricket bat factory only if the relevant range of output under consideration was very small.

### Type # 2. Quadratic Cost Function:

If there is diminishing return to the variable factor the cost function becomes quadratic. There is a point beyond which TPP is not proportionate. Therefore, the marginal physical product of the variable factor will diminish.

And if TPP actually falls MPP will be negative. In other words, there is a point beyond which additional increases in output cannot be made. So costs rise beyond this point, but output cannot. Such cost function is illustrated as below:



### Non-linear TC curve

If the cost function is linear, the equation used in preparing the total cost curve is sufficient. But the quadratic cost function has one bend – one bend less than the highest exponent of  $Q$ .

Total cost is equal to fixed cost when  $Q = 0$ , i.e., when no output is being produced. However, as  $Q$  increases, fixed cost remains unchanged. Therefore, increases in total costs are traceable to changes in variable cost.

It is to be highlighted that the major difference between the linear and quadratic cost functions is the area of diminishing returns to the variable factors. If the cost function is linear, variable cost increases at a constant rate. It is quite reasonable to assume that linear cost functions exist regardless of the current level of operating capacity at which the firm is producing. As output reaches the physical capacity limitations of existing plant and equipment in the short run, variable costs rise because of the operation of the Law of Diminishing Returns (or variable proportions).

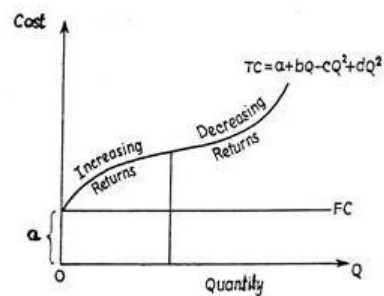
**NOTES**

Type # 3. Cubic Cost Function:

In traditional economics, we must make use of the cubic cost function. It does not provide statistically significant improvements over the linear or quadratic cost function. Moreover, it is very difficult to calculate, interpret and apply, to test statistical hypothesis regarding cost behaviour in manufacturing concerns.

The cubic cost function is based on three implicit assumptions:

1. When  $Q = 0$ , total cost is equal to total fixed cost.
2. Total fixed cost remains constant at levels of output up to capacity (as in the previous two cases).
3. With an output expansion there is an initial stage of increasing return to the variable factor; thereafter a point is reached (the inflection point) at which there is constant return to the variable factor; finally, there is diminishing return to the variable factor. In short, the cubic cost curve has two bends, one bend less than the highest exponent of  $Q$ .



**Check your Progress II**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. How a linear cost function is expressed

**6.5 COST –OUTPUT RELATIONSHIP**

The study of cost output relationship has two aspects

1. Cost output relationship in the short run and
2. Cost output relationship in the long run

The short run is a period which does not permit alterations in the fixed equipment and in the size of the organization. As such, in the long run, output can be increased without any limits being placed by the fixed factors of production as they themselves are capable of being changed.

## 6.5.1 COST OUTPUT RELATIONSHIP IN THE SHORT RUN

The cost output relationship in the short run may be studied as follows

1. average fixed cost
2. average variable cost
3. average total cost

### Average fixed cost and output

The greater the output, the lower is the fixed cost per unit. i.e. the average fixed cost. The reason is that total fixed costs remain the same and do not change with a change in output.

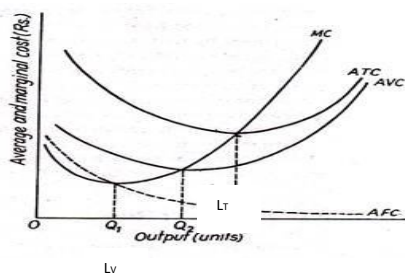
### Average variable cost and Output

The average variable costs will first fall and then rise as more and more units are produced in a given plant. This is so because as we add more units of variable factors in a fixed plant, the efficiency of the inputs first increases and then decreases. The variable factors tend to produce somewhat more efficiently near a firms' optimum output than at very low levels of output. Greater output can be obtained but at much greater average variable cost.

### Average total cost and output

Average total costs (Average costs) would decline first and then rise upwards. It consists of average fixed cost plus average variable cost. Here, if the rise in variable cost is less than the drop in fixed cost, the average total cost will still continue to decline. It is only when the rise in average variable cost is more than the drop in average fixed cost that the average total cost will show a rise.

The least cost output level is the level where the average total cost is the minimum and not the average variable cost. In fact, at the least cost output level, the average variable cost will be more than its minimum (average variable cost). The least cost output level is also the optimum output level. It may not be the maximum output level. A firm may decide to produce more than the least cost output level.



### Short run output cost curves

The cost output relationships can also be seen that the average fixed cost curve falls as output rises from lower levels to higher levels.

The shape of the average fixed cost curve, therefore, is a rectangular hyperbola. The average variable cost

## NOTES

curve (AVC curve) first falls and then rises. So also the average total cost curve (ATC curve).

However, the AVC curve starts rising earlier than the ATC curve. Further, the least cost level of output corresponds to the point LT on the ATC curve and not to the point LV which lies on the AVC curve.

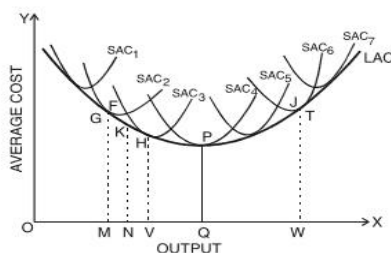
The marginal cost curve intersects both the AVC curve and the ATC curve at their minimum points. If marginal cost (MC) is less than the average cost (AC), it will pull AC down. If the MC is greater than AC, it will pull AC up. If the MC is equal to AC, it will neither pull AC up nor down. Hence MC curve tends to intersect the AC curve at its lowest point. Similar is the position about the average variable cost curve, it will not make any difference whether MC is going up or down.

The inter relationship between AVC, ATC and AFC can be summed up as follows:

1. If both AFC and AVC fall, ATC will fall.
2. If AFC falls but AVC rises;
  - a. ATC will fall where the drop in AFC is more than the rise in AVC.
  - b. ATC will not fall where the drop in AFC is equal to the rise in AVC.
  - c. ATC will rise where the drop in AFC is less than the rise in AVC.

### 6.5.2 COST OUTPUT RELATIONSHIP IN THE LONG RUN

The long run is a period long enough to make all costs variable including such costs as are fixed in the short run. In the long run, the entrepreneur has before him a number of alternatives which include the construction of various kinds and sizes of plants. Thus there are no fixed costs since the firm has sufficient time to fully adapt its plant. And all costs become variable. Imagine if a firm has a choice of varying a plant by infinitely small gradations leading to infinite average cost curves. In such a case, the smooth curve enveloping all these short-run average cost curves is a long run average cost curve.



enveloping all these short-run average cost curves is a long run average cost curve.

As you can see in the figure above, the long run average cost curve is drawn tangential to all SACs. In other words, every point on the long run average cost curve is a tangential point on some SAC. Hence, whenever a



firm desires to produce a certain output, it operates on the corresponding SAC.

From the Fig. above, you can observe that to produce an output OM, the corresponding point on the long run average cost curve is 'G'. Also, the corresponding SAC is SAC<sub>2</sub>.

Therefore, the firm operates on SAC<sub>2</sub> at point G. Similarly, the firm chooses different SACs based on its output requirement. It is also possible for the firm to produce the output OM with SAC<sub>3</sub>.

However, this will lead to a higher cost of production as compared to SAC<sub>2</sub>. On the other hand, to produce a higher output OV, the firm requires SAC<sub>3</sub>. If the firm uses SAC<sub>2</sub> for the same, then it results in higher unit similarity.

**Note:**

The long run average cost curve is not tangent to the minimum points of the SACs. For that matter, the long run average cost curve is tangential to

- the falling portions of the SACs while it is declining and
- the rising portions of the SACs while it is rising

Therefore, to produce an output less than OQ at the least cost, the firm operates the plant at less than its full capacity or less than its minimum cost of average production. To produce an output larger than OQ at the least cost, the firm operates the plant beyond its optimum capacity.

OQ is the optimum point because the output OQ is produced at the minimum point of the long run average cost curve and the corresponding SAC (SAC<sub>4</sub>). While other plants are used at less than or more than their full capacity, only SAC<sub>4</sub> is operated at the minimum point.

A long run average cost curve is known as a planning curve. This is because a firm plans to produce an output in the long run by choosing a plant on the long run average cost curve corresponding to the output. It helps the firm decide the size of the plant for producing the desired output at the least possible cost.

**Check your Progress III**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What are the two aspects of cost output relationship?

**NOTES**

**NOTES**

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**6.6. LET US SUM UP**

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As Cost is the prime factor for any success of the firm, so it is important to look into the cost analysis in both the short and long run associated with the output. This unit gives a clear understanding of the above said aspects.

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**6.7. UNIT END EXERCISES**

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1. What is Cost?
2. How cost is considered as a factor to the success of the firm?
3. What do you mean by Cost analysis?
4. How cost is analysed in the short run in association with the output?
5. How cost is analysed in the long run in association with the output?

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**6.8. ANSWERS TO CHECK YOUR PROGRESS**

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1. Average cost is the total cost divided by the total quantity produced
2. **Linear Cost functions:**  
A linear cost function may be expressed as follows:  
 $TC = k + f(Q)$
3. cost output relationship has two aspects: They are  
Cost output relationship in the short run and  
Cost output relationship in the long run

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**6.9. SUGGESTED READINGS**

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

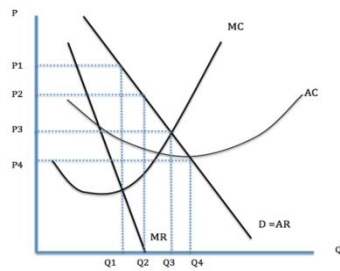


## NOTES

- Gain a satisfactory return on stockholder's equity
- Survival of the firm
- Be socially responsible
- Have a good company image

In addition to these objectives, some of the objectives suggested by managers were:

- Recognizing the need to produce quality products
- Being a good employer and satisfying others' needs.



- Q1 = Profit maximisation (MR=MC)
- Q2 = Revenue Maximisation (MR=0)
- Q3 = Marginal cost pricing (P=MC) – allocative efficiency
- Q4 = Sales maximisation – maximum sales while still making normal profit (AR=ATC)

### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. State any two objectives of Firm.

## 7.3 PROFIT MAXIMIZATION MODEL:

In economic terms, we assume firms are concerned with maximising profit. Higher profit means:

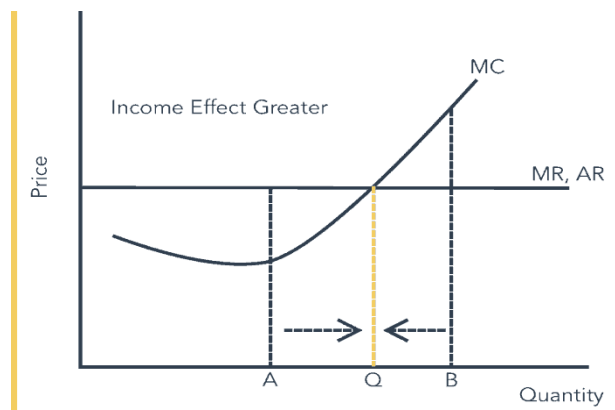
- Higher dividends for shareholders.
- More profit can be used to finance research and development.
- Higher profit makes the firm less vulnerable to takeover.
- Higher profit enables higher salaries for workers

The Profit Maximization Rule states that if a firm chooses to maximize its profits, it must choose that level of output where Marginal Cost (MC) is equal to Marginal Revenue (MR) and the Marginal Cost curve is rising. In other words, it must produce at a level where  $MC = MR$ .

**Marginal Cost** = increase in cost by producing one more unit of the good.

**Marginal Revenue** = change in total revenue as a result of changing the rate of sales by one unit. Marginal Revenue is also the slope of Total Revenue.

### Why the output chosen when $MC=MR$



At A, Marginal Cost < Marginal Revenue, then for each additional unit produced, revenue will be higher than the cost so that you will generate more.

At B, Marginal Cost > Marginal Revenue, then for each extra unit produced, the cost will be higher than revenue so that you will create less.

Thus, optimal quantity produced should be at  $MC = MR$

Limitations of the Profit Maximization Model:

1. In the real world, it is difficult to know exactly the Marginal Revenue and Marginal Cost of the last products sold. For example, it is difficult for firms to know the price elasticity of demand for their good – which determines the MR.
2. The use of the profit maximization rule also depends on how other firms react. If you increase your price, and other firms may follow, demand may be inelastic. But, if you are the only firm to increase the price, demand will be elastic.
3. It is difficult to isolate the effect of changing the price on demand. Demand may change due to many other factors apart from price.
4. Increasing price to maximize profits in the short run could encourage more firms to enter the market. Therefore firms may decide to make less than maximum profits and pursue a higher market share.

#### Check your Progress II

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do the Profit Maximization rule state?

### 7.4 ECONOMIST THEORY OF THE FIRM:

Theory of the firm is related to an understanding the fact that how firms come into existence: what are their objectives, how they behave and

## NOTES

improve their performance and how they establish their credentials and standing in society or an economy and so on.

The theory of the firm aims at answering the following questions:

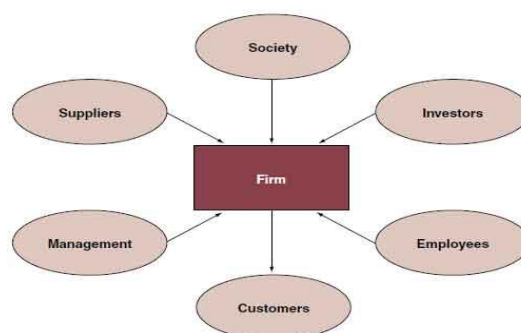
- Existence – why do firms emerge and exist, why are not all transactions in the economy mediated over the market?
- Which of their transactions are performed internally and which are negotiated in the market?
- Organisation – why are firms structured in such a specific way? What is the interplay of formal and informal relationships?
- Heterogeneity of firm actions/performances – what drives different actions and performances of firms?

### *Expected Value Maximization*

The model of business is called the **theory of the firm**. In its simplest version, the firm is thought to have profit maximization as its primary goal. Instead of the firm's owner assuming short run profits, today, the firm put emphasis on profits, which has been broadened to encompass uncertainty and the time value of money. In this more complete model, the primary goal of the firm is long-term **expected value maximization**.

The **value of the firm** is the present value of the firm's expected future net cash flows. If cash flows are equated to profits for simplicity, the value of the firm today, or its **present value**, is the value of expected profits or cash flows, discounted back to the present at an appropriate interest rate.

### **The Corporation is a Legal Device**



This model can be expressed as follows:

Value of the Firm = Present Value of Expected Future Profits

$$= \frac{\pi_1}{(1+i)^1} + \frac{\pi_2}{(1+i)^2} + \dots + \frac{\pi_n}{(1+i)^n}$$

$$= \sum_{t=1}^n \frac{\pi_t}{(1+i)^t}$$

Here,  $\pi_1, \pi_2, \dots, \pi_n$  represent expected profits in each year,  $t$ , and  $i$  is the appropriate interest, or discount, rate. The final form for Equation is simply a shorthand expression in which sigma ( $\Sigma$ ) stands for “sum up” or

$$\sum_{t=1}^n$$

“add together.” The term means, “Add together as  $t$  goes from 1 to  $n$  the values of the term on the right.” or Equation, the process is as follows: Let  $t = 1$  and find the value of the term  $\pi_1/(1+i)^1$ , the present value of year 1 profit; then let  $t = 2$  and calculate  $\pi_2/(1+i)^2$ , the present value of year 2 profit; continue until  $t = n$ , the last year included in the analysis; then add up these present-value equivalents of yearly profits to find the current or present value of the firm. Because profits ( $\pi$ ) are equal to total revenues ( $TR$ ) minus total costs ( $TC$ ), Equation can be rewritten as

$$\text{Value} = \sum_{t=1}^n \frac{TR_t - TC_t}{(1+i)^t}$$

This expanded equation can be used to examine how the expected value maximization model relates to a firm’s various functional departments. The marketing department often has primary responsibility for product promotion and sales ( $TR$ ); the production department has primary responsibility for product development costs ( $TC$ ); and the finance department has primary responsibility for acquiring capital and, hence, for the discount factor ( $i$ ) in the denominator. Important overlaps exist among these functional areas.

The marketing department can help reduce costs associated with a given level of output by influencing customer order size and timing. The production department can stimulate sales by improving quality. Other departments, for example, accounting, human resources, transportation, and engineering, provide information and services vital to sales growth and cost control. The determination of  $TR$  and  $TC$  is a complex task that requires recognizing important interrelations among the various areas of firm activity. An important concept in managerial economics is that managerial decisions should be analyzed in terms of their effects on value, as expressed in Equations.

## NOTES

## NOTES

### Check your Progress III

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is the primary goal of the firm?

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### 7.5 CYERT AND MARCH'S BEHAVIOUR THEORY:

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This theory focuses on the five aims in which they believe reasonably well represent the main operative organizational goals, For example:

- I. **Production Goal:** To ensure stable employment, ease of scheduling, maintenance of adequate cost performance and growth. It is required that production does not fluctuate too much nor fall below an acceptable level.
- II. **Inventory Goal:** to ensure a complete and convenient stock of inventory at all times, a certain minimum level of inventory has to be maintained.
- III. **Sales Goal:** the importance of sales for the stability and survival of the firm makes it an important goal for all firm members but particularly for the sales staff whose effectiveness is partly judged by their success in maintaining and expanding sales.
- IV. **Market Share Goal:** This may be an alternative to sales goal, particularly if market growth is important. Top management may adhere to it more because of the comparative performance measure element contained in it.
- V. **Profit Goal:** adequate profit is necessary not only to pay dividends to the shareholders but also to ensure additional resources for reinvestment. In addition, profit is an important performance measure for top management.

It is clear that these goals may irreconcilably conflict when it comes to choosing price and output levels. Sales goal may require a lower price, the profit goal a higher one. Both sales and production goals may favour high inventories, profits at a lower level and so on

Cyert and March refer to four mechanisms by which these conflicts are dealt with

- I. Business decision makers aim for a satisfactory 'aspiration' level and not the maximum one.
- II. Decision making is sequential. The pursuit of different objectives at different times reduces substantially the perceived conflict between different objectives.



- III. The existence of organizational slacks frequently permits performance in terms of one objective to be improved without hitting performance in terms of another.
- IV. The acceptance and use of standard operating procedures circumvent much latent conflict.

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### 7.6 MARRIS' GROWTH MAXIMIZATION MODEL:

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Marris proposed that owners aim at profits and market share. These two sets of goals can be achieved by maximising balanced growth of the firm (G), which is dependent on the growth rate of demand for the firm's products (GD) and growth rate of capital supply to the firm (GC). The growth rate of the firm is balanced when the demand for its product and the capital supply to the firm grows at the same rate.

Marris insists on the firms facing two constraints in the objective of maximisation of balanced growth, which are explained as below:

#### **i. Managerial Constraint :**

Marris stresses on the importance of the role of human resource in achieving organisational objectives. According to him, the skills, expertise, efficiency and sincerity of team managers are vital factors to the growth of the firm.

Non availability of managerial skill sets in required size creates constraints for growth: organisations on their high levels of growth may face constraint of skill ceiling among the existing employees. New recruitments may be used to increase the size of the managerial pool with desired skills, so as to overcome managerial constraint.

#### **ii. Financial Constraint**

This relates to the intelligence required in managing financial resources. Marris suggested that a prudent financial policy will be based on at least three financial ratios, which in turn set the limit for the growth of the firm.

In order to prove their discretion managers will normally create a tradeoff and prefer a

- a. moderate debt equity ratio (r1),
  - b. moderate liquidity ratio (r2) and
  - c. moderate retained profit ratio (r3)
- (a) Debt equity ratio (r1): This is the ratio between borrowed capital and owners capital. High value of debt equity ratio may cause insolvency; hence a low value of this ratio is usually preferred by managers to avoid insolvency. However, a low value of r1, may create a constraint to the growth of the firm in terms of dependence on high cost capital, i.e., equity.

## NOTES

- (b) Liquidity ratio ( $r_2$ ): This is the ratio between current assets and current liabilities. It is also an indicator of coverage provided by current assets to current liabilities. According to Marris, a manager may try to operate in a region where there is sufficient liquidity and safety and hence would prefer a high liquidity ratio. But a high  $r_2$  would imply low yielding assets, since liquid assets either do not earn at all (like cash and inventory), or earn low returns (like short term securities).
- (c) Retention ratio ( $r_3$ ) : This is the ratio between retained profits and total profits. It is the inverse of dividend payout ratio, i.e., the retained profits are that portion of net profit which is not distributed among shareholders. A high retention ratio is good for growth, as retained profits provide internal source of funds. However, a higher  $r_3$  would imply greater volume of retained profits, which may irritate the shareholders. Hence managers cannot afford to keep a very high value of retention ratio.

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### 7.7 BAUMOL'S STATIC AND DYNAMIC MODELS:

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Baumol's model highlights that the primary objective of a firm is to maximize its sales rather than profit maximization. It states that the goal of a firm is maximization of sales revenue subject to a minimum profit constraint. Prof. Baumol has developed two models: 1st is Static Model and 2nd is Dynamic model.

**The Static Model:** This model is based on the following assumptions,

1. The model is applicable to a particular time period and the model does not operate at different periods of time.
2. The firm aims at maximizing its sales revenue subject to a minimum profit constraint.
3. The demand curve of the firm slope downwards from left to right.
4. The average cost curve of the firm is U-shaped one.

**Dynamic Model:**

This model explains how changes in advertisement expenditure, a major determinant of demand, would affect the sales revenue of a firm under severe competitions. Few assumptions of this model are:

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

**Check your Progress IV**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by production goal?

**NOTES**

## 7.8 WILLIAMSONS' MANAGERIAL DISCRETIONARY THEORY:

The theory of Managerial Utility Maximisation was developed separately by Berle-Means-Galbraith and Williamson. It is also known as Managerial Discretion Theory. The Theory is based on the concept that shareholders or owners of the firm and managers are two separate groups.

The owners or the shareholders require high dividends and are, therefore, interested in maximising profits. On the other hand, the managers, have different motives other than profit maximisation.

In the words of Williamson, "the extent that the pressure from the capital market and competition in the product market is imperfect, the manager, therefore, has discretion to pursue goals other than profits." policy."

According to Williamson, "Managerial Utility function may be expressed as follows:  
 $U = f(S, M, ID)$

Here, U = managerial utility; S = additional expenditure on staff; M = managerial emoluments and ID = discretionary investment

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

- I. Expansion of Staff:** The manager will like to increase the quality and number of staff reporting to him along with the increase of the salary of the staff.
- II. Increase in Managerial Emoluments:** Managerial Utility also depends on managerial emoluments. It includes facilities like entertainment allowance, luxurious office, staff car, company phone, etc, which impacts to the large extent of the prestige, power and status of the manager.
- III. Discretionary Power of Investment:** Managerial utility also depends on the discretion of the manager to undertake investment beyond those required for normal operations. The manager is in a position to invest in advanced technology and modern plants, which

## NOTES

may or may not be economically efficient; just required to the self-satisfaction of the manager.

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### 7.9 LET US SUM UP

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This unit compasses the profit and its profit maximization models. Besides, this unit argues on the various economists' models and its utility function.

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### 7.10. UNIT END EXERCISES

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1. What do you mean by Profit
2. Write a short note on Profit maximization
3. Elaborate on the Profit maximization models with suitable examples
4. Williamsons' managerial discretionary theory - Explain:
5. How managerial utility function is expressed

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### 7.11 ANSWERS TO CHECK YOUR PROGRESS

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1. Profit maximization and Sales maximization
2. The Profit Maximization Rule states that if a firm chooses to maximize its profits, it must choose that level of output where Marginal Cost (MC) is equal to Marginal Revenue (MR) and the Marginal Cost curve is rising. In other words, it must produce at a level where  $MC = MR$
3. The primary goal of the firm is long-term expected value maximization.
4. To ensure stable employment, ease of scheduling, maintenance of adequate cost performance and growth. It is required that production does not fluctuate too much nor fall below an acceptable level.
5. Managerial Utility function may be expressed as follows:  
 $U = f(S, M, ID)$

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### 7.12 SUGGESTED READINGS:

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

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## UNIT VIII: REVENUE ANALYSIS AND PRICING POLICIES

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- 8.1 Introduction
- 8.2 Objectives
- 8.3 Revenue
- 8.4 Meaning and Types
- 8.5 Relationship between Revenues and Price Elasticity of Demand
- 8.6 Pricing Policies
- 8.7 Objectives of Pricing Policies
- 8.8 Pricing Methods
- 8.9 Summary
- 8.10 Unit End Exercise
- 8.11 Answers to check the progress
- 8.12 Suggested Readings

## NOTES

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### 8.1 INTRODUCTION

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Formulating price policies and setting the price are the most important aspects of managerial decision making. If the price is set too high, a seller may price himself out of the market. If it is too low, his income may not cover costs, or at best, fall short of what it could be.

The factors governing prices may be divided into external factors and internal factors. The external factors are

- i. The elasticity of supply and demand
- ii. The goodwill of the company
- iii. The extent of competition in the market
- iv. The trend of the market
- v. The purchasing power of the buyers
- vi. The government policy towards prices.

The internal factors are

- i. The costs
- ii. The management policy towards the gross margin and the sales turnover
- iii. The basic characteristics of the product
- iv. The stage of the product on the product life cycle
- v. The use pattern and extent of product differentiation practiced by the firm

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### 8.2 OBJECTIVES:

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This unit gives a clear understanding on the core aspect of any business firm I,e revenue. It is a source of income and on this basis of revenue, the relationship is studied along with the price elasticity of Demand. Besides, Pricing policies and methods are studied.

## NOTES

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### 8.3 REVENUE - MEANING:

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Revenue is a type of income which is received by the firm. It relates to Total Revenue, Average Revenue and Marginal Revenue.

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### 8.4. TYPES OF REVENUE:

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**Total Revenue (TR)** – It is total income of a firm by selling a commodity at a price.

We can indicate it as:

$$TR = PXQ$$

TR = Total Revenue

P = Price

Q = Number of Units

**Average Revenue (AR)** – We can find it by dividing the Total Revenue with the number of units sold. It can be indicated as:

$$AR = TR/Q$$

TR = Total Revenue

Q = Number of Units

**Marginal Revenue (MR)** – It is the addition to the Total Revenue as a result of increase in the sale of an addition unit by the firm.

#### **Relation between TR and Price Elasticity or Demand:**

If the price elasticity of demand for his product is relatively inelastic ( $E_p < 1$ ), increase in price will decrease it TR.

When Price increases and  $E_p$  is relatively elastic i.e. On the other hand we can say it as – When price decreases and  $E_p$  is relatively elastic i.e. ( $E_p < 1$ )

In the condition of when price increases and  $E_p$  is relatively inelastic i. e.

There is another aspect also, when price decreases and  $E_p$  is relatively inelastic i.e. ( $E_p < 1$ ). At last, we can say prices once fixed cannot be kept constant forever; it has to be revised according to the condition and the economic situation.

Penetration pricing is when the firm charges low price than what the economic analysis is the practice of charging a price more than indicated by the economic analysis while introducing a new product and when the competition is weak.

**Check your Progress I**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

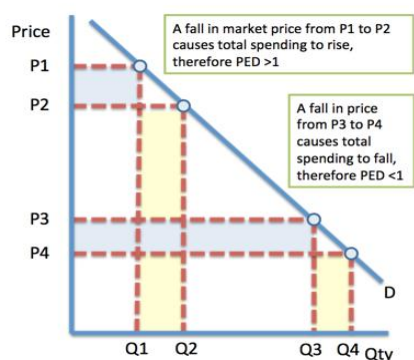
1. What do you mean by Marginal Revenue?

**NOTES**

**8.5 RELATIONSHIP BETWEEN REVENUES AND PRICE ELASTICITY OF DEMAND:**

The relationship between Revenues and Price Elasticity of Demand is important one, when

- When demand is **inelastic** – a rise in price leads to a rise in total revenue – a 20% rise in price might cause demand to contract by only 5% (Ped = -0.25)
- When demand is **elastic** – a fall in price leads to a rise in total revenue - for example a 10% fall in price might cause demand to expand by only 25% (Ped = +2.5)
- When demand is **perfectly inelastic** (i.e. Ped = zero), a given price change will result in the same revenue change, e.g. a 5 % increase in a firm's prices results in a 5 % increase in its total revenue



The co-efficient of the Price Elasticity of Demand along a linear demand curve

- Price elasticity of demand along a straight line demand curve will vary

Change in the market	What happens to total revenue?
Ped is inelastic (<1) and a firm raises its price.	Total revenue increases
Ped is elastic (>1) and a firm lowers its price.	Total revenue increases
Ped is elastic (>1) and a firm raises price	Total revenue decreases
Ped is unit elastic (=1) and a firm raises price	Total revenue remains the same
Ped is -1.5 (elastic) and the firm raises price by 4%	Total revenue decreases
Ped is -0.4 (inelastic) and the firm raises price by 30%	Total revenue increases
Ped is -0.2 (inelastic) and the firm lowers price by 20%	Total revenue decreases
Ped is -4.0 (elastic) and the firm lowers price by 15%	Total revenue increases

At high prices, a reduction in price will have an elastic price response – lower prices cause total revenue to rise

## NOTES

- Demand is price inelastic at lower prices.

### **The Usefulness of Price Elasticity of Demand for Producers**

Firms can use PED estimates to predict:

- The effect of a change in price on total revenue of sellers
- The price volatility in a market following changes in supply – this is important for commodity producers who suffer big price and revenue shifts from one time period to another.
- The effect of a change in an indirect tax on price and quantity demanded and also whether the business is able to pass on some or all of the tax onto the consumer.
- Information on the PED can be used by a business for price discrimination. This is where a supplier decides to charge different prices for the same product to different segments of the market e.g. peak and off peak rail travel or prices charged by many of our domestic and international airlines.
- Usually a business will charge a higher price to consumers whose demand for the product is price inelastic

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## **8.6. PRICING POLICIES:**

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Pricing policy refers how a company sets the prices of its products and services based on costs, value, demand, and competition. Pricing strategy, on the other hand, refers to how a company uses pricing to achieve its strategic goals, such as offering lower prices to increase sales volume or higher prices to decrease backlog. Despite some degree of difference, pricing policy and strategy tend to overlap, and the different policies and strategies are not necessarily mutually exclusive.

### **General considerations while formulating Pricing Policy:**

1. Objectives of Business
2. Competitive situation in which the Company is placed
3. Product and promotional policies
4. Nature of Price Sensitivity
5. Conflicting interests of manufacturers and middlemen
6. Routinization of Pricing
7. Active entry of non-business groups into the determination of prices



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## 8.7. OBJECTIVES OF THE PRICING POLICY:

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Pricing decisions are a part of the general strategy for achieving a broadly defined goal. The firm may aim at one or more of the following objectives:

1. Maximization of the profits for the entire product line.
2. Promotion of the long range welfare of the firm
3. Adaptation of prices to fit the diverse competitive situations faced by different products
4. Flexibility to vary prices to meet changes in economic conditions affecting the various consumer industries
5. Stabilization of prices and margin through market penetration, market skimming and early cash recovery.

The main objective of pricing policy is to maximize profit for the firm, stability is necessary to win the confidence of the customers and it should be able to capture enough market for the firm.

### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by Marginal Revenue?

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## 8.8. PRICING METHODS:

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The Pricing methods are

1. Cost oriented
  - a. Cost plus or full cost pricing
  - b. Pricing for a rate of return (target Pricing) and
  - c. Marginal cost pricing
2. Competition oriented
  - a. Going rate pricing
  - b. Customary prices and
  - c. Sealed bid pricing

Cost Plus or Full cost Pricing:

In this method, the price is set to cover costs (materials, labour and overhead) and a predetermined percentage for profit. The following points explain the popularity of this method:

NOTES

## NOTES

1. Full cost pricing offers a means by which fair and plausible prices can be found with ease and speed, no matter how many products the firm handles.
2. Prices based on full cost look factual and precise and may be more defensible on moral grounds than prices established by other means.
3. Firms preferring stability use full cost as a guide to pricing in an uncertain market. In cases where costs of getting information are high and the process of trial and error is costly, they use it to reduce the cost of decision making.
4. It is difficult except ex-post to identify and compute direct costs.
5. Fixed cost must be covered in the long run and firms feel that if they are not covered in the short run, they will not be covered in the long run either.
6. Management tends to know more about product costs than other factors which are relevant to pricing.
7. Cost plus pricing is specially useful in the following cases:
  - a. Public utility pricing
  - b. Product tailoring: i.e. determining the product design when the selling price is predetermined.
  - c. Pricing products that are designed to the specification of a single buyer – the basis of pricing is the estimated cost plus gross margin that the firm could have got by using facilities otherwise.
  - d. Monopsony buying – where the buyers know a great deal about suppliers' costs. They may make the products themselves if they do not like the price.

In India, too, cost plus method is widely used due to

1. The prevalence of sellers' market in India till recently made it possible for the manufacturers to pass on the increases in costs to the consumers.
2. Costs plus a reasonable margin of profit are taken into consideration for the purposes of price fixation in the price controlled industries in India. Thus this method has the tacit approval of the Government.

### **Pricing for a rate of Return:**

An important problem that a firm might have to face is one of adjusting the prices to changes in costs. For this purpose, the popular policies that are often followed are as under:

1. Revise Prices to maintain a constant percentage mark up over costs
2. Revise prices to maintain profits as a constant percentage of total sales
3. Revise prices to maintain a constant return on invested capital.

Rate of return pricing is a refined variant of full cost pricing.

#### Marginal Cost of Pricing

Both under full cost pricing and the rate of return pricing, prices are based on total costs comprising fixed and variable costs. Under marginal cost pricing, fixed costs are ignored and prices are determined on the basis of marginal cost.

The firm uses only those costs that are directly attributable to the output of a specific product. With marginal cost pricing, the firm seeks to fix its prices so as to maximize its total contribution to fixed costs and profit. Unless the manufacturer's products are in direct competition with each other, this objective is achieved by considering each product in isolation and fixing its price at a level which is calculated to maximize its total contribution.

#### Advantages:

1. With marginal cost pricing, prices are never rendered uncompetitive merely because of a higher fixed overhead structure, or because hypothetical unit fixed costs are higher than those of the competitors.
2. Marginal costs more accurately reflect future as distinct from present cost levels and cost relationships.
3. Marginal cost pricing permits a manufacturer to develop a far more aggressive pricing policy than does full cost pricing.
4. Marginal cost pricing is more useful for pricing over the life cycle of a product, which requires short run marginal cost and separable fixed cost data relevant to each particular stage of the cycle, not long run full cost data.

#### Limitations:

1. Some accountants are not fully thorough with the marginal cost techniques.
2. Marginal cost pricing is not highly suitable for the business having inadequate free capacity and making only a small contribution.

## NOTES

## NOTES

3. In a period of business recession, firms using marginal cost pricing may lower prices in order to maintain business and this may lead other firms to reduce their prices leading to cut throat competition.

### Going Rate Pricing:

This method puts emphasis on the market. The firm adjusts its own price policy to the general pricing structure in the industry. It may also reflect the collective wisdom of the industry. It must be noted that going rate pricing is not quite the same as accepting a price impersonally set by a near perfect market. It would seem that the firm has some power to set its own price and could be the price maker if it chooses to face all the consequences. It prefers, however to take the safe course and conform to the policy of others.

### Sealed Bid Pricing

This method of pricing is popular in construction activities and disposal of used products. Here, the prospective buyers are asked to quote their prices through a sealed cover. All the offers are opened at a pre-announced time of a day in the presence of all the bidders. The buyer who quotes the highest is awarded the contract. As this method is totally competition based, there is a risk of collusion among the bidders. In such a case, the buyers may have to pay high price if sellers collude. Alternatively, the sellers may receive very low price if buyers collude.

### Check your Progress III

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by Cost Plus or Full cost Pricing.

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## 8.9 LET US SUM UP

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This unit focuses on the revenue analysis and pricing policies along with special analysis on the relationship between Revenue and Price elasticity of Demand. This unit talks about revenue and pricing policy along with the pricing methods;

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## 8.10 UNIT END EXERCISES

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1. Why revenue analysis is important in Managerial Economics?
2. Write a short note on the various pricing policies
3. Analyse the relationship between Revenue and Price elasticity of Demand
4. State out the pricing methods in an elaborate way

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## **8.11 ANSWER TO CHECK YOUR PROGRESS**

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1. **Marginal Revenue (MR)** – It is the addition to the Total Revenue as a result of increase in the sale of an addition unit by the firm.
2. a. Maximization of the profits for the entire product line.  
b. Promotion of the long range welfare of the firm
3. Cost Plus or Full cost Pricing:  
In this method, the price is set to cover costs (materials, labour and overhead) and a predetermined percentage for profit.

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## **8.12 SUGGESTED READINGS**

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

**NOTES**

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## **UNIT IX : PRICE DETERMINATION UNDER PERFECT COMPETITION, MACRO ECONOMICS**

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- 9.1 Introduction
- 9.2 Objectives
- 9.3 Price Determination under Perfect Competition
- 9.4 Market and Market Structure
- 9.5 Perfect Competition
- 9.6 Price Output determination under perfect competition
- 9.7 Short run Firm equilibrium under perfect competition
- 9.8 Short run Industry equilibrium under Perfect Competition
- 9.9. Long run Firm Equilibrium under Perfect Competition
- 9.10 Long run Industry Equilibrium under Perfect Competition.
- 9.11 Summary
- 9.12 Unit End Exercise
- 9.13 Answers to check the progress
- 9.14 Suggested Readings

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### **9.1 INTRODUCTION**

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Managers set prices during the development stage as a part of strategic pricing. This avoids launching products or services which cannot sustain profitable prices in the market. This approach to pricing supports companies to either fit costs to prices or scrap products or services that cannot be generated cost-effectively. Through systematic formulation of the pricing policies and strategies, companies can reap greater profits and increase or defend their market shares. Besides, it is the prime duty of the Marketing and Finance Managers, to set prices of the price of a product or service often plays a significant role in that product's or service's success.

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### **9.2 OBJECTIVES**

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The student learns the techniques and strategies of the Companies' Pricing Policy and Strategy. He also gets a good insight on the market and market structure, where in the company lies in a perfect completion environment.

### 9.3 PRICE DETERMINATION UNDER PERFECT COMPETITION:

Perfect competition is defined as a market situation where there are a large number of sellers of a homogeneous product. An individual firm supplies a very small portion of the total output and is not powerful enough to exert an influence on the market price.

A single buyer is not in a position to influence the market price. Market price in a perfectly competitive market is determined by the interaction of the forces of market demand and market supply. Market demand means the sum of the quantity demanded by individual buyers at different prices.

Similarly, market supply is the sum of quantity supplied by the individual firms in the industry. Each seller and buyer takes the price as determined. Therefore, in a perfectly competitive market, the main problem for a profit-maximizing firm is to adjust its output to the market price to maximize the profit.

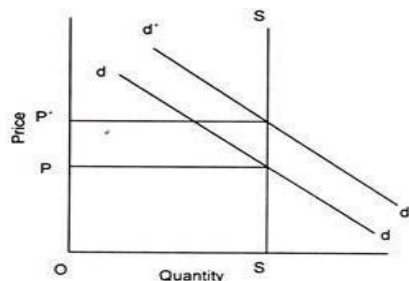
**Price determination under perfect competition is studied under three different time periods:**

- (a) Market Period
- (b) Short Run
- (c) Long Run

**(a) Market Period:**

In a market period, the time span is so short that no firm can increase its output. The total stock of the commodity in the market is limited. The market period may be an hour, a day or a few days or even a few weeks depending upon the nature of the product.

For example, in the case of perishable commodities like vegetables, fish, eggs, the period may be a day. Since the supply of perishable commodities is limited by the quantity available in day that neither can be increased nor can be the next period, the must be sold away on irrespective of its



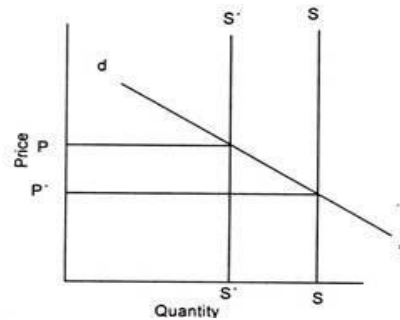
withdrawn for whole of it the same day, price.

## NOTES

## NOTES

The above graph shows that the supply curve of perishable commodities like fish is perfectly inelastic and assumes the form of a vertical straight line  $SS$ . Let us suppose that the demand curve for fish is given by  $dd$ . Demand curve and supply curve intersect each other at point  $R$ , determining the price  $OP$ . If the demand for fish increases suddenly, shifting the demand curve upwards to  $d'd'$ .

The equilibrium point shift from  $R$  to  $R''$  and the price rise to  $OP'$ . In this situation, price is determined solely by the demand condition that is an active agent.



Similarly, if the demand for a product is given, as shown in demand curve  $SS$  in figure. If the supply of the product decreases suddenly from  $SS$  to  $S'S'$ , the price increases from  $P$  to  $P'$ . In this case price is determined by supply, the supply being an active agent.

In this case supply curve shifts leftward causing increase in price of the reduced supply goods. Given the demand curve  $dd$  and supply curve  $SS$ , the price is determined at  $OP$ . Demand curve remaining the same, the decrease in supply shifts the supply curve to its left to  $S'S'$ . Consequently, the price rises from  $OP$  to  $OP'$ .

The supply curve of non-perishable but reproducible goods will not be a vertical straight line throughout its length. This is for certain goods can be withdrawn from the market if the price is too low as the seller would not sell any amount of the commodity in the present market period and would like to hold back the whole stock.

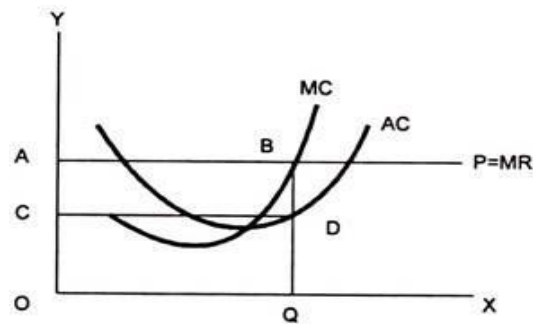
The price below which the seller declines to offer for any amount of his product is known as 'reserve price'. Thus, the seller faces two extreme price-levels; at one he is ready to sell the whole stock and the other he refuses to sell any. The amount he offers for sale will vary with price.

### (b) Pricing in the Short Run- Equilibrium of the Firm:

Existing plants cannot be extended and new plants cannot be erected to meet increased demand within the short period of time. However, the time is adequate enough for producers to adjust to some extent their output to the increase in demand by overworking their fixed capacity plants. In the short run, therefore, supply curve is elastic.

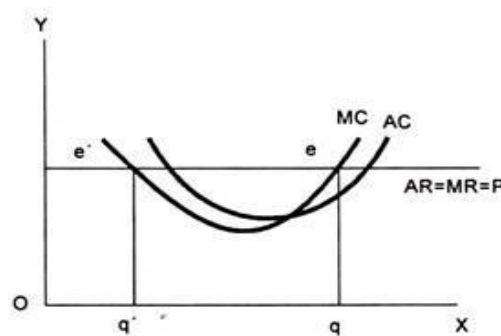


## NOTES



The firm supplies OQ output. The QC is the average cost and the firm earns total profit equal to the area shown by ABCD. The firm maximizes its profit. Earlier to the point of equilibrium, the firm does not attain the maximum profit as each additional unit of output brings more revenue than its cost. Any level of output greater than OQ brings less marginal revenue than marginal cost.

**For the equilibrium of a firm the two conditions must be fulfilled:**

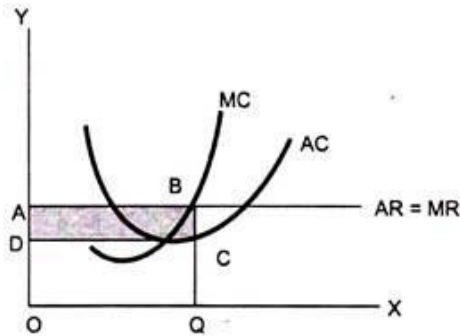


- a) The marginal cost must be equal to the marginal revenue. However, this condition is not sufficient, since it may be fulfilled and yet the firm may not be in equilibrium. The above graph shows that marginal cost is equal to marginal revenue at point  $e'$ , yet the firm is not in equilibrium as  $Oq'$  output is greater than  $Oq$ .
- (b) The second and necessary condition for equilibrium requires that the marginal cost curve cuts the marginal revenue curve from below i.e. the marginal cost curve be rising at the point of intersection with the marginal revenue curve.

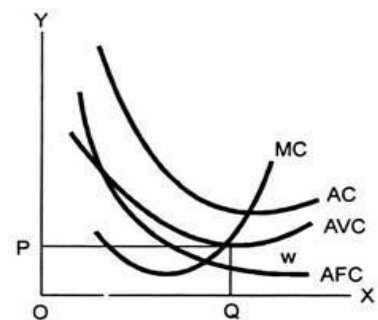
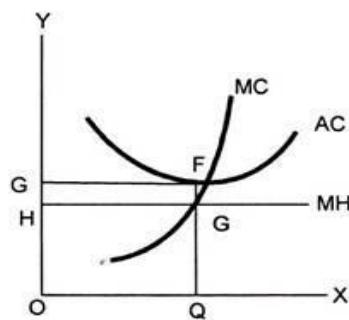
Thus, a perfectly competitive firm adjusts its output at the point where its marginal cost is equal to marginal revenue or price, and marginal cost curve cuts the marginal revenue curve from below.

The fact that a firm is in equilibrium does not imply that it necessarily earns supernormal profits. In the short-run equilibrium, firms may earn supernormal profits, normal profits or may incur losses.

**NOTES**



If the average cost is below the average revenue, the firm earns supernormal profits. The above graph shows that the average cost  $QC$  is less than average revenue  $QB$ , and the firm earns profits equal to the area  $ABCD$ .

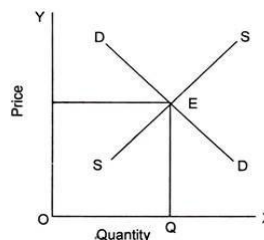


The Average cost  $QF$  is higher than  $QG$  average revenue and the firm is incurring loss equal to the shaded area  $EFGH$ . In this case the firm will continue to produce only if it is able to cover its variable costs.

The point at which the firm covers its variable costs is called ‘the closing-down point’. If the price falls below or average costs rise, the firm does not cover its variable costs and is better off if it closes down. The above graph explains shut- down point.

**Equilibrium of the Industry:**

An industry is in equilibrium at that price at which the quantity demand is equal to the quantity supplied.



Here,  $DD$  is the industry demand and  $SS$  the industry supply. The point  $E$  at which industry demand and industry supply equalizes, the price  $OP$  is determined.  $OQ$  is the quantity demanded and quantity supplied. In a short run equilibrium where at the market-determined price some firms may be making supernormal profits, normal profits or making losses. In

the long run the firms may not continue incurring losses. Loss making firms that cannot adjust their plant will close down.

**(c) Pricing in the Long Run:**

In the long run, all factors are variable and non-fixed. Thus, in the long run, firms can change their output by increasing their fixed equipment. They can enlarge the old plants or replace them by new plants or add new plants.

Moreover, in the long run, new firms can also enter the industry. On the contrary, if the situation so demands, in the long run, firms can diminish their fixed equipments by allowing them to wear out without replacement and the existing firm can leave the industry.

In the long run, it is the long run average and marginal cost curves, which are relevant for making output decisions. Further, in the long run, average variable cost is of no particular relevance. The average total cost is of determining importance, since in the long run all costs are variable and none fixed.

In the short run a firm under perfect competition is in equilibrium at that output at which marginal cost equals price or Marginal Revenue. This is equally valid in the long run. But, in the long run for a perfectly competition firm to be in equilibrium, besides marginal cost being equal to price, price must also be equal to average cost. If the price is greater than the average cost, the firms will be making supernormal profits.

Attracted by these supernormal profits, new firms will enter the industry and these extra profits will be taken away. When the new firms enter the industry, the supply or output of the industry will increase and hence the price of the output will be forced down. The new firms will keep coming into the industry until the price is depressed down to average cost, and all firms are earning only normal profits.

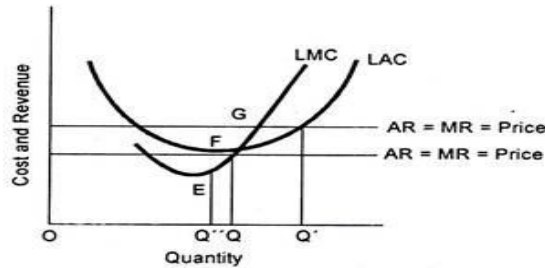
If the price happens to be below the average cost, the firms will be incurring losses. Some of the existing firms will quit the industry. As a result, the output of the industry will decrease and the price will rise to equal the average cost so that the firms remaining in the industry are making normal profits. Thus, for a perfectly competitive firm to be in equilibrium in the long run, price must equal marginal and average cost.

**The conditions for long run equilibrium of perfectly competitive firm can be written as:**

Price = Marginal Cost = Minimum Average Cost.

**NOTES**

## NOTES



LAC is the long run average cost curve and LMC in the long run marginal cost curve. The firm under perfect competition cannot be in long run equilibrium at price  $OP'$ , because though the price  $OP'$  equals MC at G (i.e., at output  $OQ$ ) but it is greater than the average cost at this output and, therefore, the firm will be earning supernormal profits.

Since all the firms are assumed to be identical, all would be earning supernormal profits. Hence, there will be attraction for the new firms to enter the industry. As a result, the price will be forced down to the level  $OP$  at which price, the firm is in equilibrium at F and is producing  $OQ''$  output.

At point F or equilibrium output  $OQ''$ , the price is equal to average cost, and hence the firm will be earning only normal profits. Therefore, at price  $OP$ , there will be no tendency for the outside firms to enter the industry. Hence, the firm will be in equilibrium at  $OP$  price and  $OQ$  output.

On the contrary, a firm under perfect competition cannot be in the long run equilibrium at price  $OP''$ . Though price  $OP''$  is equal to marginal cost at point E, or at output  $OQ''$  but price  $OP''$  is lower than the average cost at this point and thus the firm will be incurring losses.

Since all the firms in the industry are identical in respect of cost curves, all would be incurring losses. To avoid these losses, some of the firm will leave the industry. As a result, the price will rise to  $OP$ , where again all firms are making normal profits. When the price  $OP$  is reached, the firms would have no further tendency to quit.

**Thus, to conclude that at price  $OP$ , the firm under perfect competition is in equilibrium in the long run when:**

$$\text{Price} = \text{MC} = \text{Minimum AC}$$

Now, at price  $OP$ , besides all firms being in equilibrium at output  $OQ$ , the industry will also be in equilibrium, since there will be no tendency for new firms to enter or the existing firms to leave the industry, because all will be earning normal profits. Thus, at  $OP$  price, full equilibrium, i.e. equilibrium of all the individual firms and also of the industry, as a whole, is achieved in the long run under perfect competition.

### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What are the three different time periods of Price determination under perfect

## NOTES

### 9.4 MARKET AND MARKET STRUCTURE:

Economists describes a market as coming together of the buyers and sellers, i.e. an arrangement where buyers and sellers come in direct or indirect contact to sell/buy goods and services.

For example, the market for mobile will constitute all the sellers and buyers of mobile phones in an economy. It does not necessarily refer to a geographic location.

Let us then list a few features of a market,

- In economics, the term market will refer to the market for one commodity or a set of commodities. For example a market for coffee, a market for rice, a market for TV's, etc.
- A market is also not restricted to one physical or geographical location. It covers a general wide area and the demand and supply forces of the region.
- There must be a group of buyers and sellers of the commodity to constitute a market. And the relations between these sellers and buyers must be business relations.
- Both the sellers and buyers must have access to knowledge about the market. There should be an awareness of the demand for products, consumer choices, and preferences, fashion trends, etc.
- At any given time only one price can be prevalent in the market for the goods and services. This is only possible in the existence of perfect competition.

#### Classification of Markets

Broadly there are two classifications of markets – the product market and the factor market. The factor market refers to the market for the buying and selling of factors of production like land, capital, labor, etc. The other classification of markets is as follows:

On the Basis of Geographic Location

## NOTES

- **Local Markets:** In such a market the buyers and sellers are limited to the local region or area. They usually sell perishable goods of daily use since the transport of such goods can be expensive.
- **Regional Markets:** These markets cover a wider area than local markets like a district, or a cluster of few smaller states
- **National Market:** This is when the demand for the goods is limited to one specific country. Or the government may not allow the trade of such goods outside national boundaries.
- **International Market:** When the demand for the product is international and the goods are also traded internationally in bulk quantities, we call it an international market.

### On the Basis of Time

- **Very Short Period Market:** This is when the supply of the goods is fixed, and so it cannot be changed instantaneously. Say for example the market for flowers, vegetables. Fruits etc. The price of goods will depend on demand.
- **Short Period Market:** The market is slightly longer than the previous one. Here the supply can be slightly adjusted.
- **Long Period Market:** Here the supply can be changed easily by scaling production. So it can change according to the demand of the market. So the market will determine its equilibrium price in time.

### On the Basis of Nature of Transaction

- **Spot Market:** This is where spot transactions occur, that is the money is paid immediately. There is no system of credit
- **Future Market:** This is where the transactions are credit transactions. There is a promise to pay the consideration sometime in the future.

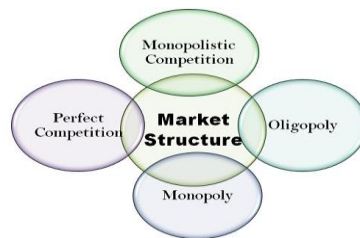
### On the Basis of Regulation

- **Regulated Market:** In such a market there is some oversight by appropriate government authorities. This is to ensure there are no unfair trade practices in the market. Such markets may refer to a product or even a group of products. For example, the stock market is a highly regulated market.
- **Unregulated Market:** This is an absolutely free market. There is no oversight or regulation, the market forces decide everything

### Types of Market Structures

A variety of market structures will characterize an economy. Such market structures essentially refer to the degree of competition in a market.

There are other determinants of market structures such as the nature of the goods and products, the number of sellers, number of consumers, the nature of the product or service, economies of scale etc.



## NOTES

### 1] Perfect Competition

In a perfect competition market structure, there are a large number of buyers and sellers. All the sellers of the market are small sellers in competition with each other. There is no one big seller with any significant influence on the market. So, all the firms in such a market are price takers.

There are certain assumptions when discussing the perfect competition. These assumptions are as follows,

- The products on the market are homogeneous, i.e. they are completely identical
- All firms only have the motive of profit maximization
- There is free entry and exit from the market, i.e. there are no barriers
- And there is no concept of consumer preference

### 2] Monopolistic Competition

In monopolistic competition, there are still a large number of buyers as well as sellers. But they all do not sell homogeneous products. The products are similar but all sellers sell slightly differentiated products.

Now the consumers have the preference of choosing one product over another. The sellers can also charge a marginally higher price since they may enjoy some market power. So the sellers become the price setters to a certain extent.

For example, the market for cereals is a monopolistic competition. The products are all similar but slightly differentiated in terms of taste and flavours. Another such example is toothpaste.

### 3] Oligopoly

In an oligopoly, there are only a few firms in the market. While there is no clarity about the number of firms, 3-5 dominant firms are

## NOTES

considered the norm. So in the case of an oligopoly, the buyers are far greater than the sellers.

The firms in this case either compete with another to collaborate together, They use their market influence to set the prices and in turn maximize their profits. So the consumers become the price takers. In an oligopoly, there are various barriers to entry in the market, and new firms find it difficult to establish themselves.

### 4] Monopoly

In a monopoly type of market structure, there is only one seller, so a single firm will control the entire market. It can set any price it wishes since it has all the market power. Consumers do not have any alternative and must pay the price set by the seller.

Monopolies are extremely undesirable. Here the consumer loses all their power and market forces become irrelevant. However, a pure monopoly is very rare in reality.

#### Check your Progress II

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. State the classification of Market?

## 9.5 PERFECT COMPETITION:

An essential aspect of perfect competition is the absence of any monopolistic element. These are the three essential features of perfect competition:

1. The number of buyers and sellers in the market is very large. These buyers and sellers compete among themselves. Due to the large number, no buyer or seller influences the demand or supply in the market.
2. The commodity sold or bought is homogeneous. In other words, goods produced by different firms are identical in nature.
3. Firms can enter or exit the market freely.

Apart from these essential features, there are some more conditions attached to the perfect competition.

### Additional Features of Perfect Competition

- a. Buyers and Sellers have a perfect knowledge of:
  - i. the quantities of stock of goods in the market



- ii. the conditions of the market
  - iii. Prices at which transactions of sale or purchase are happening.
- b. There are facilities that help the movement of goods from one center to another.
  - c. Buyers have no preference between different sellers.
  - d. Also, buyers have no preference between different units of the commodity offered for sale.
  - e. Sellers have no preference between different buyers.
  - f. At any given point in time, the goods are bought or sold at a uniform price. In other words, all firms must accept the price determined by the market forces to total demand and supply.

## NOTES

When a market operates under the condition of perfect competition, buyers and sellers have perfect knowledge and perfect mobility. Therefore, if a seller tries to raise the price above that charged by others, he loses customers. The stock market is a great example of perfect competition.

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### **9.6 PRICE –OUTPUT DETERMINATION UNDER PERFECT COMPETITION:**

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We know that the behavior of an entrepreneur or a firm under perfect competition assuming that a single firm or a producer cannot influence the price of his product by his own individual action.

A single firm, under perfect competition, then takes the market price as given and adjusts its output so as to obtain maximum profits.

Now the interaction between these two forces of demand and supply determines price in the market.

It is not the demand and supply of the single buyer and firm respectively that determine price but it is the demand of all the buyers taken together and the supply of all the firms taken together that determine the price by their interaction.

#### **Equilibrium Price: Interaction of Demand and Supply:**

Price, under conditions of perfect competition is determined by the interaction of demand and supply. Marshall gave equal importance to either demand (or marginal utility) and supply (or cost of production) in the determination of value or price.

The price at which demand and supply are equal is known as an equilibrium price, since at this price the forces of demand and supply are balanced, or are in equilibrium. The quantity bought and sold (or the

## NOTES

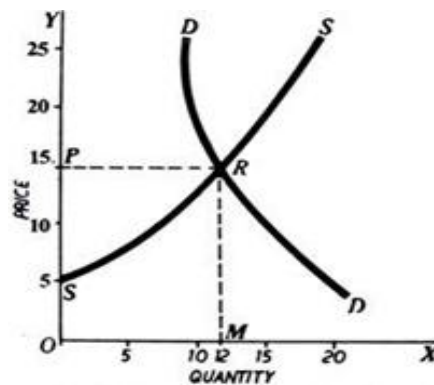
amount supplied or demanded) at this equilibrium price is known as equilibrium amount.

If the equality between quantity demanded and supplied does not hold for some price, buyers' and sellers' desires are divergent either the amount demanded by buyers is more than that offered by sellers, or the amount offered for supply by sellers is greater than the amount demanded by buyers. In either case, the price will change so as to bring about equality between quantity demanded and quantity supplied.

An example in terms of both schedules and curves will make the whole thing clear. The table given below gives the demand and supply schedules relating to a variety of cotton cloth, and in the graph, DD is the demand curve and SS is the supply curve. A glance at the table and the graph will show how the price is determined by demand and supply.

### Equilibrium of Demand and Supply

Price Per metre Rs.	Quantity demanded (millions of metres per month)	Quantity supplied (millions of metres per month)	Pressure on Price
25	9	18	Falling
20	10	16	Falling
15	12	12	Neutral
10	15	7	Rising
5	20	0	Rising



It will be seen that, when price is Rs. 15 per meter, 12 million meters are supplied and 12 million meters are demanded; the quantity demanded is equal to the quantity supplied. Rs. 15 per meter, therefore, is the equilibrium price. Price is in equilibrium at Rs. 15 or price of Rs. 15 will persist in the market, because at this level there is no tendency for it to

rise or fall. Of course this equilibrium price may not be reached at once. There may have to be an initial period of trial and error or oscillations around this equilibrium level before price finally settles down and supply balances demand.

If, for example, the price is Rs. 25 (i.e., above the equilibrium level), the quantity offered in supply (18 million metres) by sellers will be greater than the quantity demanded (9 million metres), and there will be a tendency for the price to fall. At the price of Rs. 25, some of the sellers will be unable to sell all the quantity they want to sell, and will, therefore, cut down the price in order to attract customers.

As the price falls, the quantity demanded will extend and the quantity supplied will contract in the way shown in the table until, at the price of Rs. 15 per metre, supply balances demand and all the quantity of the product, which all sellers are willing to sell, will be purchased by the buyers.

Similarly, if the price is Rs. 10 per metre, i.e., below the equilibrium price, the amount of the cotton cloth demanded (15 million metres) by the buyers will exceed the amount offered for supply (7 million metres); therefore, the price of cotton cloth will tend to rise.

Since at Rs. 10, the quantity demanded exceeds the quantity supplied, the buyers who are willing to buy at this price find that the quantity offered is not sufficient to satisfy their wants, i.e., the sellers are not willing to supply as large a quantity as the buyers demand.

Some of the consumers, who have not been able to satisfy their demand, will be induced to bid the price up in the hope of getting more supplies. This action of unsatisfied buyers will force up the price in the market up to the equilibrium level.

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## **9.7 SHORT RUN FIRM EQUILIBRIUM UNDER PERFECT COMPETITION:**

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A firm is in equilibrium in the short-run when it has no tendency to expand or contract its output and wants to earn maximum profit or to incur minimum losses. The short-run is a period of time in which the firm can vary its output by changing the variable factors of production. The number of firms in the industry is fixed because neither the existing firms can leave nor new firms can enter it.

### **Assumptions:**

**This analysis is based on the following assumptions:**

1. All firms use homogeneous factors of production.
2. Firms are of different efficiency.
3. Cost curves of firms vary from each other.

## **NOTES**

## NOTES

4. All firms sell their products at the same price determined by demand and supply of the industry so that the price of each firm,  $P$  (Price) =  $AR = MR$ .

5. Firms produce and sell different quantities.

The short-run equilibrium of the firm can be explained with the help of marginal analysis and total cost- total revenue analysis.

### (1) Marginal Cost-Marginal Revenue Analysis:

During the short run, a firm will produce only if its price equals the average variable cost or is higher than the average variable cost (AVC). Further, if the price is more than the average total costs (SAC or ATC), i.e.,  $P = AR > SAC$ , the firm will be earning supernormal (or abnormal) profits.

If price equals the average total costs, i.e.,  $P = AR = SAC$ , the firm will be earning normal (or zero) profits or breaks-even. If price equals AVC, the firm will be incurring a loss. If price falls even a little below AVC, the firm will shut down because in order to produce it must cover at least its AVC during the short-run.

So during the short-run under perfect competition, a firm is in equilibrium in all the above noted situations. We illustrate them diagrammatically as under.

### Supernormal Profits:

The firm will be earning supernormal profits in the short-run when price is higher than the short-run average cost. The firm is in equilibrium at point  $E_1$  where  $SMC = MR$  and  $SMC$  cuts  $MR$  from below.  $OQ_1$  is the equilibrium output and  $OP (=Q_1E_1)$  is the equilibrium price.  $Q_1S$  are the short-run average costs.

$SE_1 (=Q_1E_1 - Q_1S)$  is the profit per unit.  $TS$  (equilibrium output) (per unit profit) =  $TSE_1P$  area is the supernormal profits.

### Normal Profits:

The firm may earn normal profits when price equals the short-run average costs as shown in Figure 2 (B). The firm is in equilibrium at point  $E_2$  where  $SMC = MR$  and  $SMC$  cuts  $MR$  from below.  $OQ_2$  is the equilibrium output and  $OP (=Q_2E_2)$  is the equilibrium price. The firm is earning normal profits because  $Price = AR = MR = SMC = SAC$  at its minimum point  $E_2$ .

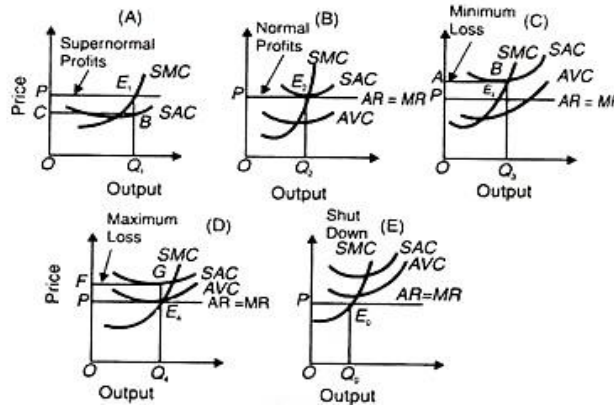
### Minimum Loss:

The firm may be in equilibrium and yet incur a loss when price is less than the short-run average costs, as shown in Figure 2 (C). The firm is in equilibrium at point  $E_3$  where  $SMC = MR$  and  $SMC$  cuts  $MR$  from

below.  $OQ_3$  is the equilibrium output and  $OP (=Q_3E_3)$  is the equilibrium price.

Since the average costs  $Q_3B$  are higher than the price  $Q_3E_3$ ,  $E_3B$  is the loss per unit ( $Q_3B - Q_3E_3$ ). The total loss is  $PE_3 \times E_3B = PE_3BA$ . The firm will continue to produce  $OQ_3$  output so long as it is covering its average variable cost plus some of its fixed cost.

## NOTES



### Maximum

If the price falls to the level of AVC, the firm will just cover its average variable cost, as shown in figure 2 (D). It is indifferent whether to operate or close down because its losses are the maximum.

### Loss:

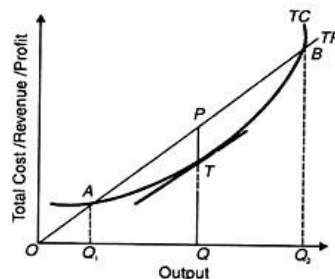
price the the

It will pay such a firm to continue producing  $OQ_4$  output and incur  $PE_4GF$  losses rather than close down in the short-run.  $OQ_4$  is the shutdown output because if the price falls below  $OP$ , the firm will stop production.  $E_4$  is, therefore, the shutdown point.

### Shut Down Stage:

Figure shows a firm which is unable to cover even its AVC at  $OQ_0$  level of output because the price  $OP$  is below the AVC curve. It must shut down.

Thus in the short-run, there are firms which earn normal profits, supernormal profits and incur losses.



### (2) Total Cost-Total Revenue Analysis:

## NOTES

The short-run equilibrium of the firm can also be shown with the help of total cost and total revenue curves. The firm is able to maximize its profits when the positive difference between TR and TC is the greatest. This is shown in Figure 3 where TR is the total revenue curve and TC the total cost curve.

The total revenue curve is an upward sloping straight line curve starting from O. This is because the firm sells small or large quantities of its product at a constant price under perfect competition. If the firm produces nothing, total revenue will be zero. The more it produces, the larger is the increase in total revenue. Hence the TR curve is linear and slopes upward.

The firm will maximize its profits at that level of output where the gap between the TR curve and the TC curve is the maximum. Geometrically, it is that level at which the slope of a tangent drawn to the total cost curve equals the slope of the total revenue curve. In Figure 3, the maximum amount of profit is measured by TP at OQ output.

At outputs smaller or larger than OQ between A and B points, the firm's profits shrink. If the firm produces OQ<sub>1</sub> output, its losses are the maximum because the TC curve is above the TR curve. At Q<sub>1</sub> its profits are zero.

This is the break-even point of the firm. It starts earning profits when it produces beyond OQ<sub>1</sub> output level. At OQ<sub>2</sub> level, its profits are again zero. If it produces beyond this level, it incurs losses because  $TC > TR$ .

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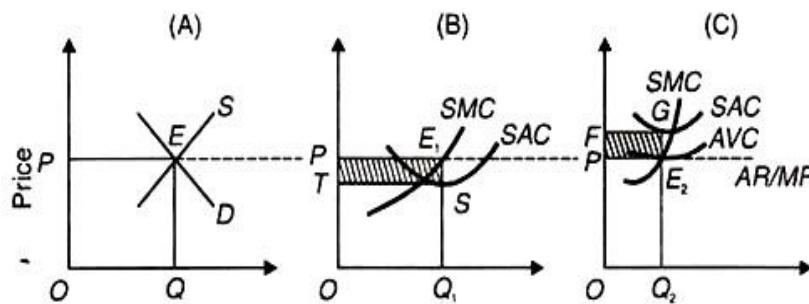
### 9.8 SHORT-RUN EQUILIBRIUM OF THE INDUSTRY:

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An industry is in equilibrium in the short-run when its total output remains steady, there being no tendency to expand or contract its output. If all firms are in equilibrium, the industry is also in equilibrium. For full equilibrium of the industry in the short-run, all firms must be earning only normal profits.

The condition for this is  $SMC = MR = AR = SAC$ . But full equilibrium of the industry is by sheer accident because in the short-run some firms may be earning supernormal profits and some incurring losses. Even then, the industry is in short-run equilibrium when its quantity demanded and quantities supplied are equal at the price which clears the market.

This is illustrated in Figure 4 where in Panel (A), the industry is in equilibrium at point E where its demand curve D and supply curve S intersect which determine OP price at which its total output OQ is cleared. But at the prevailing price OP, some firms are earning supernormal profits PE<sub>1</sub>ST, as shown in Panel (B), while some other firms are incurring FGE<sub>2</sub>P losses, as shown in Panel (C) of the figure.



## NOTES

### Long-Run Equilibrium of the Firm and Industry:

## 9.9 LONG-RUN EQUILIBRIUM OF THE FIRM UNDER PERFECT COMPETITION:

The long run is a period of time in which the firm can change its plant and scale of operations. Thus in the long-run all costs are variable and there are no fixed costs. The firm is in the long-run equilibrium under perfect competition when it does not want to change its equilibrium output.

It is earning normal profits. If some firms are earning supernormal profits, new firms will enter the industry and supernormal profits will be competed away. If some firms are incurring losses, some of the firms will leave the industry till all earn normal profits.

Thus there is no tendency for firms to enter or leave the industry because every firm must earn normal profits. **“In the long-run, firms are in equilibrium when they have adjusted their plant so as to produce at the minimum point of their long-run AC curve, which is tangent (at this point) to the demand (AR) curve defined by the market price”** so that they earn normal profits.

### Assumptions:

**This analysis is based on the following assumptions:**

1. Firms are free to enter into or leave the industry.
2. All firms are of equal efficiency.
3. All factors are homogenous. They can be obtained at constant and uniform prices. SMC
4. Cost curves of firms are uniform.
5. The plants of firms are equal, having given technology.
6. All firms have perfect knowledge about price and output.

Given these assumptions, each firm of the industry will be in long-run equilibrium when it fulfills the following two conditions.

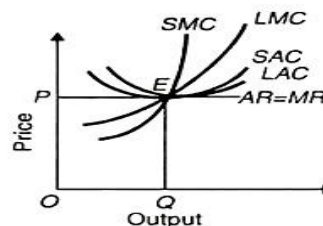
## NOTES

(1) In equilibrium, its short-run marginal cost (SMC) must equal to its long-run marginal cost (LMC) as well as its short-run average cost (SAC) and its long-run average cost (LAC) and both should equal  $MR=AR=P$ .

**Thus the first equilibrium condition is:**

$SMC = LMC = MR = AR = P = SAC = LAC$  at its minimum point, and

(2) LMC curve must cut MR curve from below: Both these conditions of equilibrium are satisfied at point E in Figure 5 where SMC and LMC curves cut from below SAC and LAC curves at their minimum point E and SMC and LMC curves cut AR = MR curve from below. All curves meet at this point E and the firm produces OQ optimum output and sells it at OP price.

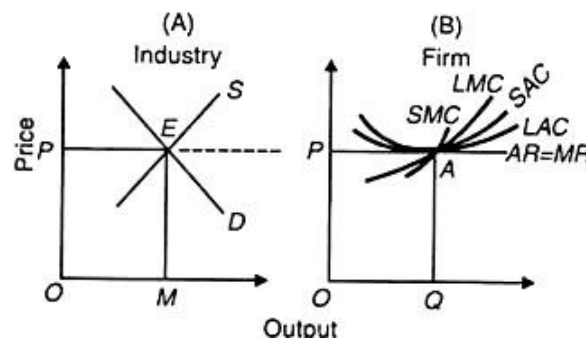


Since we assume equal costs of all the firms of industry, all firms will be in equilibrium in the long-run. At OP price a firm will have neither a tendency to neither leave nor enter the industry and all firms will earn normal profits.

### 9.10 LONG-RUN EQUILIBRIUM OF THE INDUSTRY UNDER PERFECT COMPETITION:

The industry is in equilibrium state during the long-run when all firms earn normal profits. There is no incentive for firms to leave the industry or for new firms to enter it. Having all factors homogeneous and given their prices and the same technology, each firm and industry are in full equilibrium where  $LMC = MR = AR (-P) = LAC$  at its minimum.

Such an equilibrium position is attained when the long-run price for the industry is determined by the equality of total demand and supply of the industry.





The long-run equilibrium of the industry is illustrated in Figure 6 (A) where the long-run price OP is determined by the intersection of the demand curve D and the supply curve S at point E and the industry is producing OM output. At this price OP, the firms are in equilibrium at point A in Panel (B) at OQ level of output where  $LMC = SMC = MR = P (= AR) = SAC = LAC$  at its minimum.

At this level, the firms are earning normal profits and have no incentive to enter or leave the industry. It follows that when the industry is in long-run equilibrium, each firm in the industry is also in long-run equilibrium. If both the industry and the firms are in long-run equilibrium, they are also in short-run equilibrium.

## NOTES

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### 9.11 LET US SUM UP

This unit has provided considerable information about the Price determination and also shown a clear picture of the market and market structure under perfect competition. It has shown relationship of the Price Output determination in both short run and long run equilibrium of both Firm and Industry under perfect determination.

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### 9.12 UNIT END EXERCISES

1. What is Price?
2. Write a short note on Price determination.
3. What do you mean by Market
4. What do you mean by Market Structure
5. How Market and its structure functions under perfect competition
6. How the Price output determination is calculated in short run of the firm under perfect competition?
7. How the Price output determination is calculated in short run of the Industry under perfect competition?
8. How the Price output determination is calculated in long run of the firm under perfect competition?
9. How the Price output determination is calculated in long run of the Industry under perfect competition?

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### 9.13 ANSWERS TO CHECK YOUR PROGRESS

1. (a) Market Period  
(b) Short Run  
(c) Long Run
2. The product market and the factor market

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### 9.14 SUGGESTED READINGS

1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

**NOTES**

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## **UNIT X: PRICING UNDER IMPERFECT COMPETITION**

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- 10.1 Introduction
- 10.2 Objectives
- 10.3. Monopoly
- 10.4 Price Discrimination under Monopoly
- 10.5 Bilateral Monopoly
- 10.6 Monopolistic Competition
- 10.7 Oligopoly
- 10.8 Collusive Oligopoly and Price Leadership
- 10.9 Duopoly
- 10.10 Industry Analysis
- 10.11 Summary
- 10. 12 Unit End Exercise
- 10.13 Answers to check the progress
- 10.14 Suggested Readings

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### **10.1 INTRODUCTION**

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Imperfect competition covers all situations where there is neither pure competition nor pure monopoly. Imperfect competition may take several forms. In fact, “there is no single case of imperfect competition, but a whole range or series of cases representing progressively more and more imperfect competition.”

Pricing in these markets falls between perfect competition and monopoly. Three topics are considered:

- Pricing of homogeneous goods in markets with few firms.
- Product differentiation in these markets.
- How entry and exit affect long-run outcomes in imperfectly competitive markets

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### **10.2 OBJECTIVES:**

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The student shall study two forms of imperfect competition

- (a) Ordinary monopoly and  
(b) Monopolistic competition.

**Check your Progress I**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

**1. What are the forms of imperfect competition**

**NOTES**

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**10.3 MONOPOLY:**

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Monopoly may be defined as that market form in which a single producer controls the whole supply of a single commodity which has no close substitutes. Thus, there are two essential conditions to constitute a monopoly:

- (a) There must be a single producer or seller. He may be an individual or a firm of partners or a joint-stock company. This condition is essential to eliminate competition;
- (b) The commodity dealt in should have no closely competing substitutes. That is, there should be no other firm or firms producing similar products, otherwise there will be competition.

These two conditions ensure that the monopolist can set the price of his commodity, i.e., he can pursue an independent price-output policy. Power to influence price is the essence of monopoly.

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**10.4 PRICE DISCRIMINATION UNDER MONOPOLY:**

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Under monopoly conditions, too, there is bound to be interaction between the forces of demand and supply. It is under the control of the monopolist. A monopolist is the sole producer of his product which has no closely competing substitutes.

In other words, the cross-elasticity of demand between the product of the monopolist and the product of the closest rival must be very low, i.e., the product of a rival cannot take the place of the monopolized product. Monopolist is a sole producer of the commodity and he can easily influence the price by changing his supply.

Under perfect competition, because there is a large number of producers, the supply of each producer constitutes only a small proportion of the total supply. Hence, under perfect competition, no one seller can

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influence the price by changing his own supply. On the other hand, the monopolist can influence the price.

In fact, he sets the price. There is another difference between monopoly and competition. When there is perfect competition, the demand for the product of an individual producer is perfectly elastic at the ruling price. He can sell any amount at the prevailing price. Such demand is represented by a horizontal straight line parallel to the X-axis. Also, marginal revenue (MR) = Price, i.e., average revenue (AR).

These two curves MR and AR coincide. This is not so in monopoly; the demand for the monopolized product is not perfectly elastic (there being practically no substitutes); hence demand price or curve AR falls to the right and MR curve is always below it.

Being in control of the supply, the monopolist can (a) either fix the price and offer to supply the quantity demanded at that price; or (b) he can fix the supply, and then let price be determined by demand in relation to the supply fixed by him. But he cannot fix both the price and also force the people to buy a pre-determined quantity at that price. He can only do one of these two things, i.e., either fix the price or fix the supply.

### **Equalizing Marginal Revenue and Marginal Cost:**

The aim of the monopolist, is to maximize his total money profits. He will be in equilibrium at the price-output level at which his profits are maximum. He will go on producing so long as additional units add more to revenue than to cost. He will stop at that point beyond which additional units of production add more to cost than to revenue.

In other words, the monopolist will be in equilibrium position at that level of output at which marginal revenue equals marginal cost. He will continue expanding output so long as marginal revenue exceeds marginal cost. He does so because profits will go on increasing as long as marginal revenue exceeds marginal cost. At the point where marginal revenue is equal to marginal cost, the profits will be maximized. If the production is carried beyond this point, the profits will start decreasing.

The price-output equilibrium of the monopolist can be easily understood. AR is the demand curve or average revenue curve facing the monopolist. MR is the marginal revenue curve, which lies below the average revenue curve AR. AC is the average cost curve and MC is the marginal cost curve.

It can be seen from the diagram that until OM output, the marginal revenue is greater than marginal cost, but beyond OM the marginal revenue is less than marginal cost. Therefore, the monopolist will be in equilibrium at output OM, where marginal revenue is equal to marginal cost and profits are the maximum.

The price at which output OM is sold in the market can be known from looking at demand curve or average revenue curve AR. It can be seen

from Fig. 29.1 that corresponding to equilibrium output OM, the price or the demand or average revenue is MP' (= OP). Thus, it is clear that given the cost-revenue situation as presented in the diagram, a monopolistic firm will be in equilibrium at output OM and will be charging price equal to MP' (= OP).

### Price-output Equilibrium Under Monopoly

Now the question is: what amount of actual total profits—although maximum they would be in the given cost-revenue situation—will be earned by the monopolist in this equilibrium position? This can be found in the following way. At output OM, while MP' is the average revenue, ML is the average cost. Therefore P'L is the profit per unit.

Now the total profits = Profits per unit x total output sold

$$= P'L \times OM$$

$$= P' L \times TL.$$

$$= P'LTP.$$

Thus, the total profits earned by the monopolist in the equilibrium position will be equal to the rectangle P'LTP.

### Monopoly Price Not Necessarily a High Price:

Monopoly price is not necessarily a high price. It may sometimes be even lower than the price under competition, because the monopolist is spared the expenses of advertisement. Besides, he gains from the usual economies, resulting from large-scale production.

It is also not necessary that the monopolist should always charge the highest possible price. He is afraid of public opinion, of Government interference and of substitutes being adopted for the commodity he produces. Thus the monopoly price is not necessarily a high price. But it generally is the monopolist cannot help exploiting his monopolistic position and charging a high price.

### Discriminating Monopoly:

It is not to be assumed that a monopolist charges a uniform price. Rather, the usual practice is to charge different prices from different person, for different uses of the commodity and in different market areas. In this way, the monopolist is able to maximise his profit.

Such discrimination is made possible by certain conditions prevailing in the industry:

- (a) Purchasers scattered over a wide area not in touch with one another,
- (b) Legal barriers,
- (c) Ignorance about the prices being charged from others,

## NOTES

(d) Personal services, e.g. by doctors. The doctor is able to charge more from the rich than from the poor.

### Price Determination under Competition and Monopoly Compared:

In a summary way, we can compare the competitive price-output equilibrium and monopoly price-output equilibrium. In both  $MR = MC$ ; but there are important differences.

For instance:

(i) Under perfect competition (i)  $MR = AR$  (i.e., price) at every level of output. That is, the two curves  $MR$  and  $AR$  coincide in a horizontal straight line. Under monopoly,  $MR$  is less than  $AR$  (average revenue, i.e., price) at all levels of output.

(ii) In perfect competition,  $MC = MR = AR$  (i.e., price); but under monopoly, the price charged is above the marginal cost. Both  $MR$  and  $MC$  are less than  $AR$  (i.e., price).

(iii) Under perfect competition, a firm reaches equilibrium at the lowest point of the average cost ( $AC$ ); but under monopoly at the point of equilibrium (i.e. where  $MR = MC$ ),  $AC$  is still declining and has not reached the minimum.

(iv) Under perfect competition, a firm attains equilibrium only when  $MC$  curve is rising at or near the equilibrium output, but under monopoly, equilibrium is possible whether  $MC$  is rising, falling or constant. However, monopoly equilibrium is not possible when  $MC$  is falling but  $MR$  is falling more steeply than  $MC$ .

(v) A firm can earn supernormal profits under perfect competition only in the short run and not in the long run when they are competed away. But supernormal profits can persist under monopoly even in the long run.

(vi) A monopolist can restrict output and thus raise price. Hence monopoly price is generally higher than price under perfect competition.

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### 10.5 BILATERAL MONOPOLY:

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It refers to a market situation in which a single producer (monopolist) of a product faces a single buyer (monopolist) of that product.

Its assumptions are as follows:

1. There is a single commodity with no close substitutes.
2. The monopolist is its sole producer or seller.
3. The monopolist is its only buyer.

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## 10.6 PRICE DETERMINATION UNDER MONOPOLISTIC COMPETITION

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### Characteristics of Monopolistic Competition:

In the real world, we find neither perfect competition nor monopoly. These extreme positions are rare. Actually, there is monopolistic competition which is one of the various forms that imperfect competition takes. Generally, neither the number of firms producing a product is very large (as in perfect competition) nor is it almost one (as in monopoly). There is a large number of firms—but not too large.

Further, the commodity produced by these firms is not ‘identical’, but is a bit ‘differentiated’. Take the case of sewing machines. There are a large number of firms each producing a machine of a different brand—Singer, Usha, Kamla, Shan, Rita, etc. All these are sewing machines, but are differentiated from one another by their respective labels. Similarly, we find tooth-pastes, fountain pens, inks, razor blades, face creams, face powders, etc., of various brands.

Due to these two characteristics of the present-day market, neither the conditions of perfect competition nor the conditions of monopoly are fulfilled. But still there is a keen competition among the producers of these differentiated products. Each one keeps an eye on the price-output policies followed by the others. This situation is called ‘monopolistic competition’ or ‘imperfect competition’.

It is ‘monopolistic’ because each brand is in itself a different product and is produced by a single firm; there is ‘competition’ in the sense that the other brands are so similar and that there is a keen rivalry among the producers; it is ‘imperfect’ in the sense that price can be influenced by individual actions. Advertisement or high-pressure salesmanship is a prominent feature of the market under monopolistic competition.

This results in a keen competition among the producers so that price determination under monopolistic competition should be more like perfect competition than like monopoly. Since competition is imperfect, one price does not rule throughout the market. On the other hand, the market is split up into segments in each of which the differentiated product rules supreme. In each segment the producer has a clientele of his own.

The consumers have an irrational preference for the product on account of its superiority, real or imaginary. In each segment, therefore, conditions are somewhat like monopoly, and the price is determined accordingly.

Since under monopolistic competition, different firms produce different varieties of products, therefore, different prices for them will be determined in the market depending upon their respective demand and cost conditions. Each firm will set price and output of its own product.

## NOTES

## NOTES

### Price Determination under Monopolistic Competition:

Now the question arises at which price-output level the monopolistic competitive firm will be in equilibrium position? Here we have to remember that every seller, whether a monopolist or one working under perfectly or imperfectly competitive situations, wants to maximize his profits.

The seller will go on producing till the extra receipts to be had from additional production exceed the extra cost incurred in the production process. In other words, profits will be maximized when marginal revenue is equal to marginal cost. So long as marginal revenue is greater than marginal cost, the seller will find it profitable to expand his output, and if marginal revenue is less than marginal cost, obviously it is to his advantage to reduce his output to the point where marginal revenue is equal to marginal cost. In the short run, therefore, the firm will be in equilibrium when it is maximizing its profits.

Marginal Revenue = Marginal Cost

In the short run, a monopolistically competitive firm may either realise abnormal profits or be faced with losses. But, in the long run, such supernormal profits disappear. This is because we assume that entry is free and new firms will enter the industry if the existing firms are making supernormal profits.

As new firms enter and start production, the demand curve or average revenue curve faced by the firms will fall (shift to the left) and, therefore, the supernormal profits will be competed away, and the firms will be earning only normal profits.

Similarly, if in the short run firms are suffering losses, then in the long run some firms will leave the industry so that the remaining firms are able to earn normal profits. Another point which is to be noted in regard to the long-run equilibrium under monopolistic competition is that average revenue curve in the long run will be more elastic, since large number of substitutes will be available in the long run. Therefore, in the long run, equilibrium is restored when firms are earning only normal profits. Now, profits are normal only when

Average Revenue = Average Cost.

Therefore, equilibrium in the long run under imperfect competition holds when

Average Revenue = Average Cost.

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### 10.7 OLIGOPOLY:

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In an oligopoly, the number of sellers is small as against a sole seller under monopoly and many sellers under monopolistic completion.



## **Principal Characteristics of Oligopoly**

The principal features of oligopoly are as under:

(i) Interdependence:

Owing to a small number of sellers, the price-output decisions of one firm are taken note of by other firms and affect their decisions too.

(ii) Indeterminate Demand Curve:

Since no firm is able to predict the reaction or behaviour of other firms consequent on price output decision of one firm, there is uncertainty, and no firm can be sure of the quantity of the commodity it can sell at a price. The demand curve is thus indeterminate.

(iii) High Pressure Salesmanship:

There being only a small number of firms in the field, there is a tendency for a firm in oligopoly to increase its selling costs and indulge in advertisement so that it may capture as much of the market as possible. There is a counter-campaign by the rivals.

(iv) Sticky Prices:

In order to avoid adverse reaction by the rivals, there is a tendency for the firms to avoid changing the price of their products. Hence comparative price stability rules in the oligopolistic market.

### **How is Price Determined under Oligopoly:**

Since price-output decisions by one firm affect the decisions of other firms, nobody can be sure of their reaction. As pointed out above, the demand curve is indeterminate and no single price-output decision is possible.

### **Functions of Price Mechanism:**

We have seen how price is determined under different market forms. We may now briefly refer to the role that price mechanism plays in the economic system. Price performs a very important function in the economic system. As a matter of fact, it is price which makes the working of the economic system so smooth. Under competitive capitalism, there is no central authority directing the economic forces. The price is the only directing force.

We may mention the following functions which price performs:

**(i) Price controls consumption:**

If the price goes up. It is a signal for the consumers to reduce consumption. The commodity will then be put only to more urgent uses.

## **NOTES**

## NOTES

### (ii) Price directs production:

If the price is low, it warns the producers; and if it is high, it stimulates production.

### (iii) It adjusts the existing supply to demand:

If a commodity is in short supply, the price will go up and reduce demand so that the demand is equated to supply. If stocks have been accumulated, the price will fall making demand to come up to the level of the supply. The supply is cleared.

### (iv) Prices of factors indicate the most remunerative channels for them to flow into:

They thus find their most profitable employment. Thus, price is a powerful regulator of all economic activity in a capitalist economy.

#### Check your Progress II

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

#### 1. Write a short note on Oligopoly

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## 10.8 COLLUSIVE OLIGOPOLY AND PRICE LEADERSHIP:

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In certain situations, organizations under oligopoly are not involved in collusion. There are a number of oligopolistic organizations in the market, but one of them is dominant organization, which is called price leader.

Price leadership takes place when there is only one dominant organization in the industry, which sets the price and others follow it.

Sometimes, an agreement may be developed among organizations to assign a leadership role to one of them. The dominant organization is treated as price leader because of various reasons, such as large size of the organization, large economies of scale, and advanced technology. According to the agreement, there is no formal restriction that other organizations should follow the price set by the leading organization. However, sometimes agreement is formal in nature.

Price leadership is assumed to stabilize the price and maintain price discipline. This also helps in attaining effective price leadership, which works under the following conditions:

- i. When the number of organizations is small

- ii. Entry to the industry is restricted
- iii. Products are homogeneous
- iv. Demand is inelastic or less elastic
- v. Organizations have similar cost curves

## NOTES

### **Types of Price Leadership:**

Price leadership helps in stabilizing prices and maintaining price discipline. There are three major types of price leadership, which are present in industries over a passage of time.

These three types of price leadership are explained as follows:

#### i. Dominant Price Leadership:

Refers to a type of leadership in which only one organization dominates the entire industry. Under dominant price leadership, other organizations in the industry cannot influence prices. The dominant organization uses its power of monopoly to maximize its profits and other organizations have to adjust their output with the set price.

The interests of other organizations are ignored by the dominant organization. Therefore, dominant price leadership is sometimes termed-as partial monopoly. Price leadership by the leading organization is most commonly seen in the industry.

#### ii. Barometric Price Leadership:

It refers to a leadership in which one organization declares the change in prices at first and assumes that other organizations would accept it. The organization does not dominate others and need not to be the leader in the industry. Such type of organization is known as barometer.

This barometric organization only initiates a reaction to changing market situation, which other organizations may follow it if they find the decision in their interest. On the contrary, the leading organization has to be accurate while forecasting demand and cost conditions, so that the suggested price is accepted by other organizations.

Barometric price leadership takes place due to the following reasons:

a. Lack of capacity and desire of organizations to estimate appropriate supply and demand conditions. This influences organizations to follow price changes made by the barometric organization, which has a proven ability to make correct forecasts.

b. Rivalry among the organizations may make a leader, which can be unacceptable by other organizations. Thus, most of the organizations prefer barometric price leadership.

#### iii. Aggressive Price Leadership:

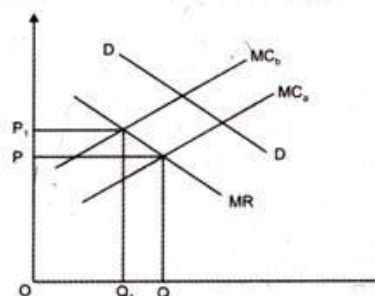
## NOTES

It implies a leadership in which one organization establishes its supremacy by threatening the organizations to follow its leadership. In other words, a dominant organization establishes leadership by following aggressive price policies and forces other/organizations to follow the prices set by it.

### Price-Output Determination under Price Leadership:

Price leadership takes place when there is only one dominant organization in the industry, which sets the price and others follow it. Different economists have developed different models for determining price and output in price leadership.

Here, we would discuss a simple model for determining price and output in price leadership, which is shown in the following figure:



Suppose there are two organizations, A and B producing identical products where organization A has a lower cost of the production than organization B. Therefore, consumers are indifferent between these two organizations due to identical products. This implies that both the organizations would face same demand curve, which further represents equal market share.

In the above figure, DD is the demand curve of both the organizations and MR is their marginal revenue.  $MC_a$  and  $MC_b$  are the marginal cost curves of organization A and B respectively. As stated earlier, the cost of production of organization A is less than B, thus,  $MC_a$  is drawn below  $MC_b$ .

In case of the Organisation A, the profits of organization A would be maximized at a point where MR intersects  $MC_a$ . At this point, the output of organization A would be OQ with the price level OP. On the other hand, the profits of organization B would be maximized at a point where MR intersects  $MC_b$  with output OQ1 and price OP1.

In such a case, the price of organization B is more as compared to organization A. However, both the organizations have to charge the same price as products are homogeneous. In this case, organization A is the price leader and organization B is the follower.

Thus, organization A will dictate the price to organization B. Both the organizations will follow the same output, OQ and price OP. However, the profits earned by organization B are less than A, as it has to produce at

price OP which is less than its profit maximizing price, OP1. In addition, the organization B also has high costs of production that leads to lower profits at price OP1.

### Drawbacks of Price Leadership:

- i. Makes it difficult for the price leader to assess the reactions of followers
- ii. Leads to malpractices, such as charging lower prices by rival organizations in the form of rebates, money back guarantees, after delivery free services, and easy installment facility.
- iii. The prices charged by rival organizations are comparatively less than the prices set by the price leader.
- iv. Leads to non-price competition by rival organizations in the form of aggressive promotion strategies.
- v. Influences new organizations to enter into the industry because of price rise. These new organizations may not follow the leader of the industry.
- vi. Poses problems if there are differences in cost of price leaders and price followers. In case, if cost of production of price leader is less, then he/she would fix lower prices. This will lead to a loss for a price follower if his/her cost of production is more than the price leader.

## NOTES

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### 10.9 DUOPOLY:

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A duopoly is a kind of oligopoly where in a market is dominated by a small number of firms. In the case of a duopoly, a particular market or industry is dominated by just two firms.

In very rare cases, this means they are the only two firms in the entire market. In practice, it usually means the two duopolistic firms have a great deal of influence, and their actions, as well as their relationship to each other, powerfully shape their industry. Duopolistic markets are imperfectly competitive, so entry barriers are typically significant for those attempting to enter the market, but there are usually still other, smaller businesses persisting alongside the two dominant firms.

Few examples of Duopoly:

- **Smart phones:** Apple and Android
- **Electronic payments:** MasterCard and Visa
- **Aircraft manufacture:** Boeing and Airbus

## NOTES

### **Advantages:**

- With so few significant competitors, firms are able to generate significantly higher profits.
- The market is simpler for consumers
- Financial resources can be put toward refining the quality and functionality of existing products and services, rather than attempting to create new ones in order to be more competitive.

### **Disadvantages:**

- It is very difficult for smaller businesses to enter the industry and gain a market share, so they often collapse before they can become competitive
- Less competition means less drive for businesses to produce new products, which may stifle innovation and the vibrancy of the market
- Limited consumer choice—if consumers are unhappy with the two big companies' products, they'll have almost no alternative options
- Prices will often be higher for consumers when competition is not driving prices down
- Price fixing and collusion become more common in situations of duopoly, forcing consumers to pay more with few alternatives.

### **Types of Duopoly:**

The two main categories of duopolies are the Cournot duopoly and Bertrand duopoly.

#### **Cournot duopoly**

The Cournot duopoly model states that the quantity of goods/services produced structures competition among the two companies in an industry. These two companies decide collaboratively to split the market between one another. It argues that the price values that companies receive are determined mainly by quantities of goods and services. If one company alters its production levels, the other company must also alter theirs to maintain the equilibrium of a 50/50 split of the market.

#### **Bertrand duopoly**

This model of duopoly critiques the Cournot model by stating that it is not the production quantity that primarily shapes competition between the two firms, but rather price. This is based on the fact that consumers selecting a good or service will consistently choose lower prices when presented with two choices of equal quality; this will drive companies to engage in price wars to be the more attractive option.

**Check your Progress III**

- Note:** a. Write your answer in the space given below
- b. Compare your answer with those given at the end of the unit

**1. Write a short note on Duopoly**

**NOTES**

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**10.10 INDUSTRY ANALYSIS:**

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Industry analysis is a market assessment tool used by businesses and analysts to understand the competitive dynamics of an industry. It helps them get a sense of what is happening in an industry, i.e., demand-supply statistics, degree of competition within the industry, state of competition of the industry with other emerging industries, future prospects of the industry taking into account technological changes, credit system within the industry, and the influence of external factors on the industry.

It is a method to understand its position relative to other participants in the industry. It helps them to identify both the opportunities and threats coming their way and gives them a strong idea of the present and future scenario of the industry.

**Types of industry analysis**

There are three commonly used and important methods of performing industry analysis. The three methods are:

- Competitive Forces Model (Porter's 5 Forces)
- Broad Factors Analysis (PEST Analysis)
- SWOT Analysis

**#1 Competitive Forces Model (Porter's 5 Forces)**

One of the most famous models ever developed for industry analysis, famously known as Porter's 5 Forces, was introduced by Michael Porter in his 1980 book "Competitive Strategy: Techniques for Analyzing Industries and Competitors."

According to Porter, analysis of the five forces gives an accurate impression of the industry and makes analysis easier.

## NOTES



### 1. Intensity of industry rivalry

The number of participants in the industry and their respective market shares are a direct representation of the competitiveness of the industry. High exit costs like high fixed assets, government restrictions, labor unions, etc. also make the competitors fight the battle a little harder.

### 2. Threat of potential entrants

This indicates the ease with which new firms can enter the market of a particular industry. If it is easy to enter an industry, companies face the constant risk of new competitors. If the entry is difficult, whichever company enjoys little competitive advantage reaps the benefits for a longer period. Also, under difficult entry circumstances, companies face a constant set of competitors.

### 3. Bargaining power of suppliers

This refers to the bargaining power of suppliers. If the industry relies on a small number of suppliers, they enjoy a considerable amount of bargaining power. This can affect small businesses because it directly influences the quality and the price of the final product.

### 4. Bargaining power of buyers

The complete opposite happens when the bargaining power lies with the customers. If consumers/buyers enjoy market power, they are in a position to negotiate lower prices, better quality or additional services and discounts. This is the case in an industry with more competitors but a single buyer constituting a large share of the industry's sales.

### 5. Threat of substitute goods/services

The industry is always competing with another industry in producing a similar substitute product. Hence, all firms in an industry have potential competitors from other industries. This takes a toll on their profitability because they are unable to charge exorbitant prices. Substitutes can take two forms – products with the same function/quality but lesser price or products of the same price but of better quality or providing more utility.



## #2 Broad Factors Analysis (PEST Analysis)

Broad Factors Analysis, also commonly called the PEST Analysis stands for Political, Economic, Social and Technological. PEST analysis is a useful framework for analyzing the external environment.

### 1. Political

Political factors that impact an industry include specific policies and regulations related to things like taxes, environmental regulation, tariffs, trade policies, labor laws, ease of doing business, and the overall political stability.

### 2. Economic

The economic forces that have an impact include inflation, exchange rates (FX), interest rates, GDP growth rates, conditions in the capital markets (ability to access capital) etc.

### 3. Social

The social impact on an industry refers to trends among people and includes things such as population growth, demographics (age, gender, etc), and trends in behavior such as health, fashion, and social movements.

### 4. Technological

The technological aspect of PEST analysis incorporates factors such as advancements and developments that change that way business operates and the ways which people live their lives (i.e. advent of the internet).

## #3 SWOT Analysis

SWOT Analysis stands for Strengths, Weaknesses, Opportunities, and Threats. It can be a great way of summarizing various industry analysis methods and determining their implications for the business in question.

### 1. Internal

Internal factors which already exist and have contributed to the current position and *may* continue to exist.

### 2. External

External factors which are contingent events assess their importance based on the likelihood of them happening and their impact on the company. Also, consider whether management has the intention and ability to take advantage of the opportunity/avoid the threat.

## NOTES

## NOTES

### Importance of Industry Analysis

Industry analysis, as a form of market assessment, is crucial because it helps a business understand market conditions. It helps them forecast demand and supply and consequently, financial returns from the business. It indicates the competitiveness of the industry and costs associated with entering and exiting the industry. It is very important when planning a small business. Analysis helps to identify which stage an industry is currently in; whether it is still growing and there is scope to reap benefits, or has it reached its saturation point.

With a very detailed study of the industry, entrepreneurs can get a stronghold on the operations of the industry and may discover untapped opportunities. It is also important to understand that industry analysis is a very subjective method and does not always guarantee success. It may happen that incorrect interpretation of data leads entrepreneurs to a wrong path or into making wrong decisions. Hence, it becomes important to understand one's motive and collect data accordingly.

#### Check your Progress IV

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What are the types of Industry Analysis?

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### 10.11 LET US SUM UP

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This unit has a follow up with the previous unit of perfect competition, studying on the imperfect competition. It also discuss on the monopoly, oligopoly and duopoly. It also discuss on the industry analysis.

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### 10.12 UNIT END EXERCISE

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1. Define imperfect competition
2. Discuss Monopoly on imperfect competition
3. What are the advantages and disadvantages of Monopoly?
4. What do you mean by Oligopoly. State out its importance
5. What do you mean by Duopoly. State out its importance
6. Elucidate Industry Analysis

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### 10.13 ANSWERS TO CHECK YOUR PROGRESS

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1. There are two forms of imperfect competition:

(a) Ordinary monopoly and

(b) Monopolistic competition.

2. In an oligopoly, the number of sellers is small as against a sole seller under monopoly and many sellers under monopolistic completion.

3. A duopoly is a kind of oligopoly where in a market is dominated by a small number of firms. In the case of a duopoly, a particular market or industry is dominated by just two firms.

4. The types of Industry analysis are:

- Competitive Forces Model (Porter's 5 Forces)
- Broad Factors Analysis (PEST Analysis)
- SWOT Analysis

## NOTES

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### 10.14 SUGGESTED READINGS

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

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## UNIT XI: MACRO ECONOMICS

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- 11.1 Introduction
- 11.2 Objectives
- 11.3 Macro Economics and some of its measures
- 11.4 Basic Concepts
- 11.5 Macroeconomic Ratios
- 11.6 Index numbers
- 11.7 National income Deflators
- 11.8 Summary
- 11.9 Unit End Exercise
- 11.10 Answers to check the progress
- 11.11 Suggested Readings

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### 11.1 INTRODUCTION

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**Macroeconomics** is the study of the market system on a large scale. Macroeconomics considers the aggregate performance of *all* markets in the market system and is concerned with the choices made by the large subsectors of the economy—the household sector, which includes all consumers; the business sector, which includes all firms; and the government sector, which includes all government agencies.

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### 11.2 OBJECTIVES

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The student will have a good understanding on the concepts of macro economics at a larger way. Besides, the student will gain some knowledge on the index numbers and the national income deflators.

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### 11.3 MACRO ECONOMICS AND SOME OF ITS MEASURES

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Traditionally, the key measures of economic performance in macroeconomics include:

1. Economic growth – real GDP growth.
2. Inflation – e.g. target CPI inflation of 2%
3. Unemployment – target of full employment

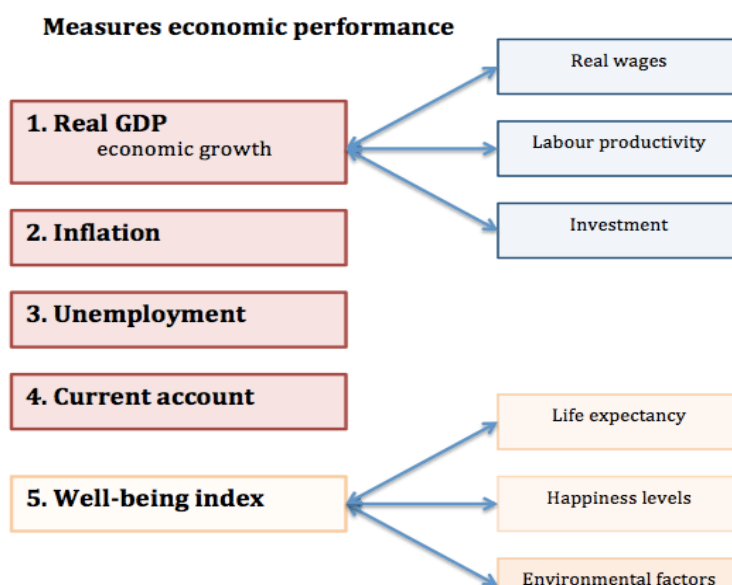
4. Current account – satisfactory current account, e.g. low deficit.

Other measures of economic performance can include:

- Government borrowing/national debt
- Real disposable incomes
- Income inequality
- Labour productivity
- Investment levels
- Exchange rate
- Measures of well-being – surveys which measure overall living standards. e.g. ONS well-being index.
- Human development index (HDI) – a measure of economic development. It is a composite index which includes real GDP per capita and also factors such as education, healthcare and environmental factors.

## NOTES

### 11.4 BASIC CONCEPTS:



#### Economic growth:

Economic growth is usually considered to be the most important economic statistic and is frequently used for international comparisons.

If there is positive economic growth, then national income is rising, and this should enable higher living standards. Economic growth usually helps other objectives, such as unemployment, government borrowing and real disposable incomes.

## NOTES

### Usefulness of GDP

- It does give a rough guide to the level of economic activity. A fall in GDP indicates recession and rising GDP indicates growth.
- For all its faults, GDP does give a useful guide to the economic cycle and is a useful indicator for monetary policy and fiscal policy.
- GDP is also measurable – it is objective. Well-being measures which involve surveys become highly subjective.

### Limitations of real GDP

- Economic growth doesn't necessarily increase living standards. Between 2010 and 2017, UK had positive economic growth but average real disposable incomes were stagnant. This was due to
  - Wages falling as a share of GDP.
  - Population growth which meant real GDP per capita grew at a slower rate.
- Difficult to measure. GDP statistics are often revised. When UK economy went into recession in 2008, GDP statistics took several months to actually indicate the economy was in recession.
- Real GDP ignores living costs. The UK has had economic growth for past couple of decades, but rising cost of living has meant many people (especially young) are finding it more difficult to live than previous generations.
- GDP is useful as long as people are aware of its limitations.

### Inflation and Deflation:

The study of inflation and deflation is another important aspect of macroeconomics. The term inflation refers to an increase in the prices of goods and services across the country. And the term deflation refers to a decrease in the prices of goods and services. Economists measure inflation and deflation by studying price indexes. A price index is the weighted average of price for a class of products and services.

Inflation occurs when an economy grows too quickly. Deflation, on the other hand, occurs when an economy declines over a period of time. By studying the inflation and deflation trends, economists can help curb inflation rates by taking appropriate measures. Too much inflation can lead to negative consequences and continuous deflation can cause low economic output.

Governments usually have an inflation target of 2%. If inflation rises significantly above 2%, this is a sign of economic problems. The inflation of 2000 and 2012 was due to cost-push factors (rising oil prices, rising import prices); this caused a fall in real wages. The inflation of the late 1980s and 90s, was a sign the economy was over-heating, and the

government needed to increase interest rates to reduce inflation – but this caused a subsequent recession.

High inflation tends to impose costs on the economy, such as increased uncertainty, less investment and it can harm long-term economic growth.

### **Limitations of inflation as measure**

- Low inflation is only one aspect of economic performance. An economy may have low inflation due to depressed demand and falling real GDP.
- Cost-push inflation (e.g. due to devaluation) tends to be a one-off effect and only temporary.

### **Unemployment**

Unemployment is a key measure of performance. Economists measure the unemployment rate in an economy by calculating the percentage of individuals without jobs. Unemployment categories include classic unemployment, frictional unemployment, and structural unemployment. A low unemployment rate is a sign the economy is doing well and creating new jobs. Full employment is a major macroeconomic objective. However, even the unemployment statistic can have limitations. For example, a fall in unemployment may hide a rise in temporary work, part-time work, under-employment and even people leaving the labour market.

Classical unemployment is when wages are too high for employers to consider hiring more workers. Frictional unemployment occurs when the time taken to search for an appropriate employee is too long. Structural unemployment occurs when there is a mismatch between a worker's skills and the actual skill required for a job. Another important category of unemployment is cyclical unemployment that occurs when an economy's growth is stagnant.

### **Well being:**

This is a measure of economic well-being and life satisfaction. It looks at health, relationships, education and skills, what we do, where we live, our finances and the environment. It includes positive data but also includes surveys and questionnaires – it also uses quite a new methodology and is experimental in terms of economic data.

### **Real Wages:**

Usually, real wages are correlated with economic growth – positive economic growth usually leads to positive real wage growth.

## **NOTES**

## NOTES

### Income and Output

One of the most important concepts of macroeconomics is income and output. The national output is the total amount of all goods and services produced in a country during a specific period. And when production units or organizations sell everything they produce, they generate an equal amount of income. Hence, you can measure output by calculating the total income from the sale of all goods and services.

In relation to macroeconomics, economists usually measure national income or output by gross domestic product or GDP. By measuring GDP, economists can understand the market swings and changes. They can identify what measures to take to improve the GDP of the country. With technological advances, capital increase, and acquisition of state-of-art equipment, production units and organizations can increase national output and income. However, income and output can be affected by the recession and other market factors.

#### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. When does the Inflation and Deflation occurs?

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### 11.5 MACROECONOMIC RATIOS:

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The debt-to-GDP ratio compares a country's sovereign debt to its total economic output for the year. Its output is measured by gross domestic product.

This ratio is a useful tool for investors, leaders, and economists. It allows them to gauge a country's ability to pay off its debt. A high ratio means a country is not producing enough to pay off its debt. A low ratio means there is plenty of economic output to make the payments.

If a country were a household, GDP is like its income. Banks will give you a bigger loan if you make more money. In the same way, investors will be happy to take on a country's debt if it produces more. Once investors begin to worry about repayment, they will demand more interest rate return for the higher risk of default. That increases the country's cost of debt. It can quickly become a debt crisis.

World Bank studies that if the debt-to-GDP ratio exceeds 77% for an extended period of time. It slows economic growth. Every percentage point of debt above this level costs the country 1.7% in economic growth.



## NOTES

It's even worse for emerging markets. There, each additional percentage point of debt above 64% will slow growth by 2% each year. The debt-to-GDP ratio allows investors in government bonds to compare debt levels between countries. For example, Germany's 2017 debt is \$2.7 trillion, dwarfing that of Greece, which is \$514 billion. But Germany's 2017 GDP is \$3.8 trillion, much more than Greece's \$281 billion. The debt-to-GDP ratio for Germany is a comfortable 72%, while that for Greece is 182%.

India recorded a government debt equivalent to 68.70 percent of the country's Gross Domestic Product in 2017. Government Debt to GDP in India averaged 73.24 percent from 1991 until 2017, reaching an all time high of 84.20 percent in 2003 and a record low of 66 percent in 1996.

Government Debt to GDP in India is expected to be 69.00 percent by the end of this quarter, according to Trading Economics global macro models and analysts expectations. In the long-term, the India Government Debt to GDP is projected to trend around 68.00 percent in 2020, according to our econometric models.

### Debt-to-GDP Ratio Formula

The formula for calculating the ratio is as follows:

$$\text{Debt-to-GDP Ratio} = \frac{\text{Debt}}{\text{Gross Domestic Product}}$$

Where:

- Debt is the cumulative amount of a country's government debt
- Gross Domestic Product is the total value of goods produced and services produced over a given year

### Example of the Debt-to-GDP Ratio

Consider four hypothetical countries with their corresponding national debt and gross domestic product for the year 2020:

In billions	Government Debt	Gross Domestic Product
Country A	\$20	\$10
Country B	\$5	\$7
Country C	\$125	\$180
Country D	\$7	\$3

The debt-to-GDP can be calculated for each country with the formula provided above. The ratio for each country is as follows:

- Country A:  $\$20 / \$10 = 200.00\%$
- Country B:  $\$5 / \$7 = 71.43\%$

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- Country C:  $\$125 / \$180 = 69.44\%$
- Country D:  $\$7 / \$3 = 233.33\%$

From calculating the debt-to-GDP ratio, we can see that Country A and Country D show the highest ratios. The higher the ratio, the less likely a country will be able to repay its debt. This, in turn, may cause the country to default and cause a financial panic in both the domestic and international markets.

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### 11.6 INDEX NUMBERS:

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Index numbers are a useful way of expressing economic data time series and comparing / contrasting information. An index number is a figure reflecting price or quantity compared with a base value. The base value always has an index number of 100. The index number is then expressed as 100 times the ratio to the base value. Index numbers have no units e.g. £, Euros or \$

#### Features of Index Numbers:

**The following are the main features of index numbers:**

- (i) Index numbers are a special type of average. The technique of index numbers is used to measure the relative changes where the measurement of absolute change is not possible and the series are expressed in different types of items.
- (ii) Index numbers are meant to study the changes in the effects of such factors which cannot be measured directly. For example, the general price level is an imaginary concept and is not capable of direct measurement. But, through the technique of index numbers, it is possible to have an idea of relative changes in the general level of prices by measuring relative changes in the price level of different commodities.
- (iii) The technique of index numbers measures changes in one variable or group of related variables. For example, one variable can be the price of wheat, and group of variables can be the price of sugar, the price of milk and the price of rice.
- (iv) The technique of index numbers is used to compare the levels of a phenomenon on a certain date with its level on some previous date (e.g., the price level in 1980 as compared to that in 1960 taken as the base year) or the levels of a phenomenon at different places on the same date (e.g., the price level in India in 1980 in comparison with that in other countries in 1980).

#### Steps or Problems in the Construction of Price Index Numbers:

The construction of the price index numbers involves the following steps or problems:

**1. Selection of Base Year:**

The base year is defined as that year with reference to which the price changes in other years are compared and expressed as percentages. The base year should be a normal year.

In other words, it should be free from abnormal conditions like wars, famines, floods, political instability, etc.

Base year can be selected in two ways-

- (a) Through fixed base method in which the base year remains fixed; and
- (b) Through chain base method in which the base year goes on changing, e.g., for 1980 the base year will be 1979, for 1979 it will be 1978, and so on.

**2. Selection of Commodities:**

Since all commodities cannot be included, only representative commodities should be selected keeping in view the purpose and type of the index number.

**In selecting items, the following points are to be kept in mind:**

- (a) The items should be representative of the tastes, habits and customs of the people.
- (b) Items should be recognizable,
- (c) Items should be stable in quality over two different periods and places.
- (d) The economic and social importance of various items should be considered
- (e) The items should be fairly large in number.
- (f) All those varieties of a commodity which are in common use and are stable in character should be included.

**3. Collection of Prices:**

After selecting the commodities, the next problem is regarding the collection of their prices:

- (a) From where the prices to be collected;
- (b) Whether to choose wholesale prices or retail prices;
- (c) Whether to include taxes in the prices or not etc.

While collecting prices, the following points are to be noted:

- (a) Prices are to be collected from those places where a particular commodity is traded in large quantities.

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- (b) Published information regarding the prices should also be utilised,
- (c) In selecting individuals and institutions who would supply price quotations, care should be taken that they are not biased.
- (d) Selection of wholesale or retail prices depends upon the type of index number to be prepared. Wholesale prices are used in the construction of general price index and retail prices are used in the construction of cost-of-living index number.
- (e) Prices collected from various places should be averaged.

### 4. Selection of Average:

Since the index numbers are, a specialised average, the fourth problem is to choose a suitable average. Theoretically, geometric mean is the best for this purpose. But, in practice, arithmetic mean is used because it is easier to follow.

### 5. Selection of Weights:

Generally, all the commodities included in the construction of index numbers are not of equal importance. Therefore, if the index numbers are to be representative, proper weights should be assigned to the commodities according to their relative importance.

For example, the prices of books will be given more weightage while preparing the cost-of-living index for teachers than while preparing the cost-of-living index for the workers. Weights should be unbiased and be rationally and not arbitrarily selected.

### 6. Purpose of Index Numbers:

The most important consideration in the construction of the index numbers is the objective of the index numbers. All other problems or steps are to be viewed in the light of the purpose for which a particular index number is to be prepared. Since, different index numbers are prepared with specific purposes and no single index number is 'all purpose' index number, it is important to be clear about the purpose of the index number before its construction.

### 7. Selection of Method:

The selection of a suitable method for the construction of index numbers is the final step.

There are two methods of computing the index numbers:

- (a) Simple index number and
- (b) Weighted index number.

Simple index number again can be constructed either by – (i) Simple aggregate method, or by (ii) simple average of price relative's

method. Similarly, weighted index number can be constructed either by (i) weighted aggregative method, or by (ii) weighted average of price relative's method. The choice of method depends upon the availability of data, degree of accuracy required and the purpose of the study.

#### 1. Simple Aggregative Method:

In this method, the index number is equal to the sum of prices for the year for which index number is to be found divided by the sum of actual prices for the base year.

The formula for finding the index number through this method is as follows:

#### 2. Simple Average of Price Relatives Method:

In this method, the index number is equal to the sum of price relatives divided by the number of items and is calculated by using the following formula:

#### 3. Weighted Aggregative Method:

In this method, different weights are assigned to the items according to their relative importance. Weights used are the quantity weights. Many formulae have been developed to estimate index numbers on the basis of quantity weights.

#### 4. Weighted Average of Relatives Method:

In this method also different weights are used for the items according to their relative importance.

#### Types of Index Numbers:

Index numbers are of different types.

Important types of index numbers are discussed below:

#### 1. Wholesale Price Index Numbers:

Wholesale price index numbers are constructed on the basis of the wholesale prices of certain important commodities. The commodities include mainly raw-materials and semi-finished goods. Only the most important and most price-sensitive and semi-finished goods which are bought and sold in the wholesale market are selected and weights are assigned in accordance with their relative importance.

The wholesale price index numbers are generally used to measure changes in the value of money. The main problem with these index numbers is that they include only the wholesale prices of raw materials and semi-finished goods and do not take into consideration the retail prices of goods and services generally consumed by the common man. Hence, the wholesale price index numbers do not reflect true and accurate changes in the value of money.

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### 2. Retail Price Index Numbers:

These index numbers are prepared to measure the changes in the value of money on the basis of the retail prices of final consumption goods. The main difficulty with this index number is that the retail price for the same goods and for continuous periods is not available. The retail prices represent larger and more frequent fluctuations as compared to the wholesale prices.

### 3. Cost-of-Living Index Numbers:

These index numbers are constructed with reference to the important goods and services which are consumed by common people. Since the number of these goods and services is very large, only representative items which form the consumption pattern of the people are included. These index numbers are used to measure changes in the cost of living of the general public.

### 4. Working Class Cost-of-Living Index Numbers:

The working class cost-of-living index numbers aim at measuring changes in the cost of living of workers. These index numbers are constructed on the basis of only those goods and services which are generally consumed by the working class. The prices of these goods and index numbers are of great importance to the workers because their wages are adjusted according to these indices.

### 5. Wage Index Numbers:

The purpose of these index numbers is to measure time to time changes in money wages. These index numbers, when compared with the working class cost-of-living index numbers, provide information regarding the changes in the real wages of the workers.

### 6. Industrial Index Numbers:

Industrial index numbers are constructed with an objective of measuring changes in the industrial production. The production data of various industries are included in preparing these index numbers.

#### Importance of Index Numbers:

Index numbers are used to measure all types of quantitative changes in different fields.

Various advantages of index numbers are given below:

#### 1. General Importance:

In general, index numbers are very useful in a number of ways:

- (a) They measure changes in one variable or in a group of variables.
- (b) They are useful in making comparisons with respect to different places or different periods of time,

- (c) They are helpful in simplifying the complex facts.
- (d) They are helpful in forecasting about the future,
- (e) They are very useful in academic as well as practical research.

## 2. Measurement of Value of Money:

Index numbers are used to measure changes in the value of money or the price level from time to time. Changes in the price level generally influence production and employment of the country as well as various sections of the society. The price index numbers also forewarn about the future inflationary tendencies and in this way, enable the government to take appropriate anti- inflationary measures.

## 3. Changes in Cost of Living:

Index numbers highlight changes in the cost of living in the country. They indicate whether the cost of living of the people is rising or falling. On the basis of this information, the wages of the workers can be adjusted accordingly to save the wage earners from the hardships of inflation.

## 4. Changes in Production:

Index numbers are also useful in providing information regarding production trends in different sectors of the economy. They help in assessing the actual condition of different industries, i.e., whether production in a particular industry is increasing or decreasing or is constant.

## 5. Importance in Trade:

Importance in trade with the help of index numbers, knowledge about the trade conditions and trade trends can be obtained. The import and export indices show whether foreign trade of the country is increasing or decreasing and whether the balance of trade is favourable or unfavourable.

## 6. Formation of Economic Policy:

Index numbers prove very useful to the government in formulating as well as evaluating economic policies. Index numbers measure changes in the economic conditions and, with this information, help the planners to formulate appropriate economic policies. Further, whether particular economic policy is good or bad is also judged by index numbers.

## 7. Useful in All Fields:

Index numbers are useful in almost all the fields. They are specially important in economic field.

Some of the specific uses of index numbers in the economic field are:

- (a) They are useful in analysing markets for specific commodities.
- (b) In the share market, the index numbers can provide data about the trends in the share prices,

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- (c) With the help of index numbers, the Railways can get information about the changes in goods traffic.
- (d) The bankers can get information about the changes in deposits by means of index numbers.

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### Limitations of Index Numbers:

Index number technique itself has certain limitations which have greatly reduced its usefulness:

- a. Because of the various practical difficulties involved in their computation, the index numbers are never cent per cent correct.
- b. There are no all-purpose index numbers. The index numbers prepared for one purpose cannot be used for another purpose. For example, the cost-of-living index numbers of factory workers cannot be used to measure changes in the value of money of the middle income group.
- c. Index numbers cannot be reliably used to make international comparisons. Different countries include different items with different qualities and use different base years in constructing index numbers.
- d. Index numbers measure only average change and indicate only broad trends. They do not provide accurate information.
- e. While preparing index numbers, quality of items is not considered. It may be possible that a general rise in the index is due to an improvement in the quality of a product and not because of a rise in its price.

### Check your Progress II

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

#### 1. What do you mean by Index numbers

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## 11.7 NATIONAL INCOME DEFLATORS:

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A general way of referring to the price index which measures the average level of the prices of all the goods and services comprising the national income or GDP(Gross Domestic Product).

The gross national product deflator is an economic metric that accounts for the effects of inflation in the current year's gross national product by converting its output to a level relative to a base period. The GNP deflator can be confused with the more commonly used gross domestic product (GDP) deflator. The GDP deflator uses the same equation as the GNP deflator, but with nominal and real GDP rather than GNP.

Understanding the Gross National Product (GNP) Deflator



**NOTES**

The gross national product deflator is simply the adjustment for inflation that is made to nominal GNP to produce real GNP. The GNP deflator provides an alternative to the Consumer Price Index (CPI) and can be used in conjunction with it to analyze some changes in trade flows and the affect on the welfare of the people within a relatively open market country. The CPI is based upon a basket of goods and services while the GNP deflator incorporates all of the final goods produced by an economy. This allows the GNP deflator to more accurately capture the effects of inflation since it's not limited to a smaller subset of goods.

**Calculating the Gross National Product (GNP) Deflator**

The GNP deflator is calculated with the following formula:

$$\text{GNP Deflator} = (\text{Nominal GNP}/\text{Real GNP}) \times 100$$

The result is expressed as a percentage, usually with three decimal places. The first step to calculating the GNP deflator is to determine the base period for analysis. In theory, you can work with GDP and foreign earnings data for the base period and current periods and extract the figures need for the deflator calculation. However, nominal GNP and real GNP figures, as well as the deflator charted over time, can usually be accessed through releases from central banks or other economic entities. In the United States, the Bureau of Economic Analysis, the St. Louis Federal Reserve Bank and others provide this data as well as other indicators that track similar economic statistics that measure essentially the same thing but through different formulations. So actually calculating the GNP deflator is usually unnecessary. The more important task is how to interpret the data that the GNP deflator is applied to.

**Interpreting GNP Figures**

The GNP deflator, as mentioned, is just the inflation adjustment. The higher the GNP deflator, the higher the rate of inflation for the period. The real GNP is simply the actual national income of the country being measured. It doesn't care where the production is located in the world as long as the earnings come back home. In terms of differences between real GNP and real GDP, real GDP is the preferred measure of U.S. economic health. Real GNP shows how the U.S. is doing in terms of its foreign investments in addition to domestic production.

**Check your Progress III**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

**1. What is the formula for calculating GNP Deflator?**

## NOTES

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### 11.8 LET US SUM UP

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This unit throws light on macro economics and its measures. It starts with the explanation of basic concepts and then continues to explain in detail about macroeconomic ratios, index numbers and national income deflators.

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### 11.9 UNIT END EXERCISE

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1. Write a short note on Macro economics
2. Why should we measure Macro economics
3. State out the basic concepts of Macro economics
4. What do you mean by macroeconomic ratios
5. Write short note on Index numbers
6. State out the importance of national income deflators

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### 11.10 ANSWERS TO CHECK YOUR PROGRESS

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1. Inflation occurs when an economy grows too quickly. Deflation, on the other hand, occurs when an economy declines over a period of time
2. An index number is a figure reflecting price or quantity compared with a base value.
3.  $\text{GNP Deflator} = (\text{Nominal GNP} / \text{Real GNP}) \times 100$

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### 11.11 SUGGESTED READINGS

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

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## **UNIT XII: CONSUMPTION, INVESTMENT FUNCTIONS**

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- 12.1 Introduction
- 12.2 Objectives
- 12.3 Consumption Function
  - 12.3.1 Investment Function
- 12.4 Marginal efficiency of Capital and Business Expectations
- 12.5 Multiplier
- 12.6 Accelerator
- 12.7 Summary
- 12.8 Unit End Exercise
- 12.9 Answers to check the progress
- 13 Suggested Readings

### **NOTES**

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### **12.1 INTRODUCTION:**

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In Economics, the consumption means the use of goods and services by households. The purchase of goods and services by the use of households is known as consumption expenditure. It differs from consumption because durable goods, such as automobiles generate expenditure mainly in the period when they are purchased, but they generate consumption services like instance an automobile provides transportation services until they are replaced or scrapped.

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### **12.2 OBJECTIVES**

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The student will be able to get an idea on the concepts of Consumption and Investment Function by thorough analysis of the marginal efficiency of capital and business expectations.

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### **12.3 CONSUMPTION FUNCTION**

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The consumption function, or Keynesian consumption function, is an economic formula. It represents the functional relationship between total consumption and gross national income. It was introduced by British economist John Maynard Keynes. He argued the function could be used to track and predict total aggregate consumption expenditures.

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The classic consumption function suggests consumer spending is wholly determined by income and the changes in income. If found true

aggregate savings should increase proportionally as gross domestic product (GDP) grows over time. The idea is to create a mathematical relationship between disposable income and consumer spending, but only on aggregate levels.

The consumption function is calculated as follows:

$$C=A+MD$$

Where: C = Consumer spending; A = Autonomous consumption; M = Marginal propensity to consume; D = Real disposable income.

The consumption function is assumed stable and static; all expenditures are passively determined by the level of national income. The consumption function and independent investment must remain constant long enough for national income to reach equilibrium. At equilibrium, business expectations and consumer expectations match up. One potential problem is the consumption function cannot handle changes in the distribution of income and wealth.

The principal determinant of the Keynesian consumption function is income.

However, there are at least three theories that modify Keynesian absolute income hypothesis. First, James S. Duesenberry says that consumption depends on relative income.

People tend to consume more to 'keep up with the Joneses'. This means that consumption spending is largely influenced by incomes earned by neighbouring households. In other words, it is the relative income that determines consumption. This is called 'emulatory consumption'.

Duesenberry's hypothesis is known as 'relative income hypothesis'. He in his demonstration says that in the long run  $MPC = APC$ , as opposed to Keynes' short run consumption function hypothesis— $MPC < APC$ .

Milton Friedman argues that consumption depends on permanent income. Unexpected, transitory incomes have no effect on permanent consumption. Permanent consumption is always associated with permanent income. Friedman's hypothesis of permanent income also suggests that in the long run, MPC tends to equal APC, i.e.,  $MPC=APC$ .

Finally, Modigliani, F.A. Ando and R.E. Brumberg in their life cycle hypothesis, argue that people formulate their expenditure plans in accordance with their expected incomes over lifetime i.e., some perception of lifetime incomes.

While making consumption decisions, individuals look at the total income to be earned over their lifetime. Modigliani, Andos' 'life cycle hypothesis' also says that in the long run  $MPC = APC$ .

All these theories hold the same conclusion: APC tends to decline as income rises.

### **Determinants of Consumption Function:**

However, besides income, Keynes attached importance to other factors under the headings "objective" and "subjective" or "psychological" factors that determine aggregate consumption.

Objective factors are also known as "economic factors" which are subject to change in the short run. Objective or economic factors are also quantifiable.

Subjective factors are psychological and, hence, are not subject to estimation. In addition, structural factors also influence aggregate consumption spending. Finally, Keynes paid attention to fiscal policy variable as another determinant of aggregate consumption.

When we show consumption-income relationship, we assume all the above- mentioned determinants of consumption spending to remain constant. As income changes, the consumption changes. This is called movement along the consumption function.

Similarly, one obtains movement along the saving function when saving changes following a change in income, holding all other determinants of saving constant. But, if one of the subjective, objective or other determinants change then consumption function and saving function would shift. Assuming a constant aggregate income, an increase in the volume of wealth would lead to an increase in consumption—thereby shifting the consumption function upwards and the saving function downwards.

### **1. Objective Factors:**

Objective or economic factors which influence consumption function are considered here:

#### **(i) The Rate of Interest:**

Classicists assumed that consumption or saving depends on the rate of interest. They believed that an increase in interest rate encourages saving and, thus, consumption is discouraged.

A rise in interest rate means a decline in the money value of bonds. This tends to discourage consumption propensities of bondholders. The money value of fixed interest bearing assets falls when its interest rate

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rises. This makes owners of these assets poorer and, will discourage consumption. Or at a high rate of interest, preference for bond tends to rise. This will induce people to consume less.

Anyway, rate of interest may not be considered as a significant factor influencing consumption decisions as empirical evidence suggests a weak link between interest rate and consumption.

### **(ii) Sales Effort:**

Advertising and various sales efforts of producers of consumer goods are considered as a means for increasing consumption demand. It is quite likely that an increase or decrease in the amount of sales effort may lead to greater or lower demand for consumer goods. However/given the total income, an increase in sales effort may not lead to an increase in the demand for consumption goods. Further, there is no independent measure of the volume of effective selling effort. Hence, increase in demand following an increase in advertising outlay is difficult to estimate.

### **(iii) The Volume of Wealth:**

The total wealth position of consumers is considered as an important determinant of consumption. Wealth like shares, bonds, house property, etc., influence consumption decisions. Owners of these assets do not have enough preference for these assets.

That is why their desire to save is less since they are already the owners of these assets. People who do not own assets intend to save more and consume less now in order to have assets in future. In other words, property-owners have the greater desire to consume while desire to save is the greatest to the people who do not own assets. Such is known as Pigou effect, after the name of the classical economist A. C. Pigou.

Pigou effect states that the more saving a man has, the less the strength of his desire to save more. If two men have identical tastes and incomes, but one has already acquired huge wealth, his incentive to increase current savings will be less than the other one who is yet to enjoy large property. According to Pigou, propensity to consume depends on the real value, and not on money value, of cash balances or liquid assets.

The nominal value of cash balances or wealth rises or falls with the fall or rise in general price level. If these real cash balances are considered as net financial assets of the economy, changes in the price level will bring about a change in net wealth position of the economy. For instance, if price level declines, the real cash balances would rise, net wealth would rise and consumption spending would rise. This is the essence of the Pigou effect or real balance effect.

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### **(iv) Terms of Consumer Credit:**

The hire- purchase system of buying durable consumer goods has become popular in these days. However, such spending greatly depends on the terms and conditions of credit. If consumer credit is available on reasonable terms, some sort of spending spree will develop. However, it is agreed that the interest rate on installment buying is of relatively less significance than the size of required down-payments, the length of the period over which the balances must be repaid.

### **(v) Deferred Payment:**

Sometimes, particularly during war time, consumer spending declines due to restraint on spending. Once such restraints are removed, backlog of pent- up consumer demand might get exposure leading to a rise in spending.

## **2. Psychological Factors:**

Psychological or subjective factors that remain constant in the short run determine the form of the consumption function.

Keynes attached importance to the psychological or subjective factors which consist of basic values, attitudes, states of mind, etc. These are not quantifiable or specific like economic factors. Motives behind consumption, according to Keynes, are enjoyment, short-sightedness, generosity, miscalculation, extravagance and ostentation. However, these elements do not change significantly in the short run. Despite this, these subjective and cultural factors are capable of changing the shape and the level of the function.

Of all these subjective factors, expectations and attitudes of consumers do play an important role. Rational behaviour suggests that a consumer who expects a rise in income or in the price level may consume more than who expects no such change in near future. Again, among similar individuals (same age) with the same level of incomes, it may be found that some individuals consume more than others because of the differences in their attitudes towards thrift.

Further, in a status-symbol society, consumption spending is greatly influenced by the consumption pattern of the society in which the individual lives. "To keep up with the Joneses", individuals imitate consumption patterns of their neighbours and workmates so that their status is not impaired.

## **3. Structural Factors:**

Structural factors like income distribution, demographic factors, etc., do have some bearing on the aggregate consumption spending in the long run.

## NOTES

The first important structural factor is the income distribution. It is said that the marginal propensity to consume (MPC) is high of low-income families and low for high-income families. Thus, if there is a redistribution of income in favour of the poor-income families, aggregate consumption would rise since the MPC of these people is high.

Secondly, demographic factors are responsible for differences in consumption spending with identical incomes. Demographic factors include size of family, stage in the family life cycle, place of residence, occupation, race, etc. It is true that large families or families with more children and aged persons consume more than small families. However, in the short run analysis, these demographic factors can be ignored.

### **Fiscal Policy:**

Tax-expenditure programmes of the government can influence consumption spending. If rich people are asked to pay more taxes and if these revenues are given as subsidies to poor people, aggregate consumption would rise. High taxes curtail consumption by reducing disposable income.

Now, if subsidies like flood relief, old-age pension, distribution of food grains at a subsidized rate, etc. are given definitely consumption spending of the recipient of these subsidies would rise. These are the people whose MPC is high. Thus, tax-expenditure programme shifts the consumption function through redistribution of income.

### **12.3.1 Investment Function:**

#### **Importance:**

The level of income, output and employment in an economy depends upon effective demand, which in turn, depends upon expenditures on consumption goods and investment goods ( $Y = C + I$ ).

In order to maintain an equilibrium level of income ( $Y = C + I$ ), consumption expenditures plus investment expenditures must equal the total income ( $Y$ ); but according to Psychological Law of Consumption given by Keynes, as income increases consumption also increases but by less than the increment in income. This means that a part of the increment in income is not spent but saved.

The savings must be invested to bridge the gap between an increase in income and consumption. If this gap is not plugged by an increase in investment expenditures, the result would be an unintended increase in the stocks of goods (inventories), which in turn, would lead to depression and mass unemployment.

It does not include the purchase of existing stocks, shares and securities, which constitute merely an exchange of money from one person to another. Such an investment is merely financial investment and does not



affect the level of employment in an economy. An investment is termed real investment only when it leads to an increase in the demand for human and physical resources, resulting in an increase in their employment. Investment is a flow variable and its counterpart is stock variable called capital.

## NOTES

### Types of Investment:

Investment may be private investment or public investment; it may be induced or autonomous. Induced investment is that investment which changes with a change in income, that is why it is called income, elastic. In a free enterprise capitalist economy, investments are induced by profit motive. Such investment is very responsive to changes in income, i.e., induced investment increases as income increases. The shape of the induced investment curve, therefore, is upward sloping, indicating a rise in investment as a result of rise in income.

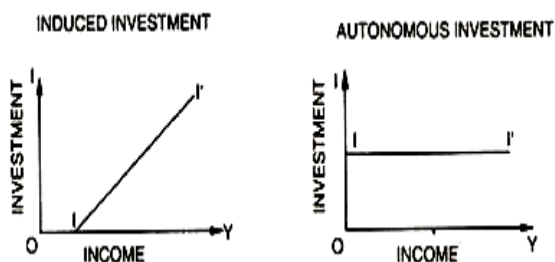
According to Hicks, investment is of two types, induced as described above and autonomous— it is independent of variations in output. Explaining autonomous investment, Hicks remarks: “Public investment, investment which occurs in direct response to inventions and much of the long range investment which is only expected to pay for itself over a long period, all of these can be regarded as autonomous investments.”

Autonomous investment is not sensitive to changes in income. In other words, it is independent of income changes and is not guided or induced by profit motive only. Autonomous investments are made primarily by the Government and are not based on considerations of profit.

Autonomous investments are a peculiar feature of a war or a planned economy, for example, expenditures on arms and equipment to strengthen the defence of India may be called autonomous investment as it is incurred irrespective of the level of income or profits.

Induced investment is undertaken specially to produce large output. The curve of autonomous investment is represented by a straight line running from left to right and parallel to the horizontal income axis.

### Gross Investment and Net Investment:



## NOTES

Investment, as we have seen which is in the nature of How of expenditures, during a given time period, on view fixed capital goods or is in the nature of an addition to the stock of raw materials and unsold consumer goods is called gross investment. However, replacement of investment denotes to the expenditures incurred to maintain the stock of capital, in an economy, intact. This type of expenditure is undertaken to offset the depreciation, wear and tear and obsolescence in the existing productive capacity. Net investment is, thus, the excess of gross investment over the replacement investment. The term net investment is, therefore, sometimes used for capital formation also.

Symbolically:

$$I_g = I_n + I_r$$

where  $I_g$  is the gross investment,  $I_n$  the net investment and  $I_r$  the replacement investment also called capital consumption. It is the variations in the  $I_n$  which causes fluctuations in  $Y$ ,  $O$  and  $E$  both in the short-run and in the long-run. If during a period  $I_g > I_r$ , it means that  $I_n$  is positive and the stock of capital is increasing equal to  $I_n$  thereby leading to an increase in the capacity to produce. If  $I_r > I_g$ , then  $I_n$  is negative and the stock of capital may decrease having unfavourable effects on the productive capacity. If, however,  $I_g = I_r$ , then  $I_n = 0$  and it means that the economy is just making good the loss in capacity to produce on account of obsolescence and depreciation.

It would be more appropriate to define net investment as the net addition to the stock of capital including the producer and durable consumer goods. Capital here means accumulation in the stock of plant and equipment held by business units. It is therefore, clear that for economic growth, that is, if the economy is to grow over time its capital stock must also grow.

### **Determinants of Investment:**

Private investment (induced investment) depends upon the marginal efficiency of capital and the rate of interest. The marginal efficiency of capital, in turn, depends upon future expectations which fluctuate violently. Hence, private investment becomes highly capricious and is very low, when in fact, it should be very high.

Prospective entrepreneurs keep on comparing the marginal efficiency of capital with the rate of interest and decide to invest only when the former is higher than the later. There will be no investment if the rate of interest is higher than the MEC. It becomes the reason why investments fall to low levels during depression period, despite the fact that all types of encouragements are given to private investors to invest more.

The significant role of public investment, also called the autonomous investment, which the Government may incur to save the

economy from falling further to lower income levels, comes to the forefront. In the nature of the case, public investment is independent of the profit motive. Since a steady investment is essential for the investment multiplier to have positive effect on income, output and employment, during depression, motives other than profit are necessary to guide more investment— a function which is fulfilled only by public investment. Further, the amount of public investment cannot only be controlled but is capable of expansion to such an extent to make the investment multiplier work with greater force than would otherwise be possible.

Moreover, the government can prevent it from leaking out of the spending stream, as well as is capable of timing it, so as to let the multiplier have its full and free play. There is no reason why public investment should not be wealth-creating as well as employment-generating and why its adverse tertiary effects (if any) cannot be offset as a result of the beneficial effects of multiplier on private consumption.

Therefore, it becomes necessary to analyze the various measures which stimulate investment.

### **Check your Progress I**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

**1. What do you mean by consumption function?**

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## **12.4 MARGINAL EFFICIENCY OF CAPITAL AND BUSINESS EXPECTATIONS:**

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The marginal efficiency of capital, at any time, depends upon the state of entrepreneurs' expectations. It is raised by invention and innovation and by the expectation of rising prices.

It is lowered by any general threat to reduce the yield of capital goods while at the same time their supply price is likely to be increased.

It is always subject to violent fluctuations, owing to fundamental uncertainty of the world, we live in. We have no ways of knowing exactly the value or yield of capital in future. So we take the present as guide to future. We accept existing opinion, the community judgment, and the behaviour of the majority as a correct indicator of prospects.

Thus, Keynes' Theory of the marginal efficiency of capital is based on the strategic role of business expectations.

Business expectations play a significant part in the theory of employment, because businessmen can never be quite sure in respect of the

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prospective yield of any capital asset or investment. Out of the two determinants (supply price and prospective yield) of the marginal efficiency of capital, it is the prospective yield which gives its most important characteristic instability.

Keynes maintained that the considerations on which expectations of prospective yield base are partly the existing events (which can be more or less ascertained) and partly future facts (which cannot be anticipated with confidence).

It is essentially due to uncertain events on which the prospective yields mainly depend that the marginal efficiency of capital is so unstable. Hence, a large part of the instability of economic behavior under capitalism is described to the unstable character of prospective yield from capital assets.

The investment decisions are governed by expectations of yield and not by actual yields. For the purchase of durable capital assets requires huge immediate expenditures before any actual returns begin to flow back to the entrepreneur. Capital assets are, thus, a link between the present and the uncertain future. It is, therefore, essential to analyze the true nature of business expectations and their influences on the MEC.

These expectations are mainly of two types:

- (i) Short-term expectations,
- (ii) Long-term expectations.

### **Short term expectations:**

Short-term expectations are based on the sales proceeds from the output of existing plant. These expectations are concerned with the existing facts. Under such circumstances the plant is presumed to be of fixed size, only the output from it is variable.

In case of short-term expectations there is a high degree of continuity as most of conditions which affect current output remain more or less the same from day to day or from week to week or from month to month.

Short-term expectations, by their very nature, can be checked in the light of realized result, and become a guide for ascertaining expectations relating to the near future. Since short-term expectations are stable, they are unable to explain fluctuations in investment.

### **Long term expectations:**

Long-term expectations are the expectations of the entrepreneur based on future events and concern the sales proceeds from the variations in the size of plant or from the installation of an entirely new plant.

In the long-term expectations, the size of the plant as well as the amount of output from it is variable. The difference between two types of expectations is that in the short-run, it is very difficult to change the size of the plant, whereas in the long-run not only the size of the plant is changed but also new machinery can be installed.

While ascertaining long-term expectations, many difficulties of a complex nature, like the probable life of the plant, maintenance and depreciation charges, future change in technology, level of effective demand, nature of new competition, possibility of war, shifts in tax burden, size of the export market, conditions of labour market, political climate of future years etc. crop up

There are, however, some factors affecting long-term expectations which do not depend upon the uncertain future, as the decisions to invest are to some extent based upon facts regarding the existing stock of capital assets. For example, a decision to build a new sugar factory depends partly upon the amount of existing sugar output, a fact which can be easily ascertained, but as we try to project in the distant future and try to form long-term expectations, all the above-mentioned factors render such a forecast difficult

### **Stock Exchanges and Prospective Yields:**

The uncertain, unstable and the precarious nature of long-term expectations, which cause fluctuations in investment, are reflected in the activities of the stock exchange market in modern capitalist economies.

When prospective yields are viewed favourably, stock prices tend to rise; and when these are viewed unfavourably, stock prices tend to fall. It may, however, be noted that the purchase or sale of securities does not represent real investment, but only a financial transaction. When one man invests (purchases) another man disinvests (sells).

Thus, the sale is equal to the purchase and the disinvestment is equal to the investment. Hence, total social investment, as well as total financial investment remains unaffected as a result of stock exchange transactions. What actually constitutes real investment is the employment of additional men and materials to build new factories and other types of capital assets.

Although the transactions on the stock exchanges are primarily financial transactions and relate to sale and purchase of old stock, yet they affect real investment by affecting the prices of new stocks, shares and securities.

Ability to float new securities at high prices tends to encourage investment in new projects on a large scale. High quotations for existing stocks imply that the MEC for this type of enterprise is high in relation to the rate of interest and, therefore, the inducement to invest is strong. It will be profitable to build new capital assets of the same type.

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On the other hand, when the prices of old stocks on the stock exchange are low, it will be more profitable to purchase claim on the existing assets than to build new ones; because in these circumstances, the MEC of capital is likely to be lower than the current rate of interest and, therefore, there may be no inducement to invest. We find the real investment is governed by quotations of prices of securities on the stock exchanges.

These stock exchange markets, thus, become links between the present and the future, because it is in these markets that the existing investments are valued and revalued daily or even hourly. The main reasons for changes in values are changes in current expectations regarding future events. Any event that is likely to happen in future is taken into account (discounted) in the present prices of securities.

### **Speculation and Enterprise:**

There is a considerable degree of speculation in the stock exchange which causes the instability of marginal efficiency of capital. Speculation consists in the attempt to anticipate the psychology of the market. Enterprise consists in an attempt to anticipate the yield of assets over their life time. In other words, a speculator has a tendency to 'get rich quick' by taking advantage of the fluctuation in prices of securities in the stock exchange market.

Therefore, he is not primarily interested in real investment but in the difference of prices as a result of speculative financial transactions to get rich overnight ; whereas an enterprise is interested in real investment in new capital assets by affording more employment to men and materials. He is, therefore, interested in forecasting the returns from the capital assets over their life time in the long-run. Keynes felt that the long-term expectations which govern the quotations of securities in the stock exchange are more the result of speculation than of enterprise.

Thus, speculation rather than the enterprise causes changes in the stock market price. The reason is that people generally have no idea of future events and no confidence in their individual judgments they tend to rely upon the judgment of others, who, they think, are better informed. This is, specially, true of amateur investors who do not possess the technical psychological, institutional and business knowledge which is used by professionals.

Their main concern is to depend upon 'conventional judgment' (i.e., acceptance of the unique correctness of the existing estimates of the future). That is why even the most skilled and experienced forecaster tries to forecast the market psychology, to rationalize the irrational activities of a large number of less skilled participants in the market. Hence, speculation tends to pre-dominate the enterprise in the stock market.

Whereas, it cannot be denied that the activities in the stock exchange act as a barometer indicating the changes in the economic weather even then, such activities fail to give correct valuation of the

existing stock, share and security. The process of evaluation is highly defective because a large number of psychological, social, political and institutional factors influence its determination. In other words, these factors get undue importance over the purely economic factors.

Keynes criticized the professional dealer, who is more concerned with earning quick profits rather than genuine enterprise. He felt that, if the activities in the stock exchange were more genuine (than of speculative nature), correct values of securities would be reflected and they could serve as a good guide to intending investors. But in actual practice, stock exchange quotations suffer from many handicaps and fail to further a cause of private investment.

Keynes remarked:

“Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation.”

### **Check your Progress II**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

**1. Write a short note on short term expectations?**

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## **12.5 MULTIPLIER**

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The Multiplier Effect is defined as the change in income to the permanent change in the flow of expenditure that caused it. In other words, the multiplier effect refers to the increase in final income arising from any new injections.

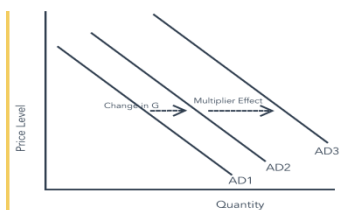
Injections are additions to the economy through government spending, money from exports, and investments made by firms. Injections increase the flow of income. Here are some examples of injections:

- Investment (I). Money invested by firms in purchasing capital stock.
- Exports (X). Money coming from abroad to buy domestically produced goods.
- Government spending (G). Government welfare benefits, spending on infrastructure.

An injection of extra income leads to more spending, which creates more income, and so on. It emphasizes the effect of an expansionary fiscal policy. The Multiplier Effect continues until savings = amount injected.

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“Many researchers and policymakers alike have argued that multipliers could be higher during times when unemployment rates are high or when interest rates are at the zero lower bound. Indeed, recent theoretical research has suggested that government spending multipliers can be much larger when the interest rates are at the zero lower bound.”



From the diagram, we can see, that an increase in government spending would shift the Aggregate Demand (AD) curve from AD1 to AD2. However, the multiplier effect shifts the AD curve to AD3 instead of AD2.

The reason for this is because one person's spending is another's income, so there's this constant exchange of money that gets spent.

Multiplier (K) = Change in real GDP (Y) / Change in injections

Important terms to familiarise

1. MRL – Marginal Rate of Leakages
2. MPS – Marginal Propensity to Save
3. MRT – Marginal Rate of Taxation
4. MPM – Marginal Propensity to Import
5. MPC – Marginal Propensity to Consume – The marginal propensity to consume (MPC) is the increase in consumer spending due to an increase in income. This can be expressed as  $\Delta C/\Delta Y$ , which is a change in consumption over the change in income.

Calculating the Multiplier Effect for a simple economy

$$k = 1/\text{MPS} \\ = 1/(1-\text{MPC})$$

Calculating the Multiplier Effect for a complex economy

$$k = 1/\text{MRL} \\ = 1/(\text{MPS} + \text{MRT} + \text{MPM}) \\ = 1/(1-\text{MPC})$$

For example:

If the government increases expenditure by \$100,000, then the national income or real GDP increases by \$100,000. We assume that this money is going towards constructing a new freeway.

However, the \$100,000 is only the income for the people who the government pays. In our example, we assume the government hires a firm



to construct the road. The company, in turn, pays workers wages. These workers then spend the money.

If the Marginal Propensity to Consume (MPC) is 0.8, which means that the consumer spends 80% of the income. Therefore 0.2 (20%) is saved Marginal Propensity to Save (MPS), it follows that the Multiplier ( $k$ ) = 5 (since  $k = 1/(1-0.8)$ )

Therefore, the cumulative effect of the \$100,000 added to the economy is \$500,000.

Similarly, for a sophisticated economy, we can plug in values for Marginal Rate of Taxation (MRT), Marginal Propensity to Import (MPM) and Marginal Propensity to Save (MPS) to calculate “k.”

**Check your Progress III**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

**1. What do you mean by Multiplier Effect?**

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**12.6 ACCELERATOR:**

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The multiplier and the accelerator are not rivals: they are parallel concepts. While multiplier shows the effect of changes in investment on changes in income (and employment), the accelerator shows the effect of a change in consumption on private investment.

The Principle of Acceleration states that if the demand for consumption goods rises, there will be an increase in the demand for the equipment, say machines, which produce these goods. But the demand for the machines will increase at a faster rate than the increase in demand for the product.

The accelerator, therefore, makes the level of investment a function of the rate of change in consumption and not of the level of consumption. In other words, the accelerator measures the changes in investment goods industries as a result of long-term changes in demand in consumption goods industries.

The idea underlying the accelerator is of a functional relationship between the demand for consumption goods and the demand for machines which make them. The acceleration coefficient is the ratio between induced investments to a given net change in consumption expenditures.

$$v = \Delta I / \Delta C$$

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Symbolically where  $v$  stands for acceleration coefficient;  $\Delta I$  denotes the net changes in investment outlays; and  $\Delta C$  denotes the net change in consumption outlays. Suppose an additional expenditure of Rs. 10 crores on consumption goods leads to an added investment of Rs. 20 crores in investment goods industries, then the accelerator is 2. The actual value of the accelerator can be one or even less than that.

In actual world, however, increased expenditures on consumption goods always lead to increased expenditures on capital goods. Hence acceleration coefficient is usually greater than zero. Where a good deal of capital equipment is needed per unit of output, the acceleration coefficient is very much more than unity.

In exceptional cases, the accelerator can be zero also. Sometimes it so happen that production of increased consumer goods (as a result of a rise in their demand) does not lead to an increase in the demand for capital equipment producing these goods.

Additional investment funds were not available. In the absence of induced investment and acceleration effects, the increased demand for consumption leveled off and the accelerator, which measures the effects of induced investment (in investment goods industries) as a result of changes in consumption did not seem to work during all-these years.

The factual basis of the acceleration principle is the knowledge that fluctuations in output and employment in investment goods industries are greater than those in consumption goods industries. Accelerator has greater applicability to the industrial sector of the economy; and as such it seeks to analyse the problem as to why fluctuations in employment in the capital goods industries are more pronounced than those in the consumption goods industries.

There would be no acceleration effects in an economy which used no capital goods. But that situation is very rare. The more capitalized the methods of production are, the greater must be the value of accelerator.

The principle of acceleration is basically a concept related to net investment. Therefore, we must derive an expression linking the accelerator with net investment. We know that gross investment has two components: net investment plus replacement of capital wearing out due to depreciation. We can write

$$\text{Gross Investment} = I_{gt} = V(Y_t - Y_{t-1}) + R$$

which means that the quantum of gross investment in period  $t$  depends upon the value of acceleration effects of the change in income in the previous period and the need for replacement of capital.

$$I_{net} = V(Y_t - Y_{t-1})$$

Thus, net investment in period  $t$  is which means that net investment depends only on the rate of change of income and the accelerator ( $V$ ).

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### **Multiplier and Accelerator Distinguished:**

For a clear grasp of the concept of accelerator, it is useful to distinguish between multiplier and accelerator. Multiplier shows the effect of a change in investment on income and employment whereas accelerator shows the effects of a change in consumption on investment. In other words, in the case of multiplier, consumption is dependent upon investment, whereas in the case of accelerator investment is dependent upon consumption.

Further, multiplier depends upon the propensity to consume and accelerator depends upon durability of the machines. In other words, the former is dependent upon psychological factors, while the latter is dependent upon technological factors. However, even accelerator is psychological in its origin because it is linked to induced investment but it becomes highly technical on the operational plane. The accelerator shows the reaction (effect) of changes in consumption on investment and the multiplier shows the reaction of consumption to increased investment.

Further, another very important point of difference between the multiplier and accelerator is in their working backwards. Multiplier works as rigorously in the reduction of income as it does in its increase. But the working of the accelerator is restricted in the downward direction to the rate of replacement of capital because businessmen can at the most disinvest to the extent of not replacing the wearing-out capital.

### **Working of the Accelerator:**

It is interesting to analyse the working of the Principle of Acceleration.

Accelerator depends primarily upon two factors:

- (i) The capital-output ratio, and
- (ii) The durability of the capital equipment.

Now suppose there are 10% rise in the demand for consumer goods in period I; the change in consumption will be of 100 such goods and we will need 110 machines to produce these goods (at the constant capital-output ratio of 1: 10). Thus, we need 20 machines in all, 10 machines being the addition to the stock of capital and 10 machines for replacement.

Thus, a 10% rise in the demand for consumer goods leads to a 100% rise in the demand for investment goods (machines). This is what the principle of acceleration is intended to show. Accelerator shows that a small increase in consumption is likely to result in manifold increase in investment (called induced investment).

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Case I. Life of the Machine 10 years							
	Period	Change in consumption	Capital Equipment needed	Additions	Gross Investment Replacement	Total	Percentage change in Gross Investment
10% rise in demand	0	1000	100	Nil	10	10	—
	1	1100	110	10	10	20	100% increase
Case II. Life of the Machine 20 years							
10% Rise in demand	0	1000	100	Nil	5	5	—
	1	1100	110	10	5	15	200% increase
Case III. Life of the Machine 5 years							
10% Rise in demand	0	1000	100	Nil	20	20	—
	1	1100	110	10	20	30	50% increase
Case IV. Life of Machine 10 years							
10% Rise in demand	0	1000	100	Nil	10	10	—
	1	1100	110	10	10	20	100% increase
Demand in period 2 remains constant	2	1100	110	Nil	10	10	50% fall
Case V. Life of the Machine 10 years							
10% fall in demand	0	1000	100	Nil	10	10	—
	1	900	90	Nil	10-10	0	100% decrease

**We can state this proposition as follows:**

A decline in investment resulting from a decline in the demand for consumption goods cannot exceed the rate of depreciation. A decline in consumption which induces a decline in investment in excess of the depreciation figure simply gives rise to excess idle capacity.

Thus, the so-called ‘accelerator’ is a more complicated tool than the multiplier, for it depends upon the change in the rate of consumption, which, in turn, depends upon highly capricious investment in the short period at any rate. Therefore, as long as the basic conditions (technological and structural) favouring investment prevail, the acceleration principle serves as an indicator of the consumption-based inducement to invest.

**Importance and Limitations of the Accelerator:**

The introduction of the Principle of Acceleration enables us to understand the process of income generation more clearly. No doubt, a certain level of income (or employment) could be attained by multiplier action alone. But along with accelerator the process of income propagation is speeded up. When accelerator and multiplier join hands, more violent fluctuations in income occur in upward and downward directions.

Firstly, this multiplier-accelerator interaction enables us to throw light on one of the most important features of business cycle. This feature is that the investment goods industries fluctuate more violently than the consumption-goods industries. It has helped us to show that small demand

changes in consumption-goods industries lead to considerably enlarged changes in investment-goods industries.

Secondly, the multiplier-accelerator interaction has profoundly increased our understanding of business cycles. Prof. Hicks' theory of the business cycle is based primarily on the principle of acceleration.

Further, Prof. R.F. Harrod has based his theory of Steady Growth on the acceleration principle. Harrod's analysis of economic growth grew out of his analysis of business cycle as a dynamic economic phenomenon.

Despite its great theoretical importance, its qualifications indicate that attempts to apply very simplified models using the acceleration principle are likely to give misleading results. The presumptions of a fixed ratio of consumer to capital goods, of constant replacement demand, of no excess capacity, of permanent demand are lacking in realism. In other words, acceleration theory is valid only so long as all machines are in use (no excess capacity), overtime is excluded, the relation between production factors is not altered (unchanged technology), sufficient raw materials and labour are present and the entrepreneurs command the necessary financial means.

Since this is not the case generally, the simple concept of accelerator as we have studied it is of little significance. Many attempts to measure the accelerator have yielded little result. Entrepreneurs' behaviour is to be explained through numerous other factors, especially future expectations play a particularly important part. More realistic assumptions would virtually lead to results significantly different from those obtained under simplifying assumptions.

### **Conclusion:**

The theory of accelerator is based upon the idea that income and the stock of capital goods increase in flexible proportion. This is not the case where fundamental changes in technology are changing both the capital-output ratio and durability of the machines. Economic growth, furthermore, is not only dependent on capital. The accelerator is not adequate to explain changes in aggregate investment.

Only under special circumstances and in the short run there is a proportional relationship between output and the stock of capital goods. The acceleration principle is less general in application than the multiplier; whereas the latter operates in both the forward and backward directions, the accelerator is effective only in the upward direction (in the downward direction it works only to the extent that replacement investment is not provided for).

**Thus, it is clear that at least three basic conditions must operate for a 'pure' accelerator model:**

(i) Existing capacity is fully utilised,

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(ii) Finances are adequate to permit satisfaction of accelerator-generated demand,

(iii) The change in output is thought to be non-temporary.

Such requirements obviously limit the generality of the principle.

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### Check your Progress IV

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. **What does the principle of acceleration states?**

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### 12.7 LET US SUM UP:

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This unit zooms in the facts on consumption and investment function. The marginal efficiency of capital and business expectation along with multiplier and accelerator are explained with suitable examples.

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### 12.8 UNIT END EXERCISES

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1. What do you mean by Consumption function?
2. What do you mean by Investment Function?
3. State Multiplier effect
4. State Accelerator effect
5. Marginal efficiency of Capital and Business Expectations – Elucidate.

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### 12.9 ANSWERS TO CHECK YOUR PROGRESS

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1. It represents the functional relationship between total consumption and gross national income.
2. Short-term expectations are based on the sales proceeds from the output of existing plant. These expectations are concerned with the existing facts. Under such circumstances the plant is presumed to be of fixed size, only the output from it is variable.
3. The Multiplier Effect is defined as the change in income to the permanent change in the flow of expenditure that caused it. In other words, the multiplier effect refers to the increase in final income arising from any new injections

4. The Principle of Acceleration states that if the demand for consumption goods rises, there will be an increase in the demand for the equipment

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### **12.10 SUGGESTED READINGS**

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

### **NOTES**

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## UNIT XIII: STABILIZATION POLICIES

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### NOTES

- 13.1 Introduction
- 13.2 Objectives
- 13.3 Stabilization Policies
- 13.4 Economic Stability
- 13.5 Instruments of economic stability
- 13.6 Monetary Policy
- 13.7 Fiscal Policy
- 13.8 Physical Policy or Direct Controls
- 13.9 Summary
- 13.10 Unit End Exercise
- 13.11 Answers to check the progress
- 13.12 Suggested Readings

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### **13.1 INTRODUCTION:**

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Economic stabilization is one of the main remedies to effectively control or eliminate the periodic trade cycles which plague capitalist economy. It is not merely confined to a single individual sector of an economy but embraces all its facts. In order to ensure economic stability, a number of economic measures have to be devised and implemented.

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### **13.2 OBJECTIVES:**

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Presently, a programme of economic stabilisation is usually directed towards the attainment of three objectives:

- (i) controlling or moderating cyclical fluctuations;
- (ii) Encouraging and sustaining economic growth at full employment level; and
- (iii) Maintaining the value of money through price stabilization.

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### **13.3 STABILIZATION POLICIES:**

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The goal of economic stability can be easily resolved into the twin objectives of sustained full employment and the achievement of a degree of price stability.



The following instruments are used to attain the objectives of economic stabilisation, particularly control of trade cycles, relative price stability and attainment of economic growth:

- (1) Monetary policy
- (2) Fiscal policy; and
- (3) Direct controls.

### 1. Monetary Policy:

The most commonly advocated policy of solving the problem of fluctuations is monetary policy. Monetary policy pertains to banking and credit, availability of loans to firms and households, interest rates, public debt and its management, and monetary management.

However, the fundamental problem of monetary policy in relation to trade cycles is to control and regulate the volume of credit in such a way as to attain economic stability. During a depression, credit must be expanded and during an inflationary boom, its flow must be checked.

Monetary management is the function of the commercial banking system, and through it, its effects are primarily exerted the economy as a whole. Monetary management directly affects the volume of cash reserves of banks, regulates the supply of money and credit in the economy, thereby influencing the structure of interest rates and availability of credit.

Both these factors affect the components of aggregate demand (consumption plus investment) and the flow of expenditures in the economy. It is obvious that an expansion in bank credit causes an increasing flow of expenditure (in terms of money) and contraction in bank credit reduces it.

We shall now briefly discuss the implications of these weapons.

### Bank Rate Policy:

Due to various reasons, the bank rate policy is relatively an ineffective weapon of credit control. However, from the viewpoint of contracyclical monetary policy, bank rate policy is usually interpreted as an evidence of monetary authority's judgement regarding the contribution of the current flow of money and bank credit to general economic stability.

That is to say, a rise in the bank rate indicates that the central bank considers that liquidity in the banking system possesses an inflationary potential. It implies that the flow of money and credit is very much in excess of the actual productive capacity of the economy and therefore, a restraint on the expansion of money supply through dear money policy is desirable.

On the other hand, a reduction in the bank rate is generally interpreted as an evidence of a shift in the direction of monetary policy

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towards a cheap and expansive money policy. A reduction in bank rate then is more significant as a symbol of an easy money policy than anything else. However, the bank rate is most effective as an instrument of restraint.

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### **Effectiveness of Bank Rate Policy in Expansion:**

According to Estey, the following difficulties usually arise in the way of an effective discount policy in expansion:

1. During high prosperity, the demand for credit by businessmen may be interest-inelastic.
2. The rising of bank rate and a consequent rise in the market rates of interest may attract loan able funds from the financial intermediaries in the money market and assist in counteracting undesired effects.
3. Though the quantity of money may be controlled by the banking system, the velocity of its circulation is not directly under the influence of banks. Banking policy may determine how much credit there should be but it is the trade which decides how much and how fast it will be used. Thus, if the velocity of the movement is contrary to the volume of credit, banking policy will be rendered ineffective.
4. There is also the difficulty of proper timing in the application of banking policy. Brakes must be applied at the right time and in the right quarter. If they are applied too soon, they must bring expansion to an end with factors of production not fully employed. And when applied too late, there might be a runaway monetary expansion and inflation, completely out of control.

### **Open Market Operations:**

The technique of open market operations refers to the purchase and sale of securities by the central bank. A selling operation reduces commercial banks' reserves and their lending power.

However, because of the need to maintain the government securities market, the central bank is completely free to sell government securities when and in what amounts it wishes in order to influence commercial banks' reserve position. Thus, when a large public debt is outstanding, by expanding the securities market, monetary policy and management of the public debt become inseparably intertwined.

### **Reserve Ratios:**

The monetary authorities have at their disposal another most effective way of influencing reserves and activities of commercial banks and that weapon is a change in cash reserve ratios. Changes in the reserve ratios become effective at a pre-announced date.

Their immediate effect is to alter the liquidity position in the banking system. When the cash reserve ratio is raised commercial banks find their existing level of cash reserves inadequate to cover deposits and have to raise funds by disposing liquid assets in the monetary market. The

reverse will be the case when the reserve ratio is lowered. Thus, changes in the reserve ratios can influence directly the cash volume and the lending capacity of the banks.

It appears that the bank rate policy, open market operations and changes in reserve ratios exert their influence on the cost, volume and availability of bank reserves through reserves, on the money supply.

### **Selective Controls:**

Selective controls or qualitative credit control is used to divert the flow of credit into and out of particular segments of the credit market. Selective controls aim at influencing the purpose of borrowing. They regulate the extension of credit for particular purposes. The rationale for the use of selective controls is that credit may be deemed excessive in some sectors at a time when a general credit control would be contrary to the maintenance of economic stability.

It goes without saying that these various means of credit controls are to be co-ordinated to achieve the goal of economic stability.

### **Effectiveness of Monetary Control:**

Monetary policy is much more effective in curbing a boom than in helping to bring the economy out of a depressionary state. It has long been recognised that monetary management can always contract the money supply sufficiently to end any boom, but it has little capacity to end a contraction.

This is because the actions of monetary management do not directly enter the income-expenditure stream as the most effective contra-cyclical weapon, for their first impact is on the asset structure of financial institutions, and in this process of altering the assets structure, rate of interest, volume of credit and the income-expenditure flow may be altered.

All these operate more significantly in restraining the income stream during expansion than in inducing an increase during contraction. However, the greatest advantage of monetary policy is its flexibility. Monetary management makes decisions about the rate of change in the money supplies that are consistent with economic stability and growth on a judgement of given quantitative and qualitative evidences.

But, whether this point of monetary policy will prove its effectiveness or not depends on its exact timing. Manipulation of bank rate and open market dealings by the central bank should be reasonably effective if applied quickly and continuously in preventing booms from developing and consequently, into a depression.

To sum up, monetary policy is a necessary part of the stabilisation programme but it alone is not sufficient to achieve the desired goal. Monetary policy, if used as a tool of economic stabilisation, in many ways, serves as a complement of fiscal policy.

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It is strong, whereas fiscal policy is weak. It is flexible and capable of quick alternations to suit the measure of pressures of the time and needs. However, it is to be co-ordinated with fiscal policy. A wrong monetary policy may seriously endanger and even destroy the effectiveness of fiscal policy. Thus, monetary policy and fiscal policy, each reinforcing and supplementing the other, are the essential elements in devising an economic stabilisation programme.

### 2. Fiscal Policy:

Today, foremost among the techniques of stabilisation is fiscal policy. Fiscal policy as a tool of economic stability, however, has received its due importance under the influence of Keynesian economies only since the depression years of the 1930s.

The term “fiscal policy” embraces the tax and expenditure policies of the government. Thus, fiscal policy operates through the control of government expenditures and tax receipts. It encompasses two separate but related decisions: public expenditures and level and structure of taxes. The amount of public outlay, the inducement and effects of taxation and the relation between expenditure and revenue exert a significant impact upon the free enterprise economy.

Broadly speaking, the taxation policy of the government relates to the programme of curbing private spending. The expenditure policy, on the other hand, deals with the channels by which government spending on new goods and services directly add to aggregate demand and indirectly income through the secondary spending which takes place on account of the multiplier effect.

Taxation, on the other hand, operates to reduce the level of private spending (on both consumption and investment) by reducing the disposable income and the resulting savings in the community. Hence, under the budgetary phenomenon, public expenditure and revenue can be combined in various ways to achieve the desired stimulating or deflationary effect on aggregate demand.

Thus, fiscal policy has quantitative as well as qualitative aspect changes in tax rates, the structure of taxation and its incidence influence the volume and direction of private spending in economy. Similarly, changes in government’s expenditures and its structure of allocations will also have quantitative and redistributive effects on income, consumption and aggregate demand of the community.

As a matter of fact, all government spending is an inducement to increase the aggregate demand (both volume and components) and has an inflationary bias in the sense that it releases funds for the private economy which are then available for use in trade and business.

Similarly, a reduction in government spending has a deflationary bias and it reduces the aggregate demand (its volume and relative components in which the expenditure is curtailed). Thus, the composition

of public expenditures and public revenue not only help to mould the economic structure of the country but also exert certain effects on the economy.

For maximum effectiveness, fiscal policy should be planned on both long-run and short-run basis. Long-run fiscal policy obviously is concerned with the long-run trends in government income and spendings. Within the framework of such a long-range plan of fiscal operations, the budget can be made to vary cyclically in order to moderate the short-run economic fluctuations.

Basically two sets of techniques can be employed for planning the desired flexibility in the relation between tax revenue and expenditure: (1) built-in flexibility or automatic stabilisers, and (2) discretionary action.

### **Built -in Flexibility:**

The operation of a fiscal policy is always confronted with the problem of timing and forecast. A fiscal policy administrator has always to face the question: When to do what? But it is a very difficult and complex question to answer. Thus, in order to minimise the difficulties that arise from uncertainties of forecasting and timing of fiscal operations, an automatic stabiliser programme is often advocated.

Automatic stabiliser programme implies that in a given framework of expenditure and revenue relation in a budgetary policy, there exist factors which provide automatically corrective influences on movements in national income, employment, etc. This is what is called built-in flexibility. It refers to a passive budgetary policy.

The essence of built-in flexibility is that (i) with a given set of tax rates tax yields will vary directly with national income, and (ii) there are certain lines of government expenditures which tend to vary inversely with movements in national income.

Thus, when the national income rises, the existing structure of taxes and expenditures tend to automatically increase public revenue relative to expenditure, and to increase expenditures relative to revenue when the national income falls. These changes tend to mitigate or offset inflation or depression at least partially. Thus, a progressive tax structure seems to be the best automatic stabiliser.

Likewise, certain kinds of government expenditure schemes like unemployment compensation programmes, government subsidies or price-support programmes also offset changes in income by varying inversely with movements in national income.

However, automatic stabilisers are not a panacea for economic fluctuations, since they operate only as a partial offset to changes in national income, but provide a force to reverse the direction of the change in the income.

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They slow down the rate of decline in aggregate income but contain no provision for restoring income to its former level. Thus, they should be recognised as a very useful device of fiscal operations but not the only device. Simultaneously, there should be scope for discretionary policies as the circumstances will call for.

### **Discretionary Action:**

Quite often, it becomes absolutely necessary to have fiscal operations with a tool kit of discretionary policies consisting of measures for putting into effect with a minimum delay, the changes in government expenditures. This calls for a skeleton of public works projects providing for administrative discretion to employ them and the funds to put them into effect.

It calls for a budgetary manipulation an active budget policy constituting flexible tax rates and expenditures. There can be three ways of discretionary changes in tax rates and expenditures: changing expenditure with constant tax rates; changing tax rates and constant expenditure; and a combination of changing tax rates and changing expenditures.

In general, the first method is probably superior to the second during a depression. That is to say, to increase expenditures with the level of taxes remaining unchanged is useful in pushing up the aggregate spending and effective demand in the economy. However, the second method will prove to be superior to the first during inflation.

That is to say, inflation could be checked effectively by increasing the tax rates with a given expenditure programme. But it is easy to see that the third method is much more effective during inflation as well as deflation than the other two.

Inflation would, of course, be more effectively curbed when taxes are enhanced and public expenditure is also simultaneously reduced. Similarly, during a depression, the spending rate of private economy will be quickly lifted up if taxes are reduced simultaneously with the increasing public expenditure.

However, the main difficulty with most discretionary policies is their proper timing. Delay in discretion and implementation will aggravate the problem and the programme may not prove to be effective in solving the problems.

Thus, many economists fear that discretionary government actions are likely to do more harm than good, owing to the uncertainty of government actions and the political pressures to favour vested interests. That is why reliance on built-in stabilisers, as far as possible, has been advocated.

### **3. Direct Controls:**

Broadly speaking, direct controls are imposed by government which expressly forbid or restricts certain kinds of investment or economic

activity. Sometimes, direct government controls over prices and wages as a measure against inflation have been advocated and implemented.

During World War II, price-wage controls were employed in conjunction with consumer rationing and materials allocation to curb generalised total excess demand and to direct productive resources into channels desired by the government. Monetary-fiscal controls may be used to curb excess demand in general but direct controls can be more useful when they are applied to specific scarcity areas.

Direct controls have the following advantages:

1. They can be introduced or changed quickly and easily: hence the effects of these can be rapid.
2. Direct controls can be more discriminatory than monetary and fiscal controls.
3. There can be variation in the intensity of the operations of controls from time to time in different sectors.

In a peace-time economy, however, there are serious philosophical and political objections to direct economic controls as a stabilisation device. Objections have been raised to such controls on the following counts:

1. Direct controls suppress individual initiative and enterprise.
2. They tend to inhibit innovations, such as new techniques of production, new products etc.
3. Direct controls may breed or induce speculation which may have destabilising effects. For instance, if it is expected that a commodity X, say steel, is to be rationed because of scarcity, people may try to hoard large stocks of it, which aggravates its shortage. It, thus, encourages the creation of artificial scarcity through large-scale hoarding;.
4. Direct controls need a cumbersome, honest and efficient administrative organization if they are to work effectively.
5. Gross disturbances reappear as soon as controls are removed.

In short, direct controls are to be used only in extraordinary circumstances like emergencies, but not in a peace-time economy.

### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What are the instruments used to attain the objectives of

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### 3.4 ECONOMIC STABILITY:

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Economic stability means the economy of a region or country shows no wide fluctuations in key measures of economic performance, such as gross domestic product, unemployment or inflation. Rather, stable economies demonstrate modest growth in GDP and jobs while holding inflation to a minimum. Government economic policies strive for stable economic growth and prices, while economists rely on multiple measures for gauging the amount of stability.

#### Features of a Stable Economy

A stable economy demonstrates steady, manageable growth in GDP and employment. Manageable growth means the economy grows at a sustained rate that does not spark inflationary pressures, result in higher prices and negatively affect corporate profits.

An economy that shows steady growth for one quarter of the year, followed by a sharp decline in GDP or a rise in unemployment in the next quarter, indicates economic instability. Economic crises cause worldwide economic instability, lowering production, employment and other measures of economic health.

#### Check your Progress II

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by Economic Stability?

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### 13.5 INSTRUMENTS OF ECONOMIC STABILITY

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A modern, national economy is too complex to summarize in a single measure, but many economists rely on GDP as a summary of economic activity. Changes in the GDP over time provide a measure of stability. The GDP measures the total output of a nation's economy in inflation-adjusted monetary terms.

Other measures of economic stability include consumer prices and the national unemployment rate. Government agencies collect monthly and quarterly data on economic activity, enabling policy makers and economists to monitor economic conditions and respond in unstable times.

#### Other Economic Measures

Currency exchange rates and world stock prices also provide helpful measures of economic stability, according to a fact sheet by the International Monetary Fund. Volatile swings in exchange rates and financial markets result in nervous investors, leading to less economic growth and lower standards of living.



The IMF concedes that some instability is inevitable in a dynamic economy, but reports that the challenge facing governments around the world is to minimize instability without impeding the economy's ability to improve living standards through higher productivity and job growth.

### **Government Economic Policy**

Governments often respond with fiscal and monetary policy measures, when sharp swings in GDP, unemployment, inflation and other measures point to unstable conditions. Economists such as Harvard's Gregory Mankiw refer to these actions as stabilization policy.

When GDP declines, for example, governments may increase their spending on goods and services to stimulate the economy while central banks may lower interest rates to ease access to credit for businesses and individuals. If the economy shows instability in the other direction, expanding at a pace likely to spark inflation, central banks may increase interest rates to reduce the nation's money supply and bring inflationary pressures under control.

### **Instruments of Stabilization Policy:**

Instruments of stabilization policy are broadly divided into two:

- (1) Monetary measures.
- (2) Fiscal measures.

The interaction between fiscal and monetary measures determines the efficiency of the stabilization branch:

#### **1. Monetary Measures:**

Economists often argue that market mechanism cannot regulate the money supply of an economy, even though it can allocate resources. Therefore the monetary and debt policies offer the major alternative to stabilization by budget policy, if the banking system is left uncontrolled; it is incapable of generating the money supply which is compatible with economic stability.

Expansions and contraction in money supply resulting from unregulated credit system is a major cause of instability in modern economies.

Therefore money supply must be controlled by the central banking system and fine-tuned to the needs of the economy in terms of growth and stability.

The major instrument of monetary policy which includes the devices like cash reserve requirements, open market operation, bank rate, is an indispensable component of stabilization policy. Expansion and contraction of money as required, depending on the prevailing situation can be effected through a well-structured money and credit policy.

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### 2. Fiscal Instruments:

Fiscal policy exerts a direct influence on the level and structure of demand. Changes in budget policy may be used as positive means of obtaining or offsetting changes in demand.

The fiscal tools of expenditure and taxation can be adjusted in the required direction to bring stability in the economy. The principle of compensatory finance is usually adopted to do away with the evils of inflation and deflation.

When the economy suffers from involuntary unemployment, the level of demand has to be increased through an expansionary expenditure policy. When the economy suffers from inflation, level of demand has to be reduced, and this is achieved through contraction of public expenditure.

Likewise tax policy will be designed to achieve the required results in the economy. The fiscal tool of deficit financing and pump priming is also used to fight instability caused by depression.

Although monetary and fiscal measures supplement each other, they differ in their impact by using them in proper combination.

Therefore monetary and fiscal policies are linked by the need for obtaining a policy which will permit the pursuit of multiple policy objectives.

### **Economic stabilization : Monetary Policy, Fiscal Policy and Direct Controls**

Economic stabilization is one of the main remedies to effectively control or eliminate the periodic trade cycles which plague capitalist economy. Economic stabilization is not merely confined to a single individual sector of an economy but embraces all its facts. In order to ensure economic stability, a number of economic measures have to be devised and implemented.

Presently, Economic stabilization is usually directed towards the attainment of three objectives:

- i. controlling or moderating cyclical fluctuations;
- ii. encouraging and sustaining economic growth at full employment level; and
- iii. Maintaining the value of money through price stabilization.

Thus, the goal of economic stability can be easily resolved into the twin objectives of sustained full employment and the achievement of a degree of price stability.

The following instruments are used to attain the objectives of economic stabilization, particularly control of trade cycles, relative price stability and attainment of economic growth:

- (1) Monetary policy
- (2) Fiscal policy; and
- (3) Direct controls.

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## 13.6 MONETARY POLICY:

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### 1. Monetary Policy:

The most commonly advocated policy of solving the problem of fluctuations is monetary policy. Monetary policy pertains to banking and credit, availability of loans to firms and households, interest rates, public debt and its management, and monetary management.

However, the fundamental problem of monetary policy in relation to trade cycles is to control and regulate the volume of credit in such a way as to attain economic stability. During a depression, credit must be expanded and during an inflationary boom, its flow must be checked.

Monetary management is the function of the commercial banking system, and through it, its effects are primarily exerted the economy as a whole. Monetary management directly affects the volume of cash reserves of banks, regulates the supply of money and credit in the economy, thereby influencing the structure of interest rates and availability of credit.

Both these factors affect the components of aggregate demand (consumption plus investment) and the flow of expenditures in the economy. It is obvious that an expansion in bank credit causes an increasing flow of expenditure (in terms of money) and contraction in bank credit reduces it.

In the armory of the central bank, there are quantitative as well as qualitative weapons to control the credit creating activity of the banking system. They are bank rate, open market operations and reserve ratios. These are interrelated to tools which operate on the reserves of member banks which influence the ability and willingness of the banks to expand credit. Selective credit controls are applied to regulate the extension of credit for particular purposes.

We shall now briefly discuss the implications of these weapons.

#### Bank Rate Policy:

The bank rate policy is relatively an ineffective weapon of credit control due to various reasons. However, from the viewpoint of contra-cyclical monetary policy, bank rate policy is usually interpreted as an evidence of monetary authority's judgement regarding the contribution of the current flow of money and bank credit to general economic stability.

That is to say, a rise in the bank rate indicates that the central bank considers that liquidity in the banking system possesses an inflationary potential. It implies that the flow of money and credit is very much in

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excess of the actual productive capacity of the economy and therefore, a restraint on the expansion of money supply through dear money policy is desirable.

On the other hand, a reduction in the bank rate is generally interpreted as an evidence of a shift in the direction of monetary policy towards a cheap and expansive money policy. A reduction in bank rate then is more significant as a symbol of an easy money policy than anything else. However, the bank rate is the most effective instrument of restraint.

### Effectiveness of Bank Rate Policy in Expansion:

According to Estey, the following difficulties usually arise in the way of an effective discount policy in expansion:

1. During high prosperity, the demand for credit by businessmen may be interest-inelastic.
2. The rising of bank rate and a consequent rise in the market rates of interest may attract loanable funds from the financial intermediaries in the money market and assist in counteracting undesired effects.
3. Though the quantity of money may be controlled by the banking system, the velocity of its circulation is not directly under the influence of banks. Banking policy may determine how much credit there should be but it is the trade which decides how much and how fast it will be used. Thus, if the velocity of the movement is contrary to the volume of credit, banking policy will be rendered ineffective.
4. There is also the difficulty of proper timing in the application of banking policy. Brakes must be applied at the right time and in the right quarter. If they are applied too soon, they must bring expansion to an end with factors of production not fully employed. And when applied too late, there might be a runaway monetary expansion and inflation, completely out of control.

### Open Market Operations:

The technique of open market operations refers to the purchase and sale of securities by the central bank. A selling operation reduces commercial banks' reserves and their lending power.

However, because of the need to maintain the government securities market, the central bank is completely free to sell government securities when and in what amounts it wishes in order to influence commercial banks' reserve position. Thus, when a large public debt is outstanding, by expanding the securities market, monetary policy and management of the public debt become inseparably intertwined.

### **Reserve Ratios:**

The monetary authorities have at their disposal another most effective way of influencing reserves and activities of commercial banks and that weapon is a change in cash reserve ratios. Changes in the reserve ratios become effective at a pre-announced date.

Their immediate effect is to alter the liquidity position in the banking system. When the cash reserve ratio is raised commercial banks find their existing level of cash reserves inadequate to cover deposits and have to raise funds by disposing liquid assets in the monetary market. The reverse will be the case when the reserve ratio is lowered. Thus, changes in the reserve ratios can influence directly the cash volume and the lending capacity of the banks.

It appears that the bank rate policy, open market operations and changes in reserve ratios exert their influence on the cost, volume and availability of bank reserves through reserves, on the money supply.

### **Selective Controls:**

Selective controls or qualitative credit control is used to divert the flow of credit into and out of particular segments of the credit market. Selective controls aim at influencing the purpose of borrowing. They regulate the extension of credit for particular purposes. The rationale for the use of selective controls is that credit may be deemed excessive in some sectors at a time when a general credit control would be contrary to the maintenance of economic stability.

It goes without saying that these various means of credit controls are to be co-ordinated to achieve the goal of economic stability.

### **Effectiveness of Monetary Control:**

Monetary policy is much more effective in curbing a boom than in helping to bring the economy out of a depression state. It has long been recognized that monetary management can always contract the money supply sufficiently to end any boom, but it has little capacity to end a contraction.

This is because the actions of monetary management do not directly enter the income-expenditure stream as the most effective contra-cyclical weapon, for their first impact is on the asset structure of financial institutions, and in this process of altering the assets structure, rate of interest, volume of credit and the income-expenditure flow may be altered.

All these operate more significantly in restraining the income stream during expansion than in inducing an increase during contraction. However, the greatest advantage of monetary policy is its flexibility. Monetary management makes decisions about the rate of change in the money supplies that are consistent with economic stability and growth on a judgment of given quantitative and qualitative evidences.

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But, whether this point of monetary policy will prove its effectiveness or not depends on its exact timing. Manipulation of bank rate and open market dealings by the central bank should be reasonably effective if applied quickly and continuously in preventing booms from developing and consequently, into a depression.

To sum up, monetary policy is a necessary part of the stabilization programme but it alone is not sufficient to achieve the desired goal. Monetary policy, if used as a tool of economic stabilization, in many ways, serves as a complement of fiscal policy.

It is strong, whereas fiscal policy is weak. It is flexible and capable of quick alternations to suit the measure of pressures of the time and needs. However, it is to be coordinated with fiscal policy. A wrong monetary policy may seriously endanger and even destroy the effectiveness of fiscal policy. Thus, monetary policy and fiscal policy, each reinforcing and supplementing the other, are the essential elements in devising an economic stabilization programme.

### Check your Progress III

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. Write short note on open market operations?

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## 13.7 FISCAL POLICY:

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Fiscal policy includes the tax and expenditure policies of the government. Thus, fiscal policy operates through the control of government expenditures and tax receipts. It encompasses two separate but related decisions:

- i. Public expenditures and
- ii. Level and structure of taxes.

The amount of public outlay, the inducement and effects of taxation and the relation between expenditure and revenue exert a significant impact upon the free enterprise economy.

The taxation policy of the government relates to the programme of curbing private spending. The expenditure policy, on the other hand, deals with the channels by which government spending on new goods and services directly add to aggregate demand and indirectly income through the secondary spending which takes place on account of the multiplier effect.

Taxation, on the other hand, operates to reduce the level of private spending (on both consumption and investment) by reducing the

disposable income and the resulting savings in the community. Hence, under the budgetary phenomenon, public expenditure and revenue can be combined in various ways to achieve the desired stimulating or deflationary effect on aggregate demand.

Thus, fiscal policy has quantitative as well as qualitative aspect changes in tax rates, the structure of taxation and its incidence influence the volume and direction of private spending in economy. Similarly, changes in government's expenditures and its structure of allocations will also have quantitative and redistributive effects on time, consumption and aggregate demand of the community.

As a matter of fact, all government spending is an inducement to increase the aggregate demand (both volume and components) and has an inflationary bias in the sense that it releases funds for the private economy which are then available for use in trade and business.

Similarly, a reduction in government spending has a deflationary bias and it reduces the aggregate demand (its volume and relative components in which the expenditure is curtailed). Thus, the composition of public expenditures and public revenue not only help to mould the economic structure of the country but also exert certain effects on the economy.

For maximum effectiveness, fiscal policy should be planned on both long-run and short-run basis. Long-run fiscal policy obviously is concerned with the long-run trends in government income and spending. Within the framework of such a long-range plan of fiscal operations, the budget can be made to vary cyclically in order to moderate the short-run economic fluctuations.

Basically two sets of techniques can be employed for planning the desired flexibility in the relation between tax revenue and expenditure: (1) built-in flexibility or automatic stabilizers, and (2) discretionary action.

### **Built -in Flexibility:**

The operation of a fiscal policy confronted with the problem of timing and forecast. A fiscal policy administrator has always to face the question: When to do what? But it is a very difficult and complex question to answer. Thus, in order to minimize the difficulties that arise from uncertainties of forecasting and timing of fiscal operations, an automatic stabilizer programme is often advocated.

Automatic stabilizer programme implies that in a given framework of expenditure and revenue relation in a budgetary policy, there exist factors which provide automatically corrective influences on movements in national income, employment, etc. This is what is called built-in flexibility. It refers to a passive budgetary policy.

The essence of built-in flexibility is that (i) with a given set of tax rates tax yields will vary directly with national income, and (ii) there are

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certain lines of government expenditures which tend to vary inversely with movements in national income.

Thus, when the national income rises, the existing structure of taxes and expenditures tend to automatically increase public revenue relative to expenditure, and to increase expenditures relative to revenue when the national income falls. These changes tend to mitigate or offset inflation or depression at least partially. Thus, a progressive tax structure seems to be the best automatic stabilizer.

Likewise, certain kinds of government expenditure schemes like unemployment compensation programmes, government subsidies or price-support programmes also offset changes in income by varying inversely with movements in national income.

However, automatic stabilizers are not a panacea for economic fluctuations, since they operate only as a partial offset to changes in national income, but provide a force to reverse the direction of the change in the income.

They slow down the rate of decline in aggregate income but contain no provision for restoring income to its former level. Thus, they should be recognized as a very useful device of fiscal operations but not the only device. Simultaneously, there should be scope for discretionary policies as the circumstances will call for.

### **Discretionary Action:**

Quite often, it becomes absolutely necessary to have fiscal operations with a tool kit of discretionary policies consisting of measures for putting into effect with a minimum delay, the changes in government expenditures. This calls for a skeleton of public works projects providing for administrative discretion to employ them and the funds to put them into effect.

It calls for a budgetary manipulation an active budget policy constituting flexible tax rates and expenditures. There can be three ways of discretionary changes in tax rates and expenditures: changing expenditure with constant tax rates; changing tax rates and constant expenditure; and a combination of changing tax rates and changing expenditures.

In general, the first method is probably superior to the second during a depression. That is to say, to increase expenditures with the level of taxes remaining unchanged is useful in pushing up the aggregate spending and effective demand in the economy. However, the second method will prove to be superior to the first during inflation.

That is to say, inflation could be checked effectively by increasing the tax rates with a given expenditure programme. But it is easy to see that the third method is much more effective during inflation as well as deflation than the other two.



Inflation would, of course, be more effectively curbed when taxes are enhanced and public expenditure is also simultaneously reduced. Similarly, during a depression, the spending rate of private economy will be quickly lifted up if taxes are reduced simultaneously with the increasing public expenditure.

However, the main difficulty with most discretionary policies is their proper timing. Delay in discretion and implementation will aggravate the problem and the programme may not prove to be effective in solving the problems.

Thus, many economists fear that discretionary government actions are likely to do more harm than good, owing to the uncertainty of government actions and the political pressures to favour vested interests. That is why reliance on built-in stabilisers, as far as possible, has been advocated.

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### **13.8 PHYSICAL POLICY OR DIRECT CONTROLS:**

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Broadly speaking, direct controls are imposed by government which expressly forbid or restricts certain kinds of investment or economic activity. Sometimes, direct government controls over prices and wages as a measure against inflation have been advocated and implemented.

During World War II, price-wage controls were employed in conjunction with consumer rationing and materials allocation to curb generalised total excess demand and to direct productive resources into channels desired by the government. Monetary-fiscal controls may be used to curb excess demand in general but direct controls can be more useful when they are applied to specific scarcity areas.

Direct controls have the following advantages:

1. They can be introduced or changed quickly and easily: hence the effects of these can be rapid.
2. Direct controls can be more discriminatory than monetary and fiscal controls.
3. There can be variation in the intensity of the operations of controls from time to time in different sectors.

In a peace-time economy, however, there are serious philosophical and political objections to direct economic controls as a stabilisation device. Objections have been raised to such controls on the following counts:

1. Direct controls suppress individual initiative and enterprise.
2. They tend to inhibit innovations, such as new techniques of production, new products etc.
3. Direct controls may breed or induce speculation which may have destabilizing effects. For instance, if it is expected that a

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commodity X, say steel, is to be rationed because of scarcity, people may try to hoard large stocks of it, which aggravates its shortage. It, thus, encourages the creation of artificial scarcity through large-scale hoarding;.

4. Direct controls need a cumbersome, honest and efficient administrative organization if they are to work effectively.
5. Gross disturbances reappear as soon as controls are removed.

In short, direct controls are to be used only in extraordinary circumstances like emergencies, but not in a peace-time economy.

### Check your Progress IV

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What do you mean by direct control?

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## 13.9 LET US SUM UP

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This unit stress up the importance of Stabilization Policies. The instruments of economic stability are explained with details of Monetary Policy, Fiscal Policy and Direct Controls, which proves instruments to maintain economic stability.

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## 13.10 UNIT END EXERCISES

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1. State out the importance of Stabilization Policies
2. List out the instruments of economic stability
3. Detail Monetary Policy
4. Detail Fiscal Policy
5. Detail Direct Control

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## 3.11 ANSWERS TO CHECK YOUR PROGRESS

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1. (1) Monetary policy  
(2) Fiscal policy; and  
(3) Direct controls.
2. Economic stability means the economy of a region or country shows no wide fluctuations in key measures of economic performance, such as gross domestic product, unemployment or inflation.

3. The technique of open market operations refers to the purchase and sale of securities by the central bank. A selling operation reduces commercial banks' reserves and their lending power.

4. Direct controls are imposed by government which expressly forbid or restricts certain kinds of investment or economic activity.

## **NOTES**

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### **13.12 SUGGESTED READINGS**

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

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## UNIT XIV: BUSINESS CYCLE

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### NOTES

- 14.1 Introduction
- 14.2 Objectives
- 14.3 Meaning
  - 14.3.1 Features
- 14.4 Theories of Business Cycles
- 14.5 Measures to control Business Cycles
- 14.6 Business Cycles and Business Decisions
- 14.7 Inflation and Deflation
  - 14.7.1 Meaning
  - 14.7.2 Kinds of Deflation
  - 14.7.3 Measures to control Inflation
- 14.8 Deflation
  - 14.8.1 Meaning
  - 14.8.2 Types of Deflation
  - 14.8.3 Measures to control Deflation
- 14.9 Summary
- 14.10 Unit End Exercise
- 14.11 Answers to check the progress
- 14.12 Suggested Readings

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### 14.1: INTRODUCTION

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The business cycle has major implications on the total level of employment in the economy. A business cycle refers to various trends that occur within a business or industry, such as growth or contraction. Often times, management decisions are impacted by where the company stands in reference to a particular cycle. During periods of economic growth and prosperity, employment tends to be high because businesses need more workers to meet demand and expand their companies.

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## 14.2 OBJECTIVES:

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The student will be able to know the technical concepts of business cycles. He will be able to know how to keep up himself on the ups and down of the business process or phases of growth. He also learns from this unit how to keep up the measures to have a good control of Inflation and Deflation in the business cycle.

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## 14.3 MEANING:

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The business cycle describes the rise and fall in production output of goods and services in an economy. Business cycles are generally measured using the rise and fall in the real gross domestic product (GDP) or the GDP adjusted for inflation.

The business cycle should not be confused with market cycles, which are measured using broad stock market indices. The business cycle is also different from the debt cycle, which refers to the rise and fall in household and government debt.

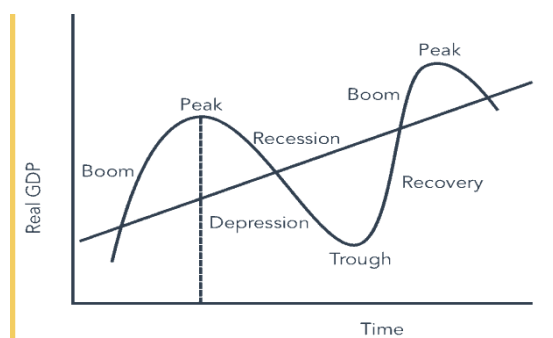
The business cycle is also known as the economic cycle or trade cycle.

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### 14.3.1 FEATURES OF BUSINESS CYCLE:

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The four different phases of business cycles are – expansion, peak, depression, and recovery. While all these phases have their own unique characteristics, there are some features that are common to all the phases. Let us take a look at these features of business cycles.



#### *1] Occur Periodically*

As we saw, these phases occur from time to time. However they do not occur in for specific times, their time periods will vary according to the industries and the economic conditions. Their duration may vary from anywhere between two to ten or even twelve years. Even the intensity of the phases will be different. For example, the firm may see tremendous growth followed by a shallow short-lived depression phase.

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### *2] They are Synchronic*

Another one of the features of business cycles is that they are synchronic. Business cycles are not limited to one firm or one industry. They originate in the free economy and are pervasive in nature.

A disturbance in one industry quickly spreads to all the other industries and finally affects the economy as a whole. For example, a recession in the steel industry will set off a chain reaction until there is a recession in the entire economy.

### *3] All Sectors are affected*

All major sectors of the economy will face the adverse effects of a business cycle. Some industries like the capital goods industry, consumer goods industry may be disproportionately affected.

So the investment and the consumption of capital goods and durable consumer goods face the maximum brunt of the cyclic fluctuations. Non-durable goods do not face such problems generally.

### *4] Complex Phenomenon*

Business cycles are a very complex and dynamic phenomenon. They do not have any uniformity. There are no set causes for business cycles as well. So it is nearly impossible to predict or prepare for these business cycles.

### *5] Affect all Departments*

Trade cycles are not only limited to the output of goods and services. It has an effect on all other variables as well such as employment, the rate of interest, price levels, investment activity etc.

### *6] International in Character*

Trade cycles are contagious. They do not limit themselves to one country or one economy. Once they start in one country they will spread to other countries and economies via trade relations and international trade practices.

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## **14.4 THEORIES OF BUSINESS CYCLES:**

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Some of the most important theories of business cycles are as follows:

1. Pure Monetary Theory
2. Monetary Over-Investment Theory
3. Schumpeter's Theory of Innovation
4. Keynes Theory
5. Samuelson's Model of Multiplier Accelerator Interaction

## 6. Hicks's Theory.

### 1. Pure Monetary Theory:

The traditional business cycle theorists take into consideration the monetary and credit system of an economy to analyze business cycles. The monetary theory states that the business cycle is a result of changes in monetary and credit market conditions. Hawtrey, the main supporter of this theory, advocated that business cycles are the continuous phases of inflation and deflation. According to him, changes in an economy take place due to changes in the flow of money.

For example, when there is increase in money supply, there would be increase in prices, profits, and total output. This results in the growth of an economy. On the other hand, a fall in money supply would result in decrease in prices, profit, and total output, which would lead to decline of an economy.

Apart from this, Hawtrey also advocated that the main factor that influences the flow of money is credit mechanism. In economy, the banking system plays an important role in increasing money flow by providing credit.

An economy shows growth when the volume of bank credit increases. This increase in the growth continues till the volume of bank credit increases. Banks offer credit facilities to individuals or organizations due to the fact that banks find it profitable to provide credit on easy terms.

The easy availability of funds from banks helps organizations to perform various business activities. This leads to increase in various investment opportunities, which further results in deepening and widening of capital. Apart from this, credit provided by banks on easy terms helps organizations to expand their production.

When an organization increases its production, the supply of its products also increases to a certain limit. After that, the rate of increase in demand of products in market is higher than the rate of increase in supply. Consequently, the prices of products increase. Therefore, credit expansion helps in expansion of economy. On the contrary, the economic condition is reversed when the bank starts withdrawing credit from market or stop lending money.

This is because of the reason that the cash reserves of bank are washed-out due to the following reasons:

- a. Increase in loans and advance provided by banks
- b. Reduction in inflow of deposits
- c. Withdrawal of deposits for better investment opportunities

When banks stop providing credit, it reduces investment by businessmen. This leads to the decrease in the demand for consumer and

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capital goods, prices, and consumption. This marks the symptoms of recession.

Some of the points on which the pure monetary theory is criticized are as follows:

- a. Regards business cycle as monetary phenomenon that is not true. Apart from monetary factors, several non-monetary factors, such as new investment demands, cost structure, and expectations of businessmen, can also produce changes in economic activities.
- b. Describes only expansion and recession phases and fails to explain the intermediary phases of business cycles.
- c. Assumes that businessmen are more sensitive to the interest rates that is not true rather they are more concerned about the future opportunities.

### **2. Monetary Over-Investment Theory:**

Monetary over-investment theory focuses mainly on the imbalance between actual and desired investments. According to this theory, the actual investment is much higher than the desired investment. This theory was given by Hayek.

According to him, the investment and consumption patterns of an economy should match with each other to bring the economy in equilibrium. For stabilizing this equilibrium, the voluntary savings should be equal to actual investment in an economy.

In an economy, generally, the total investment is distributed among industries in such a way that each industry produces products to a limit, so that its demand and supply are equal. This implies that the investment at every level and for every product in the whole economy is equal. As a result, there would be no expansion and contraction and the economy would always be in equilibrium.

According to this theory, changes in economic conditions would occur only when the money supply and investment-saving relations show fluctuations. The investment-saving relations are affected when there is an increase in investment opportunities and voluntary savings are constant.

Investment opportunities increase due to several reasons, such as low interest rates, increased marginal efficiency of capital, and increase in expectations of businessmen. Apart from this, when banks start supporting industries for investment by lending money at lower rates, it results in an increase in investment.

This may result in the condition of over-investment mainly in capital good industries. In such a case, investment and savings increase, but the consumption remains unaffected as there is no change in consumer goods industries.



Consequently, profit increases with increase in investment opportunities, which further results in an increase in the demand for various products and services. The demand for products and services exceeds the supply of products and services.

This leads to inflation in the economy, which reduces the purchasing power of individuals. Therefore, with decrease in the purchasing power of individuals, the real demand for products does not increase at the same rate at which the investment increases. The real investment is done at the cost of real consumption.

The balance between the investment and consumer demand is disturbed. As a result, it is difficult to maintain the current rate of investment. The demand of consumer goods would be dependent on the income of individuals.

An increase in the income level would result in the increase of consumer goods. However, the increase in consumer goods is more than the increase in capital goods. Therefore, people would invest in consumer goods rather than in capital goods. Consequently, the demand for bank credit also increases.

However, the bankers are not ready to lend money because of the demand for funds from consumer and capital goods industry both. This leads to recession in the economy. As a result, economic activities, such as employment, investment, savings, consumption, and prices of goods and services, start declining.

Some of the limitations of monetary over-investment theory are as follows:

- a. Assumes that when the market rate of interest is lower than the natural market rate of interest, the bank credit flows to the capital goods industry. This is applicable only in the situation of full employment. However, business cycles are the part of an economy and can take place under improper utilization of resources.
- b. Considers interest rate as the most important factor that affects investment. However, there are several factors, such as capital goods cost and businessmen expectations, which can influence investment.
- c. Focuses on balance between consumer goods and investment, which is not much required.

### **3. Schumpeter's Theory of Innovation:**

The other theories of business cycles lay emphasis on investment and monetary expansion. The Schumpeter's theory of innovation advocates that business innovations are responsible for rapid changes in investment and business fluctuations.

According to Schumpeter said, "Business cycles are almost exclusively the result of innovations in the industrial and commercial

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organization. Innovations are such changes of the combination of the factors of production as cannot be effected by infinitesimal steps or variations on the margin. [Innovation] consists primarily in changes in methods of production and transportation, or changes in industrial organization, or in the production of a new article, or opening of a new market or of new sources of material.”

According to Schumpeter, innovation refers to an application of a new technique of production or new machinery or a new concept to reduce cost and increase profit. In addition, he propounded that innovations are responsible for the occurrence of business cycles. He also designed a model having two stages, namely, first approximation and second approximation.

The two stages of the model are discussed as follows:

### (a) First Approximation:

It deals with the effect of innovatory ideas on an economy in the beginning. First approximation is the startup stage of innovation in which the economy is in equilibrium. This implies when Marginal Cost (MC) is equal to Marginal Revenue (MR) and Average Cost (AC) is equal to price. In addition, at this stage, there is no involuntary unemployment.

In equilibrium, organizations lack idle funds or surplus funds to invest. In such a case, banks are the only source of funds for innovators. When the innovators get the desired fund from banks, they purchase inputs for production at a higher price to make these inputs available only for innovation purposes.

Increase in prices of inputs result in the rise of prices. Over time, competitors also start copying innovation and acquire funds from bank. As a result, the output and profit of organizations start increasing.

However, after a certain point of time, profit shows decline with a decrease in output prices. Simultaneously, debtors need to repay their debts to bank. This leads to decrease in the flow of money, which finally results in recession.

### (b) Second Approximation:

It deals with the subsequent effects of first approximation. It is related to the speculation of future economic conditions. In first approximation, it is assumed by investors that the expansion phase would not be affected in future, especially in capital goods industries. On the basis of this belief, investors take large amounts of money from banks.

In addition, in this stage, customers perceive an increase in the durable goods in future and therefore, start purchasing goods at present by borrowing funds. When the prices start falling, debtors are in the worst situation because they are not able to repay loan and meet their basic needs. This leads to depression in the economy.

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### **4. Keynes Theory:**

Keynes theory was developed in 1930s, which was the period when whole world was going through great depression. This theory is the reply of Keynes to classical economists. According to classical economists, if there is high unemployment condition in an economy, then economic forces, such as demand and supply, would act in a manner to bring back full employment condition.

In his theory of business cycles, Keynes advocated that the total demand helps in the determination of various economic factors, such as income, employment, and output. The total demand refers to the demand of consumer and capital goods.

In such a case, total investment and expenditure on products and services is more, the level of production would increase. When the level of production increases, it results in the increase of employment opportunities and income level. However, if the total demand is low, the level of production would also be less.

Consequently, the income, output and investment would also be low. Therefore, changes in income and output level are produced by changes in total demand. The total demand is further affected by changes in the demand of investment, which depends on the rate of interest and expected rate of profit.

Keynes referred expected rate of profit as the marginal efficiency of capital. Expected rate of profit is the difference between the expected revenue generated by the capital employed and the cost incurred to employ that capital.

In case, the expected rate of profit is greater than the current rate of interest, then the investors would invest more. On the other hand, the marginal efficiency of capital is determined by expected return from capital goods and cost involved in the replacement of capital goods.

Marginal efficiency of a capital increases due to new inventions or innovations in economic factors, such as product, production technique, investment option, assuming that prices would rise in future. On the other hand, it decreases due to various reasons, such as decrease in prices, increase in costs, and inefficiency of the production process.

According to Keynes theory, in the expansion phase of business cycle, investors are positive about economic conditions, thus, they overestimate the rate of return from an investment. The rate of return increases until the full employment condition is not achieved.

When the economy is on the path of achieving full employment, this phase is termed as boom phase. In the boom phase, investors are not able to diagnose the fall in marginal efficiency of capital and even do not consider the rate of interest. As a result, the profit from investments starts

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Calling due to the increase in the cost of investment and production of goods and services. This situation results in the contraction or recession in economy.

This is because the rate of decrease in the marginal efficiency of capital is more than that of current rate of interest. In addition, in this situation, investment opportunities shrink. Banks are not also able to provide credit because of the lack of funds.

Current rate of interest is higher that encourages people to save rather than invest. As a result, the demand for consumer and capital goods decreases. Further, the income and employment level decreases and economy reaches to the phase of depression.

Keynes has proposed three types of propensities to understand business cycles. These are propensity to save, propensity to consume, and propensity of marginal efficiency of capital. He has also developed a concept of multiplier that represents changes in income level produced by the changes in investment.

Keynes also advocated that the expansion of business cycle occurs due to increase in marginal efficiency of capital. This encourages investors (including individuals and organizations) to invest. Organizations replace their capital goods and start production.

As a result, the income of individuals increases, which further increases the rate of consumption. This increases the profit of organizations, which finally lead to an increase in the total income and investment level of an economy. This marks the recovery phase of an economy.

### **5. Samuelson's Model of Multiplier Accelerator Interaction:**

The economists of post-Keynesian period emphasized the need of both multiplier and accelerator concepts to explain business cycles. Samuelson's model of multiplier accelerator interaction was the first model that represents interaction between these two concepts.

In his model, Samuelson has described the way the multiplier and accelerator interact with each other for generating income and increasing consumption and demand of investment. He also describes how these two factors are responsible for creating economic fluctuations.

Samuelson used two concepts, namely, autonomous and derived investment, to explain his model. Autonomous investment refers to the investment due to exogenous factors, such as new product, production technique, and market.

On the other hand, derived investment refers to the increase in the investment of capital goods produced due to increase in the demand of consumer goods. When autonomous investment occurs in an economy, the income level also increases.

This brought the role of multiplier into account. The income level helps in determining the marginal propensity to consume. If the income level increases, then the demand for consumer goods also increases.

The supply of consumer goods should satisfy the demand for consumer goods. This is possible when the production technique is capable to produce a large quantity of products and services. This encourages organizations to invest more to develop advanced production techniques and increase production for meeting consumer demand.

Therefore, the consumption affects the demand of investment. This is referred as derived investment. This marks the starting of the acceleration process, which results in further increase in income level.

An increase in the income level would increase the demand of consumer goods. In this manner, the multiplier and accelerator interact with each other and make the income grow at a much higher rate than expected.

Autonomous investment leads to multiplier effect that result in derived investment. This is called acceleration of investment. Derived investment would make the accelerator to come into action. This is termed as multiplier-acceleration interaction.

Samuelson made certain assumptions for the explanation of business cycles. Some of the assumptions are that the production capacity is limited and consumption takes place after a gap of one year.

Another assumption made by him is that there would be a gap of one year between the increase in consumption and increase in the demand of investment. In addition, he assumed that there would be no government activity and foreign trade in the economy.

According to the assumption given by Samuelson that there would be no government activity and foreign trade, the equilibrium would be achieved when

$$Y_t = C_t + I_t$$

Where,  $Y_t$  = National income

$C_t$  = Total consumption expenditure

$I_t$  = Investment expenditure

$t$  = Time period

According to the assumption that consumption takes place after a gap of one year, the consumption function would be represented as follows:

$$C_t = \alpha Y_{t-1}$$

Where,  $Y_{t-1}$  = Income for  $t-1$  time period

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$$\alpha = \Delta C / \Delta Y \text{ (multiplier propensity to consume)}$$

Investment and consumption has a time lag of one year; therefore, the investment function can be expressed as follows:

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$$I_t = b (C_t - C_{t-1})$$

Where,  $b$  = capital/output ratio (helps in determination of acceleration)

By putting the value of  $C_t$  and  $I_t$  in the first equation of national income, we get

$$Y_t = \alpha Y_{t-1} + b (C_t - C_{t-1})$$

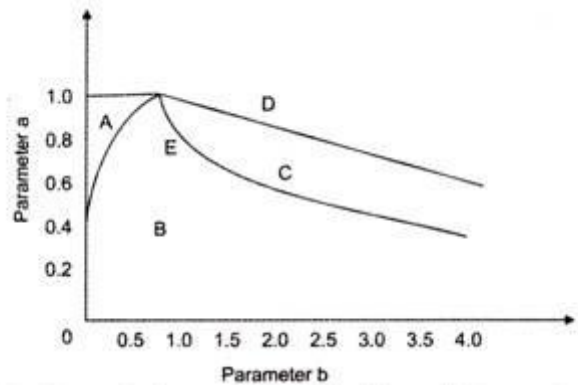
If  $C_t = \alpha Y_{t-1}$ , then  $C_{t-1} = \alpha Y_{t-2}$ . Putting the value of  $C_{t-1}$  in the preceding equation, we get

$$Y_t = \alpha Y_{t-1} + b (\alpha Y_{t-1} - \alpha Y_{t-2})$$

$$Y_t = \alpha (1 + b) Y_{t-1} - \alpha b Y_{t-2} \text{ (equation for equilibrium)}$$

With the help of preceding equation, the income level for past and future can be determined if the values of  $\alpha$ ,  $b$  and income of two preceding years are given. It can be depicted from the preceding equation that the changes in income level can be affected by the values of  $\alpha$  and  $b$ .

The different combinations of  $\alpha$  and  $b$  give rise to fluctuations in business cycles as shown in Figure-4:



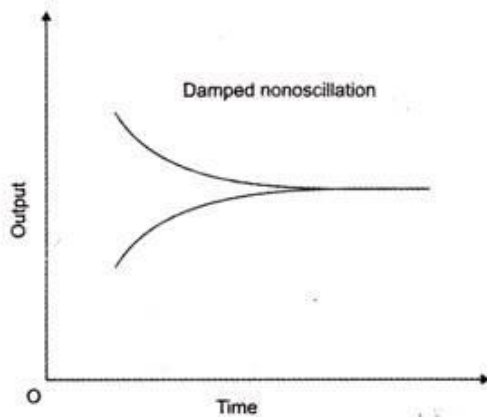
### Business Cycles and Combinations of Parameters $\alpha$ and $b$

In Figure-4, the areas A, B, C, and D represent the different phases of business cycles. The types of different cycles represented by A, B, C, and D are described in detail with the help of the following points:

A: Refers to the area at which the income level increases or decreases at the decreasing rate and arrive at a new equilibrium point. The change in the income level would be in one-direction only.

It results in damped non-oscillation, as shown in Figure-5:

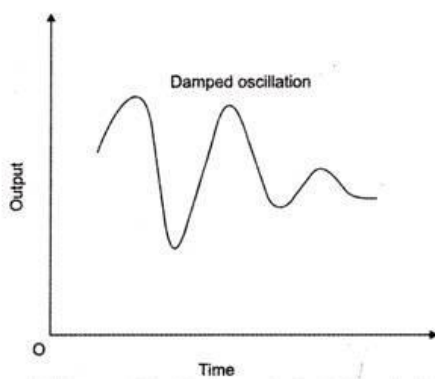
## NOTES



Representing Business Cycle Pattern in Area A

B: Refers to the area in which points, a and b, together makes amplitude cycles that gradually become smaller. This process continues till the cycles get dissolve and economy reaches to equilibrium.

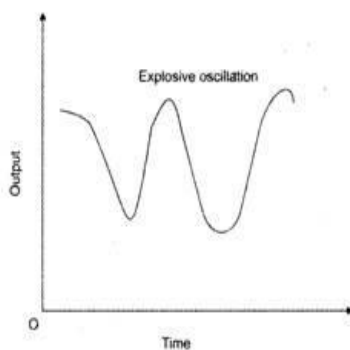
This represents damped oscillations, as shown in Figure:



Representing Business Cycle Pattern in Area B

C: Refers to the area in which points, a and b, together makes amplitude cycles that become larger.

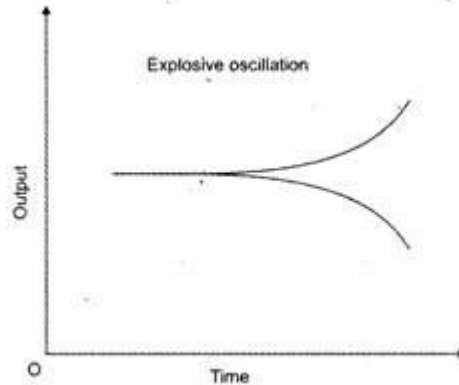
This forms explosive cycles, as shown in Figure:



D: Refers to the area at which the income level is increasing or decreasing at the exponential rate. This process continues till cycles reach at the

bottom. It represents one-way explosion and results in explosive oscillations, as shown in Figure-8:

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E: Refers to the point at which the oscillations are of equal amplitude.

### 6. Hicks's Theory:

The theory has associated business cycles to the growth theory of Harrod-Domar. According to Hicks, business cycles take place simultaneously with economic growth; therefore, business cycles should be explained in association with the growth theory.

In his theory, he has used the following concepts to explain business cycles:

- a. Saving-investment relation and multiplier concepts given by Keynes
- b. Acceleration concept given by Clark
- c. Multiplier-acceleration interaction concepts given by Samuelson
- d. Growth model of Harrod-Domar

Hicks has also framed certain assumptions for describing business cycle concept.

The important assumptions of Hicks's theory are as follows:

- (a) Assumes an equilibrium rate of growth in a model economy where realized growth rate ( $G_r$ ) and natural growth rate ( $G_n$ ) are equal. As a result, the increase in autonomous investment is constant and is equal to the increase in voluntary savings. The equilibrium growth rate can be obtained with the help of rate of autonomous investment and voluntary savings.
- (b) Assumes the consumption function given by Samuelson, which is  $C_t = \alpha Y_{t-1}$ . The time lag in consumption occurs due to the gap between income and expenditure and gap between Gross National Product (GNP) and non-wage income. The gap between income and expenditure produces when income is ahead of expenditure.

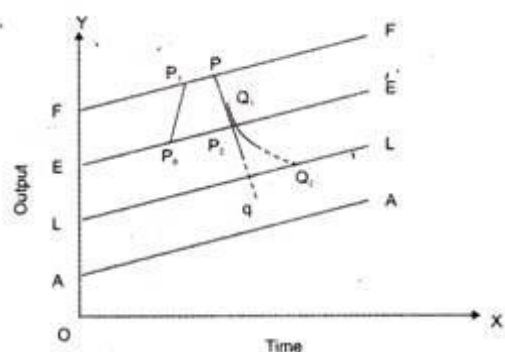


The gap between GNP and non-wage income produces when fluctuations in GNP occur more frequently than the fluctuations in non-wage income. The saving function becomes the function of past year's income. With the time lag between income and investment-saving, the multiplier process has a diminishing impact on business cycles.

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- (c) Assumes that autonomous investment is a function of output at present. In addition, autonomous investment is used for replacing capital goods. However, induced investment is regarded as the function of changes in output. The change in output produces induced investment, which marks the beginning of the acceleration process. The acceleration process interrelates with the multiplier effect on income and consumption.
- (d) Makes use of the words ceiling and bottom for explaining the upward and downward flow of business cycles. The ceiling on upward flow is a result of scarcity of resources required. On the other hand, the bottom on downward flow does not have a direct limit on contraction. However, an indirect limit is the effect of accelerator on depression.

Hicks's theory can be explained with the help of Figure:



In Figure, the y-axis represents the logarithms of output and employment while x-axis represents the semi-logarithm of time. AA line represents the autonomous investment that is rising at the same rate.

EE line shows the equilibrium line that is a multiple of autonomous investment. FF line expresses the full employment or the peak phase of economy, while LL line expresses the trough phase of an economy.

Hicks explains business cycles by assuming that the economy has reached to  $P_0$  point of equilibrium path and autonomous investment is the result of innovation. The autonomous investment results in the increase of output.

Consequently, the economy moves upward from the equilibrium path. After a certain point of time, the autonomous investment brings the multiplier process at work, which further increases output and

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employment. The increased output makes the induced investment to work that further results in accelerator process to work.

The multiplier-accelerator interaction results in the growth of the economy. Consequently, the economy enters in the phase of expansion. The economy moves on the expansion path of P0P1. At point P1, the economy is in full employment condition. Now, the economy cannot grow further, it can only move on the FF line.

However, it cannot remain at FF line because autonomous investment becomes constant; therefore, now at FF, only the normal autonomous investment would be produced. This infers that the expansion of the economy is governed by induced investment only.

When the economy reaches to point P1, the increase in induced investment becomes stable and the growth of economy starts declining. This is because of the reason that the output produced at FF line is not sufficient for induced investment.

As a result the induced investment stops. The decline of the economy can be postponed, if the time lag between output and investment is of three to four years. However, the decline in output cannot be ceased. When the decline in output occurs at point P then the decline in output would continue till the economy reaches back to EE line.

After arriving at EE line, it would continue to fall further. The rate of decline in economy is very slow because disinvestment depends on the rate of depreciation. The decrease in output leads to the decline in the rate of depreciation.

The effect of reverse accelerator on the depression is not as frequent as in the case of expansion. During the path Q1Q2, the induced investment is nil while autonomous investment is less than normal. In addition, the indefinite decline of economy is represented by Q1q. However, Q1q is a very rare case that does not occur normally.

When the economy reaches to trough, it moves along the LL line, which is associated with AA line that represents autonomous investment. Therefore, output starts increasing again with the increase in autonomous investment.

Increase in output makes the accelerator to work again. This phase is termed as recovery phase. Along with accelerator, multiplier also comes into action and their interaction makes economy run on the growth path and reaches to equilibrium EE line again.

### Check your Progress I

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is Business Cycle?

## 14.5 MEASURES TO CONTROL BUSINESS CYCLES:

Measures to Control Business Cycles or Stabilization Policies:

Various measures have been suggested and put into practice from time to time to control fluctuations in an economy. They aim at stabilizing economic activity so as to avoid the ill-effects of a boom and a depression. The following three measures are adopted for this purpose.

### 1. Monetary Policy:

Monetary policy as a method to control business fluctuations is operated by the central bank of a country. The central bank adopts a number of methods to control the quantity and quality of credit. To control the expansion of money supply during a boom, it raises its bank rate, sells securities in the open market, raises the reserve ratio, and adopts a number of selective credit control measures such as raising margin requirements and regulating consumer credit.

To control a recession or depression, the central bank follows an easy or cheap monetary policy by increasing the reserves of commercial banks. It reduces the bank rate and interest rates of banks. It buys securities in the open market. It lowers margin requirements on loans and encourages banks to lend more to consumers, businessmen, traders, etc.

### 2. Fiscal Policy:

Fiscal measures are highly effective for controlling excessive government expenditure, personal consumption expenditure, and private and public investment during a boom. They also help in increasing government expenditure, personal consumption expenditure and private and public investment during a depression.

### 3. Direct Controls:

The aim of direct controls is to ensure proper allocation of resources for the purpose of price stability. They are meant to affect strategic points of the economy. They affect particular consumers and producers. They are in the form of rationing licensing, price and wage controls, export duties, exchange controls, quotas, monopoly control, etc.

They are more effective in overcoming bottlenecks and shortages arising from inflationary pressures. Their success depends on the existence of an efficient and honest administration. Otherwise, they lead to black marketing, corruption, long queues, speculation, etc. Therefore, they should be resorted to only in emergencies like war, crop failures and hyper-inflation.

#### Check your Progress II

**Note:** a. Write your answer in the space given below  
b. Compare your answer with those given at the end of the unit

1. What is the aim of direct controls?

## NOTES

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## 14.6 BUSINESS CYCLES AND BUSINESS DECISIONS

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### NOTES

The following are the factors that shape business cycles: Today, economists, corporate executives, and business owners cite several factors as particularly important in shaping the complexion of business environments.

#### **Volatility of Investment Spending**

Variations in investment spending are one of the important factors in business cycles. Investment spending is considered the most volatile component of the aggregate or total demand (it varies much more from year to year than the largest component of the aggregate demand, the consumption spending). It is an important factor in explaining business cycles in the United States. Decreases in investment have the opposite effect. The Great Depression, for instance, was caused by a collapse in investment spending in the aftermath of the stock market crash of 1929. Similarly, the prosperity of the late 1950s was attributed to a capital goods boom.

There are several reasons for the volatility that can often be seen in investment spending. One generic reason is the pace at which investment accelerates in response to upward trends in sales.

This linkage, which is called the acceleration principle by economists, can be briefly explained as follows. Suppose a firm is operating at full capacity. When sales of its goods increase, output will have to be increased by increasing plant capacity through further investment.

Resultant, changes in sales result in magnified percentage changes in investment expenditures. This accelerates the pace of economic expansion, which generates greater income in the economy, leading to further increases in sales. Thus, once the expansion starts, the pace of investment spending accelerates.

The response of the investment spending is related to the *rate* at which sales are increasing. In general, if an increase in sales is expanding, investment spending rise, and if an increase in sales has peaked and is beginning to slow, investment spending falls. Thus, the pace of investment spending is influenced by changes in the rate of sales.

#### **Momentum**

Many economists cite a certain "follow-the-leader" mentality in consumer spending. In situations where consumer confidence is high and people adopt more free-spending habits, other customers are deemed to be more likely to increase their spending as well. Conversely, downturns in spending tend to be imitated as well.

## Technological Innovations

Technological innovations can have an acute impact on business cycles. Indeed, technological breakthroughs in communication, transportation, manufacturing, and other operational areas can have a ripple effect throughout an industry or an economy. Technological innovations may relate to production and use of a new product or production of an existing product using a new process. The video imaging and personal computer industries, for instance, have undergone immense technological innovations in recent years, and the latter industry in particular has had a pronounced impact on the business operations of countless organizations. However, technological innovations—and consequent increases in investment—take place at irregular intervals. Fluctuating investments, due to variations in the pace of technological innovations, lead to business fluctuations in the economy.

There are many reasons why the pace of technological innovation varies. Major innovations do not occur every day. Nor do they take place at a constant rate. Chance factors greatly influence the timing of major innovations, as well as the number of innovations in a particular year. Economists consider the variations in technological innovation as random (with no systematic pattern). Thus, irregularity in the pace of innovations in new products or processes becomes a source of business fluctuations.

## Variations in Inventories

Variations in inventories—expansion and contraction in the level of inventories of goods kept by businesses—also contribute to business cycles. Inventories are the stocks of goods firms keep on hand meeting demand for their products. How do variations in the level of inventories trigger changes in a business cycle? Usually, during a business downturn, firms let their inventories decline. As inventories dwindle, businesses eventually use down their inventories to the point where they are short. This, in turn, starts an increase in inventory levels as companies begin to produce more than is sold, leading to an economic expansion. This expansion continues as long as the rate of increase in sales holds up and producers continue to increase inventories at the preceding rate. However, as the rate of increase in sales slows, firms begin to cut back on their inventory accumulation. The subsequent reduction in inventory investment dampens the economic expansion, and eventually causes an economic downturn. The process then repeats itself all over again. It should be noted that while variations in inventory levels impact overall rates of economic growth, the resulting business cycles are not really long. The business cycles generated by fluctuations in inventories are called *minor* or *short* business cycles. These periods, which usually last about two to four years, are sometimes also called inventory cycles.

## Fluctuations in Government Spending

Variations in government spending are yet another source of business fluctuations. This may appear to be an unlikely source, as the

## NOTES

## **NOTES**

government is widely considered to be a stabilizing force in the economy rather than a source of economic fluctuations or instability. Nevertheless, government spending has been a major destabilizing force on several occasions, especially during and after wars. Government spending increased by an enormous amount during World War II, leading to an economic expansion that continued for several years after the war. Government spending also increased, though to a smaller extent compared to World War II, during the Korean and Vietnam Wars. These also led to economic expansions. However, government spending not only contributes to economic expansions, but economic contractions as well. In fact, the recession of 1953—54 was caused by the reduction in government spending after the Korean War ended. More recently, the end of the Cold War resulted in a reduction in defense spending by the United States that had a pronounced impact on certain defense-dependent industries and geographic regions.

### **Politically Generated Business Cycles**

Many economists have hypothesized that business cycles are the result of the politically motivated use of macroeconomic policies (monetary and fiscal policies) that are designed to serve the interest of politicians running for reelection. The theory of political business cycles is predicated on the belief that elected officials (the president, members of Congress, governors, etc.) have a tendency to engineer expansionary macroeconomic policies in order to aid their re-election efforts.

### **Monetary Policies**

Variations in the nation's monetary policies, independent of changes induced by political pressures, are an important influence in business cycles as well. Use of fiscal policy—increased government spending and/or tax cuts—is the most common way of boosting aggregate demand, causing an economic expansion. The Central Bank, in the case of the United States, the Federal Reserve Bank, has two legislated goals—price stability and full employment. Its role in monetary policy is a key to managing business cycles and has an important impact on consumer and investor confidence as well.

### **Fluctuations in Exports and Imports**

The difference between exports and imports is the net foreign demand for goods and services, also called net exports. Because net exports are a component of the aggregate demand in the economy, variations in exports and imports can lead to business fluctuations as well. There are many reasons for variations in exports and imports over time. Growth in the gross domestic product of an economy is the most important determinant of its demand for imported goods—as people's incomes grow, their appetite for additional goods and services, including goods produced abroad, increases. The opposite holds when foreign economies are growing—growth in incomes in foreign countries also leads to an increased demand for imported goods by the residents of these countries.

This, in turn, causes U.S. exports to grow. Currency exchange rates can also have a dramatic impact on international trade—and hence, domestic business cycles—as well.

## **BUSINESS CYCLE VARIANTS, STAGFLATION AND THE JOBLESS RECOVERY**

Business cycles are difficult to anticipate accurately, in part because of the number of variables involved in large economic systems. Nonetheless, the importance of tracking and understanding business cycles has led to a great deal of study of the subject and knowledge about the subject. It was as a result somewhat surprising when, in the 1970s, the nation found itself stuck in a period of seemingly contradictory economic conditions, slow economic growth and rising inflation. The condition was named stagflation and paralyzed the U.S. economy from the mid-1970s through the early 1980s.

Another somewhat unexpected business cycle phenomenon has occurred in the early 2000s. It is what has come to be known as the "jobless recovery." According to the National Bureau of Economic Research's Business Cycle Dating Committee, in a late 2003 report, "the most recent economic peak occurred in March 2001, ending a record-long expansion that began in 1991. The most recent trough occurred in November 2001, inaugurating an expansion." The problem with the expansion has been that it has not included a rise in employment or real personal income, something seen in all previous recoveries.

The reasons for the jobless recovery are not fully understood but are the cause of much debate within the economic and political circles. Within this debate there are four leading explanations that analysts have given for the jobless recovery. According to a study published in *Economic Perspectives* in the summer of 2004, these four explanations are:

- An imbalance in labor available by sector.
- The emergence of just-in-time hiring practices.
- The rising cost of health care benefits.
- Rapidly increasing productivity not being off-set by aggregate demand.

## **KEYS TO SUCCESSFUL BUSINESS CYCLE MANAGEMENT**

Small business owners can take several steps to help ensure that their establishments weather business cycles with a minimum of uncertainty and damage. The concept of cycle management is earning adherents who agree that strategies that work at the bottom of a cycle need to be adopted as much as those which work at the top of a cycle. While there is no definitive formula for every company, the approaches generally emphasize a long-term view focused on a company's core strengths and stressing the need to plan with greater discretion at all times. Essentially,

## **NOTES**

efforts are made to adjust a company's operations in such a manner that it maintains an even keel through the ups and downs of a business cycle.

Specific tips for managing business cycle downturns include the following:

## **NOTES**

- **Flexibility**—Having a flexible business plan allows for development times that span the entire cycle and includes various recession-resistant funding structures.
- **Long-term Planning**—Consultants encourage small businesses to adopt a moderate stance in their long-range forecasting.
- **Attention to Customers**—This can be an especially important factor for businesses seeking to emerge from an economic downturn. Maintaining close relations and open communication with customers is a tough discipline to maintain in good times, but it is especially crucial coming out of bad times. Customers are the best gauges of when a company is likely to begin recovering from an economic slowdown.
- **Objectivity**—Small business owners need to maintain a high level of objectivity when riding business cycles. Operational decisions based on hopes and desires rather than a sober examination of the facts can devastate a business, especially in economic down periods.
- **Study**—Timing any action for an upturn is tricky. The consequences of getting the timing wrong, of being early or late, can be serious. How, then, does a company strike the right balance between being early or late? Listening to economists, politicians, and media to get a sense of what is happening is useful. The best route, however, is to avoid trying to predict the upturn. Instead, listen to your customers and know your own response-time requirements.

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## **14.7 INFLATION AND DEFLATION**

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### **14.7.1: INFLATION MEANING:**

Inflation is the rate at which the prices for goods and services increase. Inflation often affects the buying capacity of consumers. Most Central banks try to limit inflation in order to keep their respective economies functioning efficiently.

There are advantages and disadvantages to inflation.

#### **Causes of Inflation**

Inflation is caused by multiple factors, here are a few:



## **1. Money Supply**

Excess currency (money) supply in an economy is one of the primary cause of inflation. This happens when the money supply/circulation in a nation grows above the economic growth, therefore reducing the value of the currency.

In the modern era, countries have shifted from the traditional methods of valuing money with the amount of gold they possessed. Modern methods of money valuation are determined by the amount of currency that is in circulation which is then followed by the public's perception of the value of that currency.

## **2. National Debt**

There are a number of factors that influence national debt, which include the nations borrowing and spending. In a situation where a country's debt increases, the respective country is left with two options:

Taxes can be raised internally

Additional money can be printed to pay off the debt

## **3. Demand-Pull Effect**

The demand-pull effect states that in a growing economy as wages increase within an economy, people will have more money to spend on goods and services. The increase in demand for goods and services will result in companies to raise prices that consumers will bear in order to balance supply and demand.

## **4. Cost-Push Effect**

This theory states that when companies face increased input costs on raw materials and wages for manufacturing consumer goods, they will preserve their profitability by passing the increased production cost to the end consumer in the form of increased prices.

## **5. Exchange Rates**

An economy with exposure to foreign markets mostly functions on the basis of the dollar value. In a trading global economy, exchange rates play an important factor in determining the rate of inflation.

Factoring for inflation is an essential process for financial planning. The question is how much will you actually need when you retire? Here are a few ways you can retire financially sound keeping inflation in mind.

### **1. Invest in long-term investments.**

When it comes to long-term investments, spending money now can allow you to benefit from inflation in the future..

### **2. Save More**

Retirement requires more money than one might imagine. The two ways to meet retirement goals are to save more or invest aggressively.

### **3. Make balanced investments**

Though investing in bonds alone feel safer, invest in multiple portfolios. Do not put all your eggs in one basket to outpace inflation.

## **NOTES**

### **14.7.2: KINDS OF INFLATION:**

Inflation is when the prices of goods and services increase. There are four main types of inflation, categorized by their speed. They are creeping, walking, galloping and hyperinflation. There are specific types of asset inflation and also wage inflation. Some experts say demand-pull and cost-push inflation are two more types, but they are causes of inflation.

#### **1. Creeping Inflation**

Creeping or mild inflation is when prices rise 3 percent a year or less. According to the Federal Reserve, when prices increase 2 percent or less it benefits economic growth. This kind of mild inflation makes consumers expect that prices will keep going up. That boosts demand. Consumers buy now to beat higher future prices. That's how mild inflation drives economic expansion.

#### **2. Walking Inflation:**

This type of strong, or pernicious, inflation is between 3-10 percent a year. It is harmful to the economy because it heats up economic growth too fast. People start to buy more than they need, just to avoid tomorrow's much higher prices. This drives demand even further so that suppliers can't keep up. As a result, common goods and services are priced out of the reach of most people.

#### **3. Galloping Inflation:**

When inflation rises to 10 percent or more, it wreaks absolute havoc on the economy. Money loses value so fast that business and employee income can't keep up with costs and prices. Foreign investors avoid the country, depriving it of needed capital. The economy becomes unstable, and government leaders lose credibility. Galloping inflation must be prevented at all costs.

#### **4. Hyperinflation:**

Hyperinflation is when prices skyrocket more than 50 percent a month. It is very rare. In fact, most examples of hyperinflation have occurred only when governments printed money to pay for wars. Examples of hyperinflation include Germany in the 1920s, Zimbabwe in the 2000s, and Venezuela in the 2010s. The last time America experienced hyperinflation was during its civil war.

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### **5. Stagflation:**

Stagflation is when economic growth is stagnant but there still is price inflation. This seems contradictory, if not impossible. Why would prices go up when there isn't enough demand to stoke economic growth?

It happened in the 1970s when the United States abandoned the gold standard. Once the dollar's value was no longer tied to gold, it plummeted. At the same time, the price of gold skyrocketed.

Stagflation didn't end until Federal Reserve Chairman Paul Volcker raised the fed funds rate to the double-digits. He kept it there long enough to dispel expectations of further inflation. Because it was such an unusual situation, stagflation probably won't happen again.

### **6. Core Inflation:**

The core inflation rate measures rising prices in everything except food and energy. That's because gas prices tend to escalate every summer. Families use more gas to go on vacation. Higher gas costs increase the price of food and anything else that has large transportation costs. The Federal Reserve uses the core inflation rate to guide it in setting monetary policy. The Fed doesn't want to adjust interest rates every time gas prices go up.

### **7. Deflation**

Deflation is the opposite of inflation. It's when prices fall. It's caused when an asset bubble bursts. That's what happened in housing in 2006. Deflation in housing prices trapped those who bought their homes in 2005. In fact, the Fed was worried about overall deflation during the recession. That's because deflation can turn a recession into a depression. During the Great Depression of 1929, prices dropped 10 percent a year. Once deflation starts, it is harder to stop than inflation.

### **8. Wage Inflation**

Wage inflation is when workers' pay rises faster than the cost of living. This occurs in three situations. First, is when there is a shortage of workers. Second, is when labor unions negotiate ever-higher wages. Third is when workers effectively control their own pay.

A worker shortage occurs whenever unemployment is below 4 percent. Labor unions negotiated higher pay for auto workers in the 1990s. CEOs effectively control their own pay by sitting on many corporate boards, especially their own. All of these situations created wage inflation.

Of course, everyone thinks their wage increases are justified. But higher wages are one element of cost-push inflation. That can drive up, the prices of a company's goods and services.

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### 9. Asset Inflation:

An asset bubble, or asset inflation, occurs in one asset class. Good examples are housing, oil and gold. It is often overlooked by the Federal Reserve and other inflation-watchers when the overall rate of inflation is low. But the subprime mortgage crisis and subsequent global financial crisis demonstrated how damaging unchecked asset inflation can be.

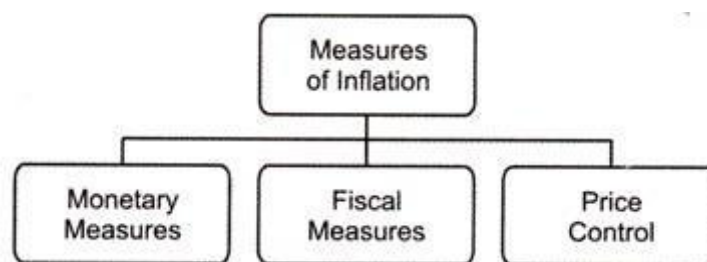
### 14.7.3 MEASURES TO CONTROL INFLATION:

Inflation is considered to be a complex situation for an economy. If inflation goes beyond a moderate rate, it can create disastrous situations for an economy; therefore it should be under control.

It is not easy to control inflation by using a particular measure or instrument.

The main aim of every measure is to reduce the inflow of cash in the economy or reduce the liquidity in the market.

The different measures used for controlling inflation are shown in Figure:



The different measures used for controlling inflation are explained below.

#### 1. Monetary Measures:

The government of a country takes several measures and formulates policies to control economic activities. Monetary policy is one of the most commonly used measures taken by the government to control inflation.

In monetary policy, the central bank increases rate of interest on borrowings for commercial banks. As a result, commercial banks increase their rate of interests on credit for the public. In such a situation, individuals prefer to save money instead of investing in new ventures.

This would reduce money supply in the market, which, in turn, controls inflation. Apart from this, the central bank reduces the credit creation capacity of commercial banks to control inflation.

The monetary policy of a country involves the following:

- (a) Rise in Bank Rate:

It refers to one of the most widely used measure taken by the central bank to control inflation. The bank rate is the rate at which the commercial bank gets a rediscount on loans and advances by the central bank. The increase in the bank rate results in the rise of rate of interest on loans for the public. This leads to the reduction in total spending of individuals.

The main reasons for reduction in total expenditure of individuals are as follows;

(i) Making the borrowing of money costlier:

Refers to the fact that with the rise in the bank rate by the central bank increases the interest rate on loans and advances by commercial banks. This makes the borrowing of money expensive for general public.

Consequently, individuals postpone their investment plans and wait for fall in interest rates in future. The reduction in investments results in the decreases in the total spending and helps in controlling inflation.

(ii) Creating adverse situations for businesses:

Implies that increase in bank rate has a psychological impact on some of the businesspersons. They consider this situation adverse for carrying out their business activities. Therefore, they reduce their spending and investment.

(iii) Increasing the propensity to save:

Refers to one of the most important reason for reduction in total expenditure of individuals. It is a well-known fact that individuals generally prefer to save money in inflationary conditions. As a result, the total expenditure of individuals on consumption and investment decreases.

**(b) Direct Control on Credit Creation:**

Constitutes the major part of monetary policy.

The central bank directly reduces the credit control capacity of commercial banks by using the following methods:

**(i) Performing Open Market Operations (OMO):**

Refers to one of the important method used by the central bank to reduce the credit creation capacity of commercial banks. The central bank issues government securities to commercial banks and certain private businesses.

In this way, the cash with commercial banks would be spent on purchasing government securities. As a result, commercial bank would reduce credit supply for the general public.

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### (ii) Changing Reserve Ratios:

Involves increase or decrease in reserve ratios by the central bank to reduce the credit creation capacity of commercial banks. For example, when the central bank needs to reduce the credit creation capacity of commercial banks, it increases Cash Reserve Ratio (CRR). As a result, commercial banks need to keep a large amount of cash as reserve from their total deposits with the central bank. This would further reduce the lending capacity of commercial banks. Consequently, the investment by individuals in an economy would also reduce.

### 2. Fiscal Measures:

Apart from monetary policy, the government also uses fiscal measures to control inflation. The two main components of fiscal policy are government revenue and government expenditure. In fiscal policy, the government controls inflation either by reducing private spending or by decreasing government expenditure, or by using both.

It reduces private spending by increasing taxes on private businesses. When private spending is more, the government reduces its expenditure to control inflation. However, in present scenario, reducing government expenditure is not possible because there may be certain on-going projects for social welfare that cannot be postponed.

Besides this, the government expenditures are essential for other areas, such as defense, health, education, and law and order. In such a case, reducing private spending is more preferable rather than decreasing government expenditure. When the government reduces private spending by increasing taxes, individuals decrease their total expenditure.

For example, if direct taxes on profits increase, the total disposable income would reduce. As a result, the total spending of individuals decreases, which, in turn, reduces money supply in the market. Therefore, at the time of inflation, the government reduces its expenditure and increases taxes for dropping private spending.

### 3. Price Control:

Another method for ceasing inflation is preventing any further rise in the prices of goods and services. In this method, inflation is suppressed by price control, but cannot be controlled for the long term. In such a case, the basic inflationary pressure in the economy is not exhibited in the form of rise in prices for a short time. Such inflation is termed as suppressed inflation.

The historical evidences have shown that price control alone cannot control inflation, but only reduces the extent of inflation. For example, at the time of wars, the government of different countries imposed price controls to prevent any further rise in the prices. However, prices remain at peak in different economies. This was because of the reason that inflation was persistent in different economies, which caused sharp rise in prices.

Therefore, it can be said inflation cannot be ceased unless its cause is determined.

**Check your Progress III**

**Note:** a. Write your answer in the space given below

b. Compare your answer with those given at the end of the unit

1. What is the demand pull effect state?

**NOTES**

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## **14.8 DEFLATION**

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### **14.8.1 MEANING**

Deflation is generally the decline in the prices for goods and services that occur when the rate of inflation falls below 0%. Deflation will take place naturally, if and when the money supply of an economy is limited.

Deflation in an economy indicates deteriorating conditions. Deflation is normally linked with significant unemployment and low productivity levels of good and services. The term “Deflation” is often mistaken with “disinflation.” While deflation refers to a decrease in the prices of goods and services in an economy, disinflation is when inflation increases at a slower rate.

Deflation can be caused by multiple factors:

#### **1. Structural changes in capital markets**

When different companies selling similar goods or services compete, there is a tendency to lower prices to have an edge over the competition.

#### **2. Increased productivity**

Innovation and technology enable increased production efficiency which leads to lower prices of goods and services. Some innovations affect the productivity of certain industries and impact the entire economy.

#### **3. Decrease in supply of currency**

The decrease in the supply of currency will decrease the prices of goods and services to make it affordable to people.

#### **Effects of Deflation**

Deflation may have the following impacts on an economy:

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**1. Reduction in Business Revenues**

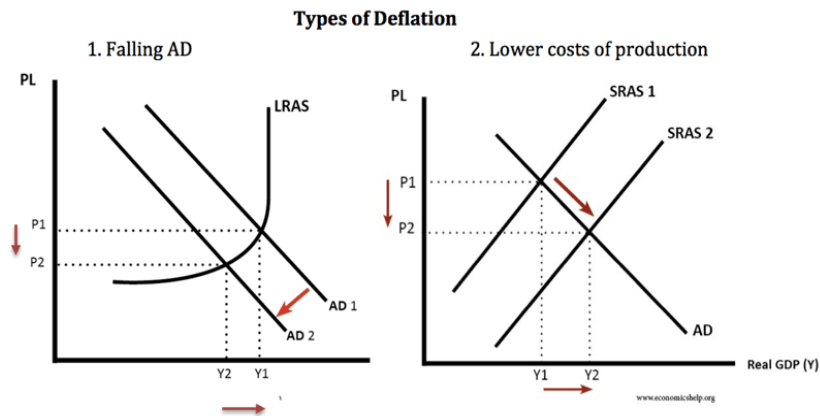
In an economy faced with deflation, businesses must drastically reduce the prices of their products or services to stay profitable. As reducing in prices take place, revenues begin to drop.

**2. Lowered Wages and Layoffs**

When revenues begin to drop, businesses need to find means to reduce their expenses to meet objectives. One way is by reducing wages and cutting jobs. This adversely affects the economy as consumers would now have less to spend.

**14.8.2 TYPES OF DEFLATION:**

Deflation has been associated with falling rates of economic growth and higher unemployment. However, it is possible to have a different type of deflation – from rapidly improving productivity; then deflation can be



consistent with higher rates of economic growth.

The key issue is – what is causing the deflation and if prices are falling – what is happening to real wages and real interest rates?

**14.8.3: MEASURES TO CONTROL DEFLATION:**

Deflation can be controlled by adopting monetary and fiscal measures in just the opposite manner to control inflation.

However, we discuss these measures in brief.

**1. Monetary Policy:**

To control deflation, the central bank can increase the reserves of commercial banks through a cheap money policy. They can do so by buying securities and reducing the interest rate. As a result, their ability to extend credit facilities to borrowers increases. But the experience of the Great Depression tells us that in a serious depression when there is



pessimism among businessmen, the success of such a policy is practically nil.

In such a situation, banks are helpless in bringing about a revival. Since business activity is almost at a standstill, businessmen do not have any inclination to borrow to build up inventories even when the rate of interest is very low. Rather, they want to reduce their inventories by repaying loans already drawn from the banks.

Moreover, the question of borrowing for long-term capital needs does not arise during deflation when the business activity is already at a very low level. The same is the case with consumers who faced with unemployment and reduced incomes do not like to purchase any durable goods through bank loans.

Thus all that the banks can do is to make credit available but they cannot force businessmen and consumers to accept it. In the 1930s, very low interest rates and the piling up of unused reserves with the banks did not have any significant impact on the depressed economies of the world. Thus the success of monetary policy in controlling deflation is severely limited.

## **2. Fiscal Policy:**

Fiscal policy through increase in public expenditure and reduction in taxes tends to raise national income, employment, output, and prices. An increase in public expenditure during deflation increases the aggregate demand for goods and services and leads to a large increase in income via the multiplier process, while a reduction in taxes has the effect of raising disposable income thereby increasing consumption and investment expenditures of the people.

The government should increase its expenditure through deficit budgeting and reduction in taxes. The public expenditure includes expenditure on such public works as roads, canals, dams, parks, schools, hospitals and other buildings, etc. and on such relief measures as unemployment insurance, pensions, etc.

Expenditure on public works creates demand for the products of private construction industries and helps in reviving them while expenditure on relief measures stimulates the demand for consumer goods industries. Reduction in such taxes as corporate profits tax, income tax, and excise taxes tends to leave more income for spending and investment.

Borrowing by the government to finance budget deficits utilises idle money lying with banks and financial institutions for investment purposes. But the effectiveness of public expenditure primarily depends upon the public works programme, its importance in the economic system, the volume and nature of public works and their planning and timing.

## **NOTES**

## NOTES

### Check your Progress IV

- Note:** a. Write your answer in the space given below
- b. Compare your answer with those given at the end of the unit
1. State any two factors causing deflation?

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### 14.9 LET US SUM UP

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This unit talks about the Business cycle, features of business cycle along with the various theories of business cycles. Besides, this unit also talks about the measures to control business cycles and impacting factors on business decisions. It also focus about the inflation and deflation and the measures to control both inflation and deflation.

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### 14.10 UNIT END EXERCISES

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1. What do you mean by Business Cycle
2. List down the features of business cycle
3. Write in detail on the various theories of business cycles
4. How to control business cycles
5. What do you mean by business decision
6. How does the business decision impact on any business
7. Write a short note on Inflation
8. Write a short note on Deflation
9. What measures are available to control Inflation
10. What measures are available to control Deflation.

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### 14.11 ANSWERS TO CHECK YOUR PROGRESS

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1. The business cycle describes the rise and fall in production output of goods and services in an economy. Business cycles are generally measured using the rise and fall in the real gross domestic product (GDP) or the GDP adjusted for inflation.
2. The aim of direct controls is to ensure proper allocation of resources for the purpose of price stability.
3. The demand-pull effect states that in a growing economy as wages increase within an economy, people will have more money to spend on goods and services. The increase in demand for goods and services will result in companies to raise prices that consumers will bear in order to balance supply and demand.
4.
  1. Structural changes in capital markets
  1. Increased productivity

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## **14.12 SUGGESTED READINGS**

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1. Sankaran.S 2004. Managerial Economics. Margham Publication
2. Gupta.G.S. 2009. Managerial Economics. Tata McGraw – Hill Education Pvt Ltd.
3. Cauvery.R.Dr.Sudha Nayak. U.K., Girija.M and Dr.Meenakshi.R.2010. Managerial Economics. S.Chand, New Delhi.
4. Maheswari.K.L and Varshney R.L. 2014. Managerial Economics. 22<sup>nd</sup> Edition, Chand Sons, New Delhi.

## **NOTES**

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**DISTANCE EDUCATION – CBCS – (2018 -19 Academic Year onwards)**

**Question Paper Pattern (ESE) – Theory  
UG Programme**

Time : 3 hours  
marks

Maximum : 75

**Part – A (10 x 2 = 20 marks)**

Answer all questions

1. What do you mean by Micro economics
2. What is meant by deduction
3. What is Market
4. What is an indifference curve
5. What is meant by Elasticity of Demand
6. Give an example for cross elasticity of demand
7. Write any four factors of Production
8. What do you mean by Business Cycle
9. Mention the instruments of Economic stability
10. What do you mean by Inflation and Deflation

**Part – B (5 x 5 = 25 marks)**

11. a. State out the importance of the study of Managerial Economics  
(or)  
b. Write a short note on Elasticity of Demand
12. a. What are the criteria for a good demand forecasting  
(or)  
b. State out the factors determining elasticity of Supply
13. a. Write a short note on Cost –output relationship in the short run  
(or)  
b. Write a short note on Cyert and March’s Behaviour theory
14. a. Write a short note on Pricing Policies  
(or)  
b. Write a short note on Price Output determination under Perfect Competition
15. a. What do you mean by Index numbers  
(or)  
b. What is Stabilization Policy

**Part C (3 x 10 = 30 marks)**

(Answer any 3 out of 5 questions)

16. Explain the scope of Managerial Economics and the function of a Managerial Economist
17. Elucidate the Elasticity of Demand
18. Explain the methods of Demand Forecasting
19. What are the Pricing Methods. Explain with suitable SSSexamples
20. Explain in detail the measures to control inflation and Deflation.

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