318
INTERMEDIATE
ECONOMICS
STUDY MATERIAL

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FOREWORD

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Best wishes to all the learners and happy learning experience at APOSS.

Dr. K.V. SRINIVASULU REDDY
DIRECTOR, APOSS
## CONTENTS

<table>
<thead>
<tr>
<th>Lesson Name</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Definitions of Economics</td>
<td>1-3</td>
</tr>
<tr>
<td>2. Economy and its Processes</td>
<td>4-8</td>
</tr>
<tr>
<td>3. Basic Problems of an Economy</td>
<td>9-15</td>
</tr>
<tr>
<td>4. Economic Development and Indian Economy</td>
<td>16-21</td>
</tr>
<tr>
<td>5. Statistics: Meaning and Scope</td>
<td>22-27</td>
</tr>
<tr>
<td>7. Presentation of Statistical Data</td>
<td>36-42</td>
</tr>
<tr>
<td>8. Statistical Methods</td>
<td>43-50</td>
</tr>
<tr>
<td>9. Index Numbers: Meaning and their construction</td>
<td>51-56</td>
</tr>
<tr>
<td>10. Index Numbers: Problems and Uses</td>
<td>57-60</td>
</tr>
<tr>
<td>11. Introduction to Macro Economics</td>
<td>61-65</td>
</tr>
<tr>
<td>12. Income Flows</td>
<td>66-73</td>
</tr>
<tr>
<td>14. Inflation</td>
<td>83-87</td>
</tr>
<tr>
<td>15. National Income</td>
<td>88-95</td>
</tr>
<tr>
<td>17. What Micro Economics is All about</td>
<td>103-107</td>
</tr>
<tr>
<td>18. The Theory of Consumption</td>
<td>108-114</td>
</tr>
<tr>
<td>Chapter</td>
<td>Title</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>19.</td>
<td>Indifference Curves Analysis</td>
</tr>
<tr>
<td>20.</td>
<td>What Affects Demand</td>
</tr>
<tr>
<td>21.</td>
<td>Elasticity of Demand</td>
</tr>
<tr>
<td>22.</td>
<td>What Affects Supply</td>
</tr>
<tr>
<td>23.</td>
<td>Theory of Production</td>
</tr>
<tr>
<td>24.</td>
<td>Theory of Distribution</td>
</tr>
<tr>
<td>25.</td>
<td>Price Determination</td>
</tr>
<tr>
<td>26.</td>
<td>Cost</td>
</tr>
<tr>
<td>27.</td>
<td>Revenue</td>
</tr>
<tr>
<td>28.</td>
<td>Profit Maximisation</td>
</tr>
<tr>
<td>29.</td>
<td>The Government Budgeting</td>
</tr>
<tr>
<td>30.</td>
<td>Money Supply and Its Regulation</td>
</tr>
<tr>
<td>31.</td>
<td>Need for Planning in India</td>
</tr>
<tr>
<td>32.</td>
<td>Achievements of Planning in India</td>
</tr>
<tr>
<td>33.</td>
<td>New Economic Reforms and the Role of Planning</td>
</tr>
<tr>
<td>34.</td>
<td>Economic Development of Andhra Pradesh</td>
</tr>
<tr>
<td>35.</td>
<td>Environment and Economic Development</td>
</tr>
<tr>
<td>36.</td>
<td>Agriculture</td>
</tr>
<tr>
<td>37.</td>
<td>Industry</td>
</tr>
<tr>
<td>38.</td>
<td>Interdependence of Agriculture and Industry</td>
</tr>
<tr>
<td>39.</td>
<td>Population of India</td>
</tr>
<tr>
<td>40.</td>
<td>Population of India Structure, Problems and Measures</td>
</tr>
</tbody>
</table>
Definitions of Economics

Introduction

Economics is a social science. It probes into man’s economic behavior and problems reflected in economic activities. Economics as a science, studies the individuals and organizations in the society engaged in the production, distribution and consumption of goods and services.

Objectives

After going through this lesson you will be able to understand the following:

- Origin and meaning of Economics
- Subject matter of Economics
- Definitions of Economics-criticisms

One Mark Questions

1. What do mean by the term Economics

The term Economics is originally derived from the Greek words ‘OKIOS’ (a house) and ‘NEMEIN’ (to manage), meaning household management.

Two Marks Questions

1. Explain Wealth definition

Ans. Adam Smith was the first man to convert all economic discussions into a science. Adam Smith is considered as the ‘father of economics’. Adam Smith defined Economics as a “Study of Wealth”. J.B.say defined “Economics is the science which deals with Wealth”. Walker defined economics as “That body of knowledge which relates to wealth”.
2. **Write about Welfare definition**

   Ans. Alfred Marshall in his famous book “Principles of Economics” (1890) defined economics as a ‘study of man and his welfare”. He shifted the emphasis from wealth to welfare. Besides Marshall, Beveridge Cannon and Pigoue also defined Economics in terms of welfare.

3. **Write about scarcity definition**

   Ans. In his book “Nature and Significance of Economic Science” (1932), Lionel Robbins gave a "Scarcity oriented definition to economics. In his own words. "Economics is the science which studies human behaviour as a relationship between ends and scare means which have alternative uses”. This definition is based on three facts. They are i) Unlimited wants ii) Limited or scarcity of means iii) Means have alternative uses.

4. **Growth definition**

   Ans. Prof. Samuelson, adopted a dynamic approach to the study of economics by including the concept of economic growth as the main emphasis of his definition. Economics is the study of how societies use scarce resources to produce valuable commodities and distribute them among different people.

5. **Jacob viner’s definition**

   Ans. According to Jacob Viner – "Economics is what economists do”. It is clear from his definition that by studying the basic problems of the economy and the solutions provided by the economists from time to time is the best way to understand the scope and subject matter of economics.

4 Marks Questions

1. **Explain Wealth definition and its demerits.**

   Ans. Adam Smith was the first man to convert all economic discussions into a science. Adam Smith is considered as the ‘father of economics’. Adam Smith defined Economics as a “Study of Wealth”. J.B.say defined “Economics is the science which deals with Wealth”. Walker defined economics as “That body of knowledge which relates to wealth”.

   In the view of these economists, the subject of Economic studies, those activities of people which are undertaken for accruing more criticism.

   The wealth definition of Economics came to be vigorously criticized especially by Carlyle and Ruskin- 1) They said that it teaches nothing but selfishness. 2) This definition has given importance to wealth. 3) In Smith’s definitions, wealth is considered to consist of only material things and services are not included. Therefore this definition restricted the scope of Economics.
2. **Explain Welfare definition and its demerits.**

Alfred Marshall in his famous book “Principles of Economics” (1890) defined economics as a ‘study of man and his welfare’. He shifted the emphasis from wealth to welfare. Besides Marshall, Beveridge Cannon and Pigou also defined Economics in terms of welfare.

The important points in welfare definition are as follows.

1) Man is primary and wealth is secondary
2) Economics deals with “material welfare”
3) Marshall and Pigou limited the scope of Economics to the study of economic activities that are conducive to human welfare criticism.

Though these welfare oriented definitions of economics gained ground for some time, they were criticized by the modern economists.

1. Lionel Robbins took serious objection for limiting the scope of economics to material objects only.
2. Marshall is mainly concerned with the people living in the organized societies and neglected the others.
3. One more criticism is welfare definition is not concerned with the fundamental problem of ‘Scarcity of resources’.
4. The quantitative measurement of welfare is not possible.

3. **Explain Scarcity definition and its demerits**

Ans. In his book “Nature and Significance of Economic Science” (1932), Lionel Robbins gave a ‘Scarcity oriented definition to economics. In his own words..

“Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses”. This definition is based on three facts. They are i) Unlimited wants ii) Limited or scarcity of means iii) Means have alternative uses.

Robbins definition thus suggests that economics studies man’s behaviour within the confines of the economic conditions of scarcity criticism.

1. Robbins definition is not applicable to a dynamic society where changes take place and we can overcome the problem of scarcity of resources with the passage of time.
2. Scarcity definition does not cover the major concerns of modern economics; namely economics, growth and economic development.
3. According to Robbins, economics is more a human science than a social science. But critics pointed out that economics is a social science which deals with human behaviour and social purpose.

* * *

3
Economy and Its Processes

Introduction

All of us are engaged in various types of activities. As a student you are primarily engaged in your studies. Some of you may also be working to earn. Those of you who are not earning will ultimately try to do some work that will fetch you income. All of us earn or want - to earn in order to spend and save. Thus all income earning, spending and saving activities are very important activities. These are called economic activities. Income is the source of spending and saving. On the other hand, the need for spending and saving provides the motivation for earning an income. If there is no need of spending and saving there is no need of earning an income. So economic activities are interrelated and interdependent.

Income is generated in due production process. It is spent on goods and services produced in the production process. Spending for satisfaction of wants is consumption activity. Spending for producing more is investment activity. As such production, consumption and investment are the three basic economic activities or processes. The area in which these activities take place is called an "economy". In this lesson you will learn about the meaning of an economy and its various economic processes viz. production, consumption and investment.

Objectives

After going through this lesson, you will be able to:

● explain the meaning of an economy;
● state the types of goods and services provided by an economy;
● explain the meaning of production, consumption and investment;
● distinguish between ‘gross’ and ‘net’ investment;
● explain the meaning of saving;
● explain the interrelationship between different economic processes.

One Mark Questions

1. Economy
   The term ‘economy’ is generally associated with a country. We can even talk of a world economy which will include all production units existing in the world. Indian economy thus includes all the production units or work places existing in India.

2. Consumer Goods
   Those goods which directly satisfy human wants are called consumer goods. They includes all purchases made for direct satisfaction of wants like food items, clothes, shoes, books, furnitures, scooters, etc.

3. Producer Goods
   Those goods which are used to produce more goods and services are called producer goods. Machines, tools, buildings, material etc. are all producer goods. These goods are required by the producers for producing more goods.

4. Perishable Goods
   As is clear from the term itself, a unit of single use consumer goods can be used only once. Food items like milk, sugar, vegetables, etc. and other goods like soap, oil, ink, paper etc. are all single use consumer goods.

5. Durable Goods
   Durable use consumer goods, on the other hand, are those goods which can be used by the consumers again and again like furniture, clothes, shoes, refrigerator, television, radio etc.

6. Economic Activities
   The three most important activities in an economy are (i) production (ii) Consumption and (iii) investment

7. Production
   Production is generally understood as making of goods in a factory such as machines, televisions, cloth, medicines etc. or growing of crops on farms. But in economics the word ‘production’ has a much wider meaning. It includes not only the making of various goods but also the services.
8. **Consumption**

Consumption is defined as an activity concerned with using up of goods and services, for direct satisfaction of wants. In other words, consumption is an act of satisfying one’s wants.

9. **Investment**

It is arisen out of savings. Adding additional capital goods to existirings capital.

10. **Inventories**

The goods which are in the gowdwns and for using to produce final goods are called inventories.

11. **Fixed Investment**

Acquiring up of durable use producer goods by production units is called fixed investment. It amounts to adding, new machines, equipment etc.

12. **Gross Investment**

A production unit possesses some fixed capital. This fixed capital is in the form of machines, tools, factory building etc.

13. **Capital Depreciation**

When this fixed capital is used in production, some wear and tear take place during the year.

14. **Net Investment**

The loss of value of fixed capital due to wear and tear in use and due to expected obsolescence is called depreciation or consumption of fixed capital. If we subtract this depreciation or consumption of fixed capital from gross investment, we get net investment.

**Two Marks Questions**

1. **What do you mean by economy?**

Ans. All the production units together make an economy. The term ‘economy’ is generally associated with a country. But it may need not always be so. It can also be associated with city, town and village. A city’s economy includes factories, shops, offices, schools, colleges, banks and all other work places located in that city. Similarly a village economy includes farms, shops and all other establishments in that village where people work. We can even talk of a world economy which will include all production units existing in the world. Indian economy thus includes all the production units or work places existing in India.
2. **What do you mean by Consumer Goods?**

Ans. Those goods which directly satisfy human wants are called consumer goods. It will include all purchases made for direct satisfaction of wants like food items, clothes, shoes, books, furnitures, scooters, etc. We buy these goods for ourselves and for other family members. Consumer goods can be classified into two categories: (a) single use consumer goods and durable use consumer goods. As is clear from the term itself, a unit of single use consumer goods can be used only once. Food items like milk, sugar, vegetables, etc. and other goods like soap, oil, ink, paper etc. are all single use consumer goods. Durable use consumer goods, on the other hand, are those goods which can be used by the consumers again and again like furniture, clothes, shoes, refrigerator, television, radio etc.

3. **What do you mean by production goods?**

Ans. Those goods which are used to produce more goods and services are called producer goods. Machines, tools, buildings, raw material etc. are all producer goods. These goods are required by the producers for producing more goods.

Furthermore, producer goods are used not only to produce more goods but also to produce more services. For example, an X-ray machine in a hospital or a stethoscope with a doctor is a producer good as this helps in rendering medical services. Thus producer goods are those goods which are used to produce goods and services.

Producer goods are also classified into single use producer goods and durable use producer goods. Single use producer goods are those goods which are used up in production in a single act. For example, the raw material is single use producer goods. These goods lose their identity the moment they are used in production. Durable use producer goods are those goods which can be used in production again and again like machines, tools, vehicles, factory building etc.

4. **What is Production?**

Ans. Production is generally understood as making of goods in a factory such as machines, televisions, cloth, medicines etc. or growing of crops on farms. But in economics the word ‘production’ has a much wider meaning. It includes not only the making of various goods but also the services. For all of us services are also as essential as the goods. In fact some of the goods cannot be used by us if necessary services are not provided. For example, television or radio cannot be used unless the services of artists or technicians are provided. Similarly a train or a bus is a good which cannot be used without the services of a driver. Goods cannot reach actual users without the services of transporters, traders etc. Thus production includes the goods made and the services provided in an economy.
5. **What do you mean by Fixed investment?**

Ans. Acquiring up of durable use producer goods by production units is called fixed investment. It amounts to adding new machines, equipment etc. Total investment equals the sum of inventory investment and fixed investment. The alternative name for investment is capital formation.

6. **What is Net Investment?**

Ans. The loss of value of fixed capital due to wear and tear in use and due to expected obsolescence is called depreciation or consumption of fixed capital. If we subtract this depreciation or consumption of fixed capital from gross investment, we get net investment. So,

\[ \text{Net Investment} = \text{Gross Investment} - \text{Depreciation} \]

4 Marks Questions

1. **Explain the relationship between consumption and production**

Ans. Production, consumption and investment processes are interrelated in the following manner:

First, production is the source of consumption and investment. If there is no production there would be no consumption and investment. Given production, if there is more consumption less would be available for investment.

Second, consumption provides motivation for production and investment. If there is no need for consumption, there is no need to invest and produce.

Third, investment determines the level of production. The more we invest, the more we can produce.

Fourth, saving is the major source of financing investment. More saving means more investment which in turn means more production leading to more consumption and investment.

* * *
Introduction

In previous chapter, we have studied about the different economic activities that are undertaken in an economy. We have also discussed the meaning of an economy. In this chapter we shall explore the basic economic problem that exists in every economy. This discussion shall help us understand how scarcity leads to choice. We shall also study that the basic economic problem leads to certain central problems in every economy. We shall conclude the chapter with a discussion on how the central problems can be explained through a production possibility curve.

Objectives

After going through this lesson you will be able to:

- State the basic economic problem;
- Explain how scarcity leads to choice;
- Define and explain the central problems of an economy;
- Explain some of the other problems faced by an economy;
- Define production possibility curve; and
- Use a production possibility curve to explain the problems faced by an economy.

One Mark Questions

1. **Problem of Choice**

   Scarcity of resources leads to the problem of Choice
2. Basic Economic Problem

The basic economic problem states that human wants are unlimited but the resources to satisfy them are limited. Resources can be put to alternative use.

3. Problem of Resource Allocation

The central economic problems viz. What to produce,? How to produce? and for whom to produce are collectively called "The Problem of Resource Allocation".

4. Production Possibilities Curve

The Production Possibilities Curve reflects the different combinations of two goods that can be produced with full and efficient utilization of given resources and a given state of technology.

Two Marks Questions

1. What Do You Mean By Resources With Alternative Uses

All factors of production can be put to alternative uses. For example, a piece of land can be used to do farming, build a factory, develop a school or build a hospital. A labour can be used to plough a field, make baskets or sell vegetables. Hence we see that resources have alternative uses.

2. What Is Economic Or Choice Problem

Wants are unlimited but resources to satisfy those wants are limited. Hence, the basic economic problem that is faced by all economies is that there are unlimited wants but the resources to satisfy these wants are limited. We have also discussed that resources have alternative uses. Scarcity of resources also leads to choice.

3. What Do You Mean By Limited Resources

Resources to satisfy human wants are limited. People may have high or low income but not unlimited income. Hence resources available to consumers are scarce or limited. Resources are the factors of production that are used to make the goods and services which satisfy human wants. These resources include land, capital and entrepreneurship.

4. Write About Scarcity Of Resources

Scarcity means that the demand for the resources is greater than their availability. Resources to satisfy wants are limited. People may have high or low income but not unlimited income. These resources include land, labour, capital and entrepreneurship.
8 Marks Questions

1. How An Economic Problem Arises? Will Economic Problems Be there when Resources are Sufficient?

Every economy in the world faces the economic problem of unlimited wants and limited resources. The economic problem gives rise to people making choices about how they would like to use scarce resources. This economic problem gives rise to three fundamental economic problems which are as follows:

1. Which goods and services shall be produced and in what quantities?
2. How shall goods and services be produced?
3. For Whom goods and services are to be produced?

1. What goods and services shall be produced and in what quantities?

Ans. Which goods and services shall be produced and in what quantities? Every society may face similar problem of choice; however the priorities may be different. In less developed economies the choice may be between production of food crops and manufacture of bicycles. In advanced economies the choice may be between building more shopping malls and producing more cars.

2. How shall goods and services be produced?

Ans. How shall goods and services be produced? It is related to the method by which these are to be produced. Once the goods to be produced are decided, there is a problem of how to produce them. What tools are needed, how much land and how many workers are needed. There are many different ways of making things.

For example, clothes can be produced by employing more labour and less machines or more machines and less labour. If goods and services are produced by employing more of labour and less of capital, it is known as labour intensive method of production. If goods and services are produced by employing more of capital (machinery etc.), it is called capital intensive method of production.

3. For Whom goods and services are to be produced?

For whom goods and services are to be produced? Who is to enjoy and get the benefit of the goods and services produced? It is not possible to satisfy everyone’s want due to scarcity; so it must be decided whose wants are to be satisfied. Should the economy produce more of food crops or more of computers? Whose needs are to be addressed. The poorer people or the richer people? Should everybody get equal share of the total goods and services produced even
if some people may need more than others? All these decisions refer to the distribution of income and wealth in the society.

**Some other problems faced by an economy:**

Along with the above mentioned problems there are some other economic problems in an economy.

(i) The problem of fuller utilization of resources

(ii) The problem of growth of resources

(i) **The problem of fuller utilization of resources**

The other central problem of an economy relates to full utilisation of resources- land, labour and capital. You have seen that you can have more of bicycles by sacrificing some amount of wheat. If all the resources in the economy are fully employed, then the quantity of one commodity can be increased only by foregoing some quantity of the other. This happens when production takes place efficiently. But in reality, most of the time production does not take place efficiently. The factors are not fully employed and the production is below the optimum capacity of economy. You must have seen some of your family members or friends who are unemployed despite being educated. Similarly in our agricultural land we still grow only one crop in a year. This is not a good sign, as the resources are already scarce. If these scarce resources are also not utilized fully, it is wastage of resources. Thus it is the duty of an economy to ensure that the scarce resources do not remain unutilized or under-utilised.

(ii) **The problem of growth of resources**

If resources like labour, capital and technology grow over a period of time, the problem of scarcity can be addressed. Thus, for the growth of any economy, the resources available to the economy should grow. It is only through the effective growth of resources that a society can enjoy a higher standard of living. This is how the countries have developed. If the resources have failed to grow, the countries continue to be underdeveloped. Thus, the economies should make efforts so that their resources grow gradually to meet the growing needs.

2. **Explain Economic Problems with the help of Production Possibilities Curves.**

The central problems and the other problems faced by an economy can be depicted using a diagram or graph called a Production Possibility Curve (PPC). A Production Possibility Curve is a curve which depicts all possible combinations of two goods that an economy can produce with
full and efficient utilization of given resources and a given state of technology. A PPC assumes the following:

- Only two goods are produced
- Technology is given
- Resources are constant
- Resources are fully and efficiently utilized.

Let us understand how the PPC explains the various economic problems faced by an economy.

**Problem of Allocation of Resources:**

Let us assume a simple economy that produces only two goods—pulses and cloth. These goods are produced using two factors of production—land and labour with a given technology. With the given level of resources and technology, let us assume that the economy can produce the following combinations of output.

<table>
<thead>
<tr>
<th>Production Possibilities</th>
<th>Pulses (in lakh quintals)</th>
<th>Cloth (in million meters)</th>
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<tr>
<td>A</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>E</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Table shows that if all resources in the economy are employed to produce cloth, then it produces 14 million of cloth and no pulses. Similarly the production combinations 'E' shows that the economy can produce 4 lakh quintals of pulses but no units of cloth, if all resources are used in the production of pulses. The table also shows different combinations of pulses and cloth that can be produced at possibilities B, C and D.

The different combinations of output can be plotted on a graph and depicted as follows:
In the above figure we see that at point 'A', the economy produces no pulses but 14 million metres of cloth. At point B, resources are used in the production of both commodities and the economy produces 1 lakh quintals of pulses and 12 million metres of cloth. Similarly, points C, D and E show the other combinations of pulses and cloth that the economy can produce if resources are used fully and efficiently. Thus, the economy has to choose a point at which it would like to operate, as all points on the production possibility curve are equally efficient and show full employment of resources.

Observe on both the production possibility schedule and the curve that as we increase the output of pulses from 0 to 1 lakh quintals the output of cloth reduces from 14 million metres to 12 million meters. Similarly when output of pulses increases from 1 lakh quintals to 2 lakh quintals, the output of cloth further reduces from 12 million metres to 9 million metres. This shows that as the output of one commodity increases, the output of the other commodity decreases. This is because resources are scarce and limited.

**Underutilisation or inefficient utilization of resources:**

We have seen above that any point on the production possibility curve represents full and efficient utilization of resources. If, however, the economy functions at a point inside the production possibility curve, then it shows that there exists either underutilization or inefficient utilization of resources.
Let us understand this point with the help of an example. In the figure we see that at point 'K' the economy is producing 2 lakh quintals of pulses and 5 million metres of cloth. Through a re-allocation of resources we see increase in production of pulses to 3 lakh quintals and keep the production of cloth at 5 million metres (Point D) and increase the production of cloth to 9 million metres of cloth and keep the production of pulses at 2 lakh quintals (point C). Therefore, we can conclude that at point K the economy was not using its available resources in the best possible manner.

Growth of Resources:

We have studied earlier that resources in any economy need to grow to satisfy the ever increasing wants of people. Recollect that growth of resources occurs when the physical quantum of resources increases or when there is a rise in the productivity level of resources. This implies that with resources growing, the output produced in an economy will increase.
Economic Development and Indian Economy

Introduction

You have learnt in the previous lesson that every economy tries to produce more and more goods and services for its people. In this lesson you will study about the meaning of economic development and characteristics of economies. You will also study the main characteristics of the Indian economy.

Objectives

After going through this lesson you will be able to:

- define economic growth;
- differentiate between economic growth and economic development;
- identify the developed and developing economies;
- state some common characteristics of the developed and developing economies;
- list the main characteristics of Indian economy.

One Mark Questions

1. Classification of Countries

Ans. Countries are generally categorised into (a) less developed and (b) more developed. The less developed countries are called 'underdeveloped' or 'developing' countries. More developed countries are called 'developed' countries.

2. Characteristics of developing countries

Ans. The common characteristics of developing economies are:

   i) Most people of these countries have a very low level of income and consumption.
ii) A large number of people are below the poverty line meaning thereby that they are not able to meet even their basic requirement of food, clothing and shelter.

iii) A large number of people in these countries do not find employment for a large part of the year.

iv) The quality of life of the people in these countries is poor. The quality of life depends on literacy level, medical facilities, hygienic and sanitation facilities, infant mortality rate, life expectancy etc.

v) Agriculture in these countries is the main occupation of the people. The industry and technology is backward.

vi) The rate of growth of population in these countries is high and they are overpopulated.

3. **Better standard of living**

Ans. The quality of life of the people in the developing countries is low. The literacy rate, better medical facilities. Life expectancy, infant mortality rate are considered as indicators.

**Two Marks Questions**

1. **Explain the meaning of Economic development**

Ans. ‘Economic development’ is a wider concept than the concept of ‘economic growth’. Development is a concept which includes not only economic growth but certain other positive changes in other spheres of life. In fact, it includes development in all spheres. We will confine ourselves to the meaning of only economic development.

2. **What do you mean by economic growth?**

Ans. An increase in the total volume of goods and services produced by a nation is termed as economic growth. However, such an increase must not be one time but must continue over a long time. Any increase in the volume of goods and services due to some sudden occurrence (i.e. one time increase) cannot be termed as economic growth. For example, if agricultural production increases only in one year but does not increase in subsequent years, it will not be termed as economic growth. We talk of economic growth as an increase in total volume of goods and services produced by a nation spread over a long period of time.

3. **World Bank Classification of countries on the basis of Per-capita income.**

Ans. The World Bank classifies countries into four groups: (a) Low income, (b) Lower middle income, (c) Upper middle income and (d) High income. Out of these the first two groups are termed ‘developing countries. The last two groups are termed ‘developed’ countries.
<table>
<thead>
<tr>
<th>Group</th>
<th>Per capita GNP limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Low income countries</td>
<td>$725 or less</td>
</tr>
<tr>
<td>(b) Lower middle income</td>
<td>$726 to $2895</td>
</tr>
<tr>
<td>(c) Upper middle income</td>
<td>$2896 to $8955</td>
</tr>
<tr>
<td>(d) High income countries</td>
<td>$8956 or more</td>
</tr>
</tbody>
</table>

4 Marks Questions

1. **Distinguish between Economic growth and Economic development.**

   Ans. ‘Economic development’ is a wider concept than the concept of ‘economic growth’. Development is a concept which includes not only economic growth but certain other positive changes in other spheres of life. In fact, it includes development in all spheres. We will confine ourselves to the meaning of only economic development.

   An increase in the total volume of goods and services produced by a nation is termed as economic growth. However, such an increase must not be one time but must continue over a long time. Any increase in the volume of goods and services due to some sudden occurrence (i.e. one time increase) cannot be termed as economic growth. For example, if agricultural production increases only in one year but does not increase in subsequent years, it will not be termed as economic growth. We talk of economic growth as an increase in total volume of goods and services produced by a nation spread over a long period of time.

   To sum up, we can say that economic development is nothing but economic growth plus ‘change’. The term ‘change’ here refers to the qualitative changes in the economy. These are in the form of improvement in the level of living, reduction in inequality, rise in efficiency, improvement in technique, fast growth of industrial sector, positive changes in attitudes and so on. The terms ‘economic growth’ and ‘economic development’ may be mistaken as synonymous. But as student of economics, we must keep in mind the difference between these two terms.

2. **Explain the Concept of Economic Growth**

   Ans. An increase in the total volume of goods and services produced by a nation is termed as economic growth. However, such an increase must not be one time but must continue over a long time. Any increase in the volume of goods and services due to some sudden occurrence (i.e. one time increase) cannot be termed as economic growth. For example, if agricultural production increases only in one year but does not increase in subsequent years, it will not be termed as economic growth.
growth. We talk of economic growth as an increase in total volume of goods and services produced by a nation spread over a long period of time.

It does not necessarily mean an increase in the volume of all goods and services. It is an overall increase in total physical production. It also does not mean a uniform increase in the volume of all goods and services. In fact, it is possible that the volume of some goods and services may have increased much more and of some, much less. The volume of some goods and services may have even fallen.

The volume of goods and services produced by a nation is expressed in value (money). We must take into account totally, the real increase (physical quantity) by eliminating that increase in the value of total output which is due to the increase in prices. For example, suppose the value of total production in a country in 1995 is Rs. 4000/- crores and in 1996 it is Rs. 5000/- crores. This amounts to an increase of 25% over 1995. Suppose prices in 1996 were 25% higher than in 1995, is the rate of growth in the country in 1996, 25%? No. Because 25% is the increase in the value of production and not in volume of production. 25% increase in 1996 is due to increase in prices of goods and services. This means that there was no change in total production of goods and services. Hence the rate of growth was zero. In the example we have taken a period of one year to make you understand the meaning of real increase in total output. Remember that economic growth refers to the increase in total physical production and not to the increase in value of total production over a long period.

8 Marks Questions

1. What are the characteristics of Indian Economy

Ans. Indian economy has all the characteristics of a developing economy. Let us try to know in some detail the various characteristics of Indian economy. The main characteristics of the Indian economy are as follows:

1. Low level of income:

The per capita NNP in India in 1995-96 was about Rs. 9,300. It is one of the lowest in the world. Among the 133 countries of world India’s rank is 110. It means that there are 109 countries of the world which have higher per capita income than India. Low level of income indicates low standard of living i.e. low level of consumption. Whatever progress has been made in terms of the increase in production since Independence, the same is not reflected in increase in per capita income because along with increase in production, the population has also increased rapidly. Furthermore, everybody in India does not get an income of
Rs. 9,300/- in a year as is indicated by the average per capita income. There are wide disparities in income. This means that a large proportion of population have income level much below the average. About one third of the population is living below the poverty line i.e. they are not able to afford even the minimum nutrition required. Due to the low level of living the efficiency of labour is also low.

2. Predominance of agriculture:

About two third of India’s work force is engaged in agriculture. The contribution of agriculture to national income is about 30%. As against this the contribution of agriculture to the national income, in most of the developed countries it is between 2 to 4% and the working force engaged in agriculture is between 2 to 9%. Rainfall continues to be the main source of irrigation. The technology used in agriculture is also backward. Although in some areas modern techniques of cultivation are in application. Still the vast agricultural area uses primitive techniques of cultivation. A vast area of agricultural land is still not covered by irrigational facilities.

3. Capital - deficiency:

The low level of income results in low level of savings which results in low level of capital formation. For want of capital other resources like labour and natural resources remain unutilised. India has a large potential for renewable as well as non-renewable resources. We are not able to utilise them fully for want of capital.

4. Technological backwardness:

In large parts of almost all sectors of the Indian economy, technology used in production is backward. The expenditure incurred on research and development is also low. Advanced technology is in use in only a few industries.

5. Inadequate infrastructural facilities:

Infrastructural facilities include power, transport, communication etc. These facilities are essential for industrial development of the country. They also affect the development of agriculture and services sector. All these facilities are inadequate.

6. High rate of growth of population:

India’s population is very large (more than 84 crores in 1991) and is rising at a fast rate. (about 2.1%). Since 1951 when the development process was started, the birth rate had declined very slowly; while the death rate declined faster. A high growth rate of population puts additional pressure on resources. In such a situation the increase in per capita income will be much less than the increase in total production (national income).
7. High rate of illiteracy:

Illiteracy rate is quite high. Although it has declined substantially since 1951, it is still very high. Almost half of the Indian population is illiterate. Illiteracy rate in females is much higher than in males.

8. High infant mortality rate:

The number of deaths of infants under one year of age per thousand live births in India is very high. It was 70 in 1995. This shows the inadequate medical facilities, low level of nutrition and poor sanitary conditions.

9. Tradition bound attitudes towards work and life:

The Indian society is divided into many castes and sub-castes resulting in frictions in the society. The religious and social beliefs and customs inhibit the development of scientific attitudes. For example, the child is considered a gift of God. Each family wishes to have a male child. There is universality of marriage i.e. adults prefer to lead a married life.

10. Joint family system:

Joint family system obstructs mobility of labour. Families prefer to live together even if this may mean having a low level of living.

These are some of the important characteristics of the Indian economy, though this is not an exhaustive list. However, the Indian economy has developed during the last sixty years. The per capita income has increased though not at a very fast rate. The infrastructural development has also taken place. In fact there has been development in almost all sectors. But the rate of development is slowed down because of the high rate of growth of population. India is categorised as a developing economy. The process of development had started long back with the advent of the five year plans and it is gaining momentum.

* * *

21
Statistics : Meaning and Scope

Introduction

Every day we come across different types of quantitative information in newspapers, magazines, over radio and television. For example, we may hear or read that population of India had increased at the rate of 2.5% per year (per annum) during the period 1981-1991; the number of admission in National Open School had gone up by, say, 20% during 1996-97 as compared to 1995-96, etc. We is would like to know that what these figures mean. These quantitative information or expression called statistical data or statistics. In this lesson you will learn about the meaning of statistics and its scope.

Objectives

After going through this lesson, you will be able to:

- explain the need of statistics in Economics;
- outline the scope of statistics;
- distinguish between statistical data and statistical methods;
- state the meaning of statistical data and its characteristics;
- explain the different stages of statistical enquiry.

One Mark Questions

1. Statistics in Plural Sense

In plural sense it refers to quantitative information or simply statistical data. In singular sense it refers to method or methods used in arriving at the quantitative information or dealing with it.
2. **Statistics in Singular sense**
   In Singular sense means the Numerical statements of facts of statistical data.

3. **Data**
   Quantitative explanation of the information collected.

4. **Collection of data**:
   First of all, we have to collect data to study a problem. Data can be collected by the investigator himself. Such data are called primary data. He can obtain data from other sources also. Such data is secondary data. These data is found in published as well as unpublished forms.

5. **Analysis of data**
   It is the next step after collection of data. It is undertaken to derive conclusions from them. Analysis of an economic or other problems is not possible without the use of certain statistical tools such as measures of central tendency like mean, mode or median.

6. **Interpretation of data**:
   Interpretation of data is the last stage of a statistical enquiry. After making analysis with the help of statistical tools, we interpret the data to derive some conclusions in order to formulate certain policies. Interpretation must be done carefully as wrong interpretation will lead to formulation of wrong policies and hence do more harm than good.

7. **Analysis of data**:
   It is undertaken to derive conclusions from them. Analysis of an economic or other problems is not possible without the use of certain statistical tools such as measures of central tendency like mean, mode or median.

8. **Census of Population**
   Counting each and every member of the population. Magnitude - size.

9. **Primary data**
   The quantitative information collected first hand by the investigator himself.

10. **Secondary data**
    The quantitative information which has already been collected and investigator borrows to use in his own inquiry. All published data represents secondary data for those who have not collected themselves.
Two Marks Questions

1. Need for statistical data

Ans. There is need of statistical data in every walk of life. No field of study is complete without the supporting quantitative information about that field. Look at your study material in Economics, Commerce, Accountancy, Geography, Physics, Chemistry, Biology etc. These are all flooded with quantitative information. No government department can function well without the support of statistical data. The need of statistics in Economics is immense.

4 Marks Questions

1. Explain the need for statistics in Economics

Ans. The need of statistics in Economics is immense.

(i) Needed to approve or disapprove an economic theory:

An economic theory is first developed on the basis of what we observe in real life. It is then approved or disapproved by the statistical data relative to the observations. For example, it is observed that consumers demand more at lower prices. But this observation takes the shape of a theory when it is confirmed from actual statistical data that consumers really demand more at lower prices.

(ii) Needed to reveal the structure of an economy:

We study the structure of an economy with the help of data only. It involves knowledge about population, natural resources, employment, national income, production, exports, imports etc. The statistical knowledge about these helps to know the extent of defects in the structure of the economy. Once the extent of defect is known, it becomes easier to find solution.

(iii) Needed for planning:

No economic planning is possible without the aid of statistical data. Targets of production cannot be fixed unless we have data about available resources and requirements of the country. India is an over-populated country. However, the extent of over-population can be revealed by data on population and resources available to support the population only. Effective policies to control population can be framed only after we know how much over-populated India is.

(iv) Needed to assess the success of programmes and policies of the government:

It is not only enough to implement plans but also necessary to know whether the implementation has been proper or not. For that, we require statistical data about, say, rise in production, employment etc. during the planning periods.
2. **Explain the Scope of Statistics**

**Ans.** The word statistics is used in two senses: (a) the plural sense and (b) the singular sense. In plural sense it refers to quantitative information or simply statistical data. In singular sense it refers to method or methods used in arriving at the quantitative information or dealing with it.

When we say that population of India was estimated through the census method; that the figures are presented in the tabular form; that population of India is continuously rising and that it is rising on account of fall in death rate, we are referring to the methods of collection, presentation, interpretation of trend in data and analysis of data respectively. All these steps are the statistical methods. Here we are using the word statistics in the singular sense.

8 Marks Questions

1. **Explain the meaning of statistical data and its characteristics**

   (a) **Characteristics**

   (i) **Statistical data are aggregates of facts**:

   Single and isolated quantitative figure is not statistics. We cannot compare a single figure given alone. For example, Ruchi scored 45 marks out of 100 in Physics. It is not statistical data or statistics. If, however, we say that Ruchi, Sen Gupta, Karim and Mary scored 45, 60, 72 and 59 marks respectively, the group of figures becomes statistics.

   (ii) **Statistical data are numerically expressed**:

   Qualitative statements such as ‘per capita income of India is low’ or the population of India is rapidly increasing’ are not statistics. Rather, they are conclusions based on quantitative information. They cannot be presented and analysed. Statistics are in numbers and quantities. Population of India has increased from 36.1 crores in 1951 to 84.6 crores in 1991, death rate has fallen from 27.4 to 9.8 per thousand during 1951-1991 etc. are some examples of quantitative nature of data.

   (iii) **Data must be collected in a systematic manner**:

   Suitable planning of data collection is to be made in advance. Data collected in a haphazard or disorderly manner may lead to wrong conclusions. For example, if we are not clear about the objective of our enquiry, or if our investigators are not properly trained or are biased or, if our questionnaire is faulty, we are likely to collect data which may lead to wrong conclusions.
(iv) **Figures must be accurate to a reasonable degree or standard:**

Data can be enumerated or counted with a reasonable level or degree of accuracy if the area of our study is small. For example, data regarding age and height of students can be enumerated more precisely or more accurately in a small class. As the area becomes wider, chances of mistakes in collection of data increase. For example, when the study regarding age and height of students is extended to all schools in state, the chances of making mistakes in recording of data increase. Care must be taken that data is accurate to a reasonable degree.

(v) **Statistics are collected for a predetermined purpose:**

We must have well defined purpose, specific aims and objectives before we collect data. Suppose, we want to compare the performance of students of, say, secondary level of National Open School in one subject or more, we must specify the subjects and the year for which comparison is being carried out.

2. **State briefly the various stages of a statistical enquiry**

*Ans.* Using the word statistics in a singular sense means statistical methods. Statistics is a science of collection, presentation, analysis and interpretation of numerical data. These are three stages through which every statistical enquiry has to pass through. We shall discuss these stages one by one.

**Stages of statistical enquiry**

(i) **Collection of data:**

First of all, we have to collect data to study a problem. Data can be collected by the investigator himself. Such data is called primary data. He can obtain data from other sources also. Such data is secondary data. These data are found in published as well as unpublished forms. Some examples of published data are:

- Reserve Bank of India bulletin.
- National Accounts Statistics.
- Census Population of India.
(ii) **Presentation of data** :

After data have been collected, the next step is to arrange them in a systematic manner and present the data in various forms such as frequency distribution in the form of tables, graphs, diagrams and pictures.

(iii) **Analysis of data** :

The next step is analysis of data. It is undertaken to derive conclusions from them. Analysis of an economic or other problems is not possible without the use of certain statistical tools such as measures of central tendency like mean, mode or median.

(iv) **Interpretation of data** :

Interpretation of data is the last stage of a statistical enquiry. After making analysis with the help of statistical tools, we interpret the data to derive some conclusions in order to formulate certain policies. Interpretation must be done carefully, as wrong interpretation will lead to formulation of wrong policies and hence do more harm than good.

* * *

2

F
Making Statistical Data Meaningful

Introduction

In the previous lesson, you have learnt about the meaning and scope of statistics and its need in Economics. In this lesson you will learn about the techniques of collecting, organising and condensing of data. These techniques are necessary for making the statistical data meaningful.

Objectives

After going through this lesson, you will be able to:

● distinguish between primary and secondary data;
● list the methods of collecting primary data;
● give some examples of sources of secondary data;
● explain the concepts of an array, a frequency array and a frequency distribution;
● state the different methods of constructing frequency distribution; construct simple and cumulative frequency distributions from a given data.

ONE MARK QUESTIONS

1. Sources of Primary data

Ans. Statistical information directly collected by the enumerator is called primary data and the source of such information is called primary source. They are original because they are collected for the first time by the investigator himself.
2. **Sources of Secondary data**
Ans. Another way is to adopt the data already collected by someone else. The investigator only adopts the data. Statistical information thus obtained is called **secondary data**. The source of such information is called **secondary source**.

3. **Organizing the data**
Ans. The whole process of arranging and grouping the data into some meaningful arrangement is a first step towards analysis of data.

4. **Class Interval**
Ans. The difference between upper limit and lower limit is called Class Interval.

5. **Frequency distribution**
Ans. Data in a frequency array is ungrouped data. To group the data, setting up of a ‘frequency distribution’ is required. A frequency distribution classifies the data into groups.

6. **Cumulative**
Ans. A “Cumulative Frequency Distribution” is formed by taking successive totals of given frequencies.

7. **Respondent**
Ans. Respondent is a person who responds to some questions raised. When an investigator approaches a person with a questionnaire, the person who answers these questions is called respondent.

8. **Sequence :**
Ans. In ordinary language means connected line of events or ideas. In statistics it means a series formed on some such principle e.g. sequence of numbers.

9. **Tally Sheet :** It is a statement where occurrence of each value of a series is recorded by making one bar.

10. **Data** It is a means statistical information on population, employment, market and financial matters that has been collected, analysed and published by government's departments, commercial and industrial associations, trade unions and other research agencies.
Two Marks Questions

1. Collection of data
Ans. Data can be collected in two different ways. One way is to collect data directly from the respondent. The person who answers the questions of the investigator is called respondent. Statistical information thus collected is called primary data and the source of such information is called primary source. They are original because they are collected for the first time by the investigator himself. Another way is to adopt the data already collected by someone else. The investigator only adopts the data. Statistical information thus obtained is called secondary data. The source of such information is called secondary source.

2. Organization of data
Ans. Suppose a statistical investigator wants to analyse the data, put yourself in the position of investigator. In which aspect of this data you will be interested? Perhaps you would be interested in knowing the highest marks obtained by all the students. You may also be interested to know the lowest marks obtained by a student. Another point of interest can be the marks level around which most of the students are. To make available for comparison and analysis it should be arranged in an orderly sequence or into groups on the basis of some similarity. This whole process of arranging and grouping the data into some meaningful arrangement is a first step towards analysis of data.

3. Frequency Distribution
Ans. Data in a frequency array is ungrouped data. To group the data setting up of a ‘frequency distribution’ is required. A frequency distribution classifies the data into groups. Before constructing frequency distribution it is necessary to learn the important concepts such as : Class, Class Limits, Class Interval, Class Frequency, Mid-Point/Mid-Value.

4. Cumulative Frequency
Ans. A “Cumulative Frequency Distribution” is formed by taking successive totals of given frequencies. It shows the total numbers of observations (frequencies) having less than a particular value of the variable (here marks). It shows the total number of observations (frequencies) having more than a particular value of the variable (here again marks).
4 Marks Questions

1. “On the basis of the following data about the wages of 20 workers in a factory, prepare a frequency array. 450, 580, 600, 480, 540, 620, 400, 475, 500, 480, 620, 480, 570, 600, 650, 410, 550, 600, 650, 450.

Arrange the data in ascending order

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<th>400</th>
<th>480</th>
<th>550</th>
<th>600</th>
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<td></td>
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</tr>
<tr>
<td>475</td>
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</table>

Prepare frequency table

<table>
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<th>Tally marks</th>
<th>Frequency</th>
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</tbody>
</table>
8 Marks Questions

1. **Distinguish between primary and secondary data. Describe the methods for collecting primary data.**

Ans. Data can be collected in two different ways. One way is to collect data directly from the respondent. The person who answers the questions of the investigator is called **respondent**. Statistical information thus collected is called **primary data** and the source of such information is called **primary source**. They are original because they are collected for the first time by the investigator himself. For example, if the investigator collects the information about the salaries of National Open School employees by approaching them, then it is primary data for him.

Another way is to adopt the data already collected by someone else. The investigator only adopts the data. Statistical information thus obtained is called **secondary data**. The **source** of such information is called **secondary source**. For example, if the investigator collects the information about the salaries of employees of National Open School from the salary register maintained by its accounts branch, then it is secondary data for **him**.

**Methods for collecting primary data**

There are several methods for collecting primary data. Some of which are:

1. **Direct personal interview**:
   
   In this method investigator (also called interviewer) has to be face-to-face with the person from whom he wants information. The person from whom this information is collected is called **respondent**.

2. **Questionnaire method**:
   
   In this method a question booklet is prepared and sent to respondents either through post or taken personally to him.

   There are some advantages of using primary data. The investigator can collect the data according to his requirement. It is reliable and sufficient for the purpose of investigation. However, it suffers from disadvantages also in that it involves a lot of cost in terms of money, time and energy. Many a times with some modifications, same purpose may be served by using data collected by other persons or agencies.
2. Explain the concept of ‘frequency distribution’. How it is different from ‘frequency array’?

Suppose a statistical investigator wants to analyse the data, put yourself in the position of investigator. In which aspect of this data you will be interested? Perhaps you would be interested in knowing the highest marks obtained by all students. You may also be interested to know the lowest marks obtained by a student. Another point of interest can be the marks level around which most of the students are.

The above data are unorganised. To make available for comparison and analysis it should be arranged in an orderly sequence or into groups on the basis of some similarity. This whole process of arranging and grouping the data into some meaningful arrangement is a first step towards analysis of data. Data can be arranged in two forms: (a) Arrays, and (b) Frequency distributions.

(a) Arrays

Arrays are of two types: (i) Simple array, and (ii) Frequency array.

(i) Simple Array:

A simple array is an arrangement of data in ascending or descending order. Organising the data in the form of simple array is convenient if number of items is small. As the number of items increases the series becomes too long and unmanageable. As such there is a need to condense data. Making a frequency array is one method of condensing data.

(ii) Frequency Array:

Frequency array is a series formed on the basis of frequency with which each item is repeated in a series. The main steps in constructing frequency array are:

1. Prepare a table with three columns—first for values of items, second for tally sheet and third for corresponding frequency. Frequency means the number of times a value appears in a series. For example in table 5.1 the mark level 43 appears five times. So frequency of 43 marks is 5.

2. Put the items in first column in an ascending order in such a way that one item is recorded once only.

3. Prepare the tally sheet in second column marking one bar for one item. Make blocks of five tally bars to avoid mistake in counting. Note that every fifth bar is shown by crossing the previous four bars like fifj.

4. Count the tally bars and record the total number in third column. This column will represent the frequencies of corresponding items.
The main limitation of frequency array is that it does not give the idea of the characteristics of a group. For example it does not tell us that how many students have obtained marks between 40 and 45. Therefore it is not possible to compare characteristics of different groups. This limitation is removed by frequency distribution.

3. **Distinguish between ‘exclusive method’ and ‘inclusive method’ of frequency distribution** with examples.

Frequency distributions can be constructed in many ways. We will explain here the construction of the following types:

(a) Exclusive
(b) Inclusive
(c) Open end classes
(d) Unequal classes
(e) Cumulative

While constructing a frequency distribution same steps are to be taken which we have followed in the frequency array. The only difference is that we record classes like (20-25), (25-30), (30-35)....(55-60) etc., in first column in place of absolute items like 20, 25, -56, 58 etc.

(a) **Exclusive:**

In this type one of the class limits (generally upper limit $L^*$) is excluded while making a tally sheet. Any item having the value equal to the upper limit of a class is counted in the next class. For example, in a class of (20-25) all items having the value of 20 and more but less than 25 will be counted in this class. Item having the value of 25 will be counted in next class of (25-30) as is clear from the following example. Using the same data as given in making a frequency array and taking class interval of 5.

(b) **Inclusive:**

In this type the lower limit of next class is increased by one over the upper limit of previous class. Both the items having value equal to lower and upper limit of a class are counted or included in the same class. That is why such a frequency distribution is called inclusive type. For example in the class (20-24) both 20 and 24 will be included. Similarly in the class (40-44) both 40 and 44 will be included. The following table has been formed on the basis of same data as taken in the exclusive type.
(c) **Open-end:**

Open-end frequency distribution is one which has at least one of its ends open. You will observe that either lower limit of first class or upper limit of last class or both are not given in such series.

(d) **Unequal Classes:**

In case of unequal classes frequency distribution the width of different classes (i.e. $L^1 - L^n$) need not be the same.

(e) **Cumulative:**

A “Cumulative Frequency Distribution” is formed by taking successive totals of given frequencies. Such totalling can be done in two ways.

4. **Explain the concept "Cumulative Frequencies".**

(i) Such as 1. 4 (i.e. 1+3), 9 (i.e. 4+5), 16 (i.e. 9+7). and so on. Such a distribution is called "Less-than" cumulative frequency distribution. It shows the total numbers of observations (frequencies) having less than a particular value of the variable (here marks). For example, there are 4 (i.e. 1+3) students who got marks less than 30; 9 (i.e. 4+5) students who got marks less than 35 etc.

(ii) From below, such as 2, 6 (i.e. 2+4), 14 (i.e. 6+8), 24 (i.e. 14+10) and so on. Such a distribution is called "More-than” cumulative frequency distribution. It shows the total number of observations (frequencies) having more than a particular value of the variable (here again marks). For example there are 6 (i.e. 2+4) students who got marks more than 50, 14 (i.e. 2+4+8) students who got marks more than 45 etc.

★ ★ ★
Introduction

In the previous lesson, you have learnt about the methods of organising and condensing data in the form of arrays and frequency distributions. It is first step towards analysis of data. Another step in this direction is presentation of data to highlight and compare significant statistical facts.

Generally data are presented in the form of tables and graphs or charts. A table is a systematic organisation of data in columns and rows. There are various types of graphs. In this lesson you will learn about table, bar charts, pie diagram (or chart) and time series line graph.

Objectives

After going through this lesson you will be able to:

- explain the meaning and purpose of a table;
- distinguish between reference table and special purpose table;
- draw the format of a table;
- explain the meaning and construction of simple and multiple bar charts;
- explain the need and construction of component bar charts;
- explain the meaning of pie chart and steps in its construction; explain the meaning of a time series graph and steps in its construction.
One Mark Questions

1. **Table**
   A table is a systematic arrangement of related statistical data in columns and rows with some predetermined aim or purpose.

2. **Parts of a table**
   A table will have the following parts.
   (1) Table Number
   (2) Title
   (3) Head note (or preparatory note)
   (4) Stub
   (5) Main Body or Field
   (6) Footnote
   (7) Source of data

3. **Bar Diagram**
   A bar can be defined as a thick line often made thicker to draw attention of the reader. The height of this bar shows the quantity of the variable we want to present.

4. **Pie Diagram**
   It is also known as angular diagram. Pie diagrams are more popularly used for presenting percentage break downs of data. For example, students of a particular college may be put in three categories—Science students, Commerce students and Arts students.

5. **Data Presentation**
   Generally data are presented in the form of tables and graphs or charts. A table is a systematic organisation of data in columns and rows.

6. **Time series Line graph**
   Statistical data can also be presented in the form of line graphs. A line graph records the relationship between two variables.
2 Marks Questions

1. **Bar Diagram**

A bar can be defined as a thick 'line' often made thicker to draw attention of the reader. The height of this bar shows the quantity of the variable we want to present. It is also called one dimensional diagram because only height of the bar is important and its base or width is not taken into account. To make them look more beautiful, bars are either coloured or shaded in different ways.

2. **Pie Diagram**

It is also known as angular diagram. Pie diagrams are more popularly used for presenting percentage break downs of data. For example, students of a particular college may be put in three categories—Science students, Commerce students and Arts students. Or exports of India may be classified as to USA, to Europe, to Arab countries, to African countries and to others. The pie diagram can be effectively used to show these categories or breakdowns. A pie diagram - therefore, is a circle subdivided into component sectors to present the proportion of different constituent parts to the total. As such a pie diagram is shown in percentage terms.

4 Marks Questions

1. **What do you mean by Pie Diagram. Explain merits.**

It is also known as angular diagram. Pie diagrams are more popularly used for presenting percentage break downs of data. For example, students of a particular college may be put in three categories—Science students. Commerce students and Arts students. Or exports of India may be classified as to USA, to Europe, to Arab countries, to African countries and to others. The pie diagram can be effectively used to show these categories or breakdowns. A pie diagram - therefore, is a circle subdivided into component sectors to present the proportion of different constituent parts to the total. As such a pie diagram is shown in percentage terms.

Steps in the construction of pie diagram

Step 1. Find the value of each category or component or group as percentage of total of all categories or components or groups.

Step 2. Calculate degree of the angle formed by each category or component or group by the formula.

\[
\text{Degree for a particular category/component/group} = \frac{\text{Value of the group}}{\text{total of all groups}} \times 360^\circ
\]
Step 3. Take a circle of a suitable size and draw radius.
Step 4. Now draw angles calculated in step 2 with the help of a protractor.
Step 5. Shade or colour different segments suitably or make fine distinctions between different categories or components or groups.
Step 6. For each category or component or group put the percentage in the pie diagram

8 Marks Questions

1. What is the purpose of preparing a table? In this context distinguish between reference table and text table.

Meaning
A table is a systematic arrangement of related statistical data in columns and rows with some predetermined aim or purpose. Can you arrange the following information in tabular form?

“There are 50 science and 50 arts students in a college. The number of students from poor families is same for each course and their total is 30 whereas science and commerce courses are equally popular in rich families. Yet the number of rich arts students is twice as much. In all 40 students are from the rich families studying in the college. The majority of students are from middle class families and their number is 80.”

Let us arrange this information in tabular form. There are 150 students in all. A table leaves a more lasting impression on human mind than statements saying the same thing.

Purpose
The purpose of a table is to simplify presentation of related data and make comparisons easy. The reader can easily locate the desired information. For example, the purpose of might be to show the imports and exports of country ‘A’ vis-a-vis other countries B, C, D and E.

Types of Tables
Basically we have two types of tables (i) Reference or general purpose tables or (ii) special purpose or text tables. Let us discuss them one by one.

(i) Reference or general purpose tables: These tables are in a way a store of information with an aim of presenting detailed statistical material. From these tables we can derive smaller tables. Generally, statistical tables presented by Government of India and its various statistical agencies and departments are reference or general purpose tables.
(ii) **Special purpose or text tables**: These tables are smaller and can be obtained from reference tables. They aim to analyse a particular aspect so that we are able to bring out a specific point or answer a specific question.

**Parts of a Table**

Parts (or elements) of a table vary from table to table depending upon the nature of data and purpose of a table. However, some points are common to all (see format of table 6.3). They are:

Table

(..........................Title .................)

(in Rs. crores)

<table>
<thead>
<tr>
<th>Stub Head</th>
<th>Column head 1</th>
<th>Column head 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub column head</td>
<td>Sub column head</td>
<td>Sub column head</td>
</tr>
<tr>
<td>Sub column head</td>
<td>Head</td>
<td>Sub column head</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stub Entries</th>
<th>Main Body of the Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>(field)</td>
<td></td>
</tr>
</tbody>
</table>

Footnote

(..........................)

Source of data (........../..................)

1. **Table Number** :

If more than one table has been used or presented at one place, it is always better to give them serial numbers. It makes further reference to them easy. This number is always indicated in the centre at the top.

2. **Title** :

Title is to the table what heading is to an essay. It appears at the top of a table and gives idea about what is contained in the main body of the table. The title should be brief and to the point. It is better if the title is presented in bold letters or capital letters.

3. **Capition** : The headings given in rows is called capition. It explains about the contents of rows. There may be one or more sub captions in a title. Capitions should be lower than title name.

4. **Stub**: Stub caption and stub contents put to gether called stub. The left hand sided columns are called stub. Stub explains about evers column. Even though stub is greater than caption, they should be as small as possible.
5. Main Body or Field:
It is the most important part of the table and contains the numerical information about which a hint is given in the title. For example, if the title is “Exports and Imports of Country A during 1995-96”, it clearly shows that the body of the table contains statistical/numerical information on value of exports and imports of country A with different countries.

6. Footnote:
It is a qualifying statement placed at the bottom of a table. Its purpose is to explain omission or limitations of the data presented in main body of the table. For example, if the data for the year is not available, then it is mentioned at the bottom of the table.

7. Head note (or prefatory note):
It is written below the title. It clarifies the contents of the table and unit of measurement like “in rupees crores” or “in lakh tons” or “in thousand bales of cotton” etc. It must be written in brackets on right side (top) of the table immediately below the title.

Stub:
The stub consists of stub head and stub entries. Whereas stub describes the stub entries down below it, each stub entry labels a given data placed in its row. Both stub head and stub entries appear on the left hand column of the table. Further, stub entries describe the column heads.

8. Source of Data:
Last but not the least, it is essential to mention the source of data presented in the table. It helps the reader to check the original source of data himself and get more of it on the subject. It should mention information like title, edition, page number and source of publication etc.

2. What is a bar chart? Explain briefly its various types.

   Meaning
   A bar can be defined as a thick Line often made thicker to draw attention of the reader. The height of this bar shows the quantity of the variable we want to present. It is also called one dimensional diagram because only height of the bar is important and its base or width is not taken into account. To make them look more beautiful, bars are either coloured or shaded in different ways.

   Types of bar charts:
   There are two types of bar charts (a) simple and (b) components, (a) Simple bar charts:
   Simple bar charts can be (i) Single bar charts, and (ii) Multiple bar charts.
(i) **Single bar charts**: We can either have vertical bars or horizontal bars. Normally vertical bars are often used. Let us now explain how a bar diagram can be prepared from a given data in table 6.4.

(ii) **Multiple bar charts**:

Sometimes it is desired to represent more than one interrelated series data on a bar diagram. In such cases also simple bar diagram is not suitable. We have to use what is known as multiple bar diagram. Here the number of bars for each year or region or zone is equal to the number of variables (data) to be represented. For example, imports and exports will be represented by two bars; selling price, cost price and profits by three bars and so on. Normally we do not take more than three bars because it becomes complicated. The method of drawing bars is same as explained for simple bar diagrams.

(b) **Component bar charts**:

A simple bar diagram explained above is used to present only one variable. But when a breakdown of total or a series of totals is to be represented, we have to use what is called sub-divided or component bar diagrams.

**component bar diagram**

**Step 1.** Measure sales on Y axis and year on X axis and place them in a box type diagram

**Step 2.** Raise the rectangles with suitable bases with heights equal to total sales zone-wise.

**Step 3.** Divide each rectangle according to sales, in the year which it represents, in each zone.

**Step 4.** Mark or colour, for decoration, each component of the three bars. Remember that in each bar same mark or colour should be used for a particular zone; for example white colour for west zone in each box.
Introduction

In the previous lessons you have learnt about certain aspects of collection and presentation of statistical data. With the help of systematic presentation, we reduce the meaningless mass of statistical data into meaningful tables, bar charts, pie charts and frequency distributions. Once this is achieved, the next stage is comparing one set of data with another set of data recorded in the form of table or frequency distribution. Sometimes we may need to compare one table with another table and one frequency distribution with another frequency distribution.

We need statistical tools or methods to make such comparisons. One set of statistical tool is found in ratio, rates and percentages. Another set of statistical tool is found in the averages or the measures of central tendency. In this lesson you will learn about these statistical methods.

Objectives

After going through this lesson you will be able to:

- explain the meaning of ratio with example;
- state the various forms of expression of a ratio;
- explain the distinction between rate and ratio;
- explain the concept of percentage;
- explain the meaning of a measure of central tendency;
- explain the concept of an average and arithmetic mean;
- calculate arithmetic mean; explain the concept of weighted arithmetic mean.
One Mark Questions

1. Ratio

Ratio is the relation between two quantities. The two quantities are called terms. A ratio is found by dividing the first term by the second term.

2. Measures of Central tendency

A measure of central tendency means a value where the concentration of the items or values is found to be the greatest. This is the reason why the value of a central tendency of the given data is regarded to be the most representative of the series or observations.

3. Arithmetic Mean formula

The mean is termed as \( x \). In this way the above calculations can be expressed as follows:

\[
\frac{x_1 + x_2 + x_3 + x}{N} = \frac{\sum x}{N}
\]

4. Arithmetic Mean formula in Direct method

The main steps in this method are:

1. Multiply each value of \( X \) by its frequency (\( f \)). By doing so we obtain \( fx = (X \times f) \).
2. Take sum of all values of \( fx \). We get \( \Sigma fx \).
3. Divide \( \Sigma fx \) by the number of observations. We get the number of observations by adding all values of \( N \). By dividing \( \Sigma x \) by \( N \) we get arithmetic mean (\( x \)).

So,

\[
\frac{\Sigma x}{N}
\]

5. Arithmetic Mean formula in Indirect method

Step 1 - Select a suitable assumed average (\( A \)).

Step 2 - Find deviations of each observation from \( A \) to get \( dx = (X - A) \).

Step 3 - Multiply each \( dx \) by its respective frequency (\( f \)) to get \( fdx \).

Step 4 - Add various \( fdx \) to get \( \Sigma fdx \).

Step 5 - Use the formula;

\[
\bar{X} = A + \frac{\Sigma fdx}{N}
\]
6. **Weighted Arithmetic Mean**

- Sometimes we associate with the number \( x_1, x_2, \ldots, x_B \) certain weighting factors \( w_1, w_2, \ldots, w_n \) depending on the significance or importance attached to the numbers. When an average is constructed to these weights it is called weighted arithmetic mean.

**Two Mark Questions**

1. **Ratio – Meaning**

   Ratio is the relation between two quantities. The two quantities are called terms. A ratio is found by dividing the first term by the second term. In our example of two brands of pens we had two terms, namely pen A priced at Rs. 6 and pen B priced at Rs. 2. Brand A priced at Rs. 6 is the first term because its price is intended to be compared with pen B: Brand B priced at Rs. 2 is the second term because it is in relation to the price of this pen that the brand A pen is intended to be compared. So ‘what is compared’ is the first term and ‘with which is to be compared’ is the second term.

2. **What do you mean by rates**

   In economics we often talk in terms of rates like rate of economic growth, rate of growth of population, birth rate, death rate, agricultural yield rates etc. When we see that how these rates are calculated, we will find that the process of calculation is either the same or nearly the same. Let us take some examples to clarify what we have said.

3. **What do you mean by Weighted mean**

   In order to find out weighted arithmetic mean the following steps should be taken. First, multiply each quantity \( x \) by its weight \( w \) to obtain different products \( wx \),

   Second, all these products are added to get \( \Sigma wx \),

   Third, this sum of products \( \Sigma wx \) is then divided by the sum of the weights \( \Sigma w \) to obtain the required weighted arithmetic mean. Thus,

   \[
   \text{Weighted arithmetic mean} = \frac{\Sigma wx}{\Sigma w}
   \]
4 Marks Questions

1. **Show with the help of an example the need to adopt a higher base rather than ‘per unit’ base in calculation of a ‘rate’**.

   In economics we often talk in terms of rates like rate of economic growth, rate of growth of population, birth rate, death rate, agricultural yield rates etc. When we see that how these rates are calculated, we will find that the process of calculation is either the same or nearly the same. Let us take some examples to clarify what we have said. For example, take the rate of yield per hectare of a crop.

   Total production of crop (kgs.) Rate of yield (in kg.)

<table>
<thead>
<tr>
<th>per hectare of a crop</th>
<th>Total area (hectares) under crop</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   In the above example we find that process of calculation is the same as that in ratio. Thus rate and ratio are the same in this example. Here yield rate is nothing but the ratio of production to area during a particular year. Rate is thus a ratio between two magnitudes shown over a period of time.

2. **Outline the need for a weighted arithmetic mean. How is it calculated?**

   While calculating the arithmetic mean we have given equal emphasis to each item in the series. This equal emphasis may be quite misleading if individual items have different importance. It may be noted that quantities in numbers or kilograms or any other unit, is not the only basis of assigning weights.

   In order to find out weighted arithmetic mean the following steps should be taken.

   1. First, multiply each quantity \((x)\) by its weight \((w)\) to obtain different products \((wx)\), i.e.

      \[
      (w_1x_1, w_2x_2, w_3x_3, ..., w_nx_n)
      \]

   2. All these products are added to get \(\sum wx\), i.e.

      \[
      \sum wx = w_1x_1 + w_2x_2 + ... + w_nx_n
      \]

   3. This sum of products \((\sum wx)\) is then divided by the sum of the weights \((\sum w)\) to obtain the required weighted arithmetic mean. Thus,

      \[
      \text{Weighted arithmetic mean} = \frac{X_1w_1 + X_2w_2 + X_3w_3 + ... + X_nw_n}{w_1 + w_2 + w_3 + ... + w_n}
      \]

      \[
      = \frac{\sum wx}{\sum w}.
      \]
8 Marks Questions

1. What is arithmetic mean? Explain the method of calculating in case of ungrouped frequency data through both direct and indirect methods.

An average can be obtained by using five different measures of central tendency namely:
(1) Arithmetic mean (2) Median, (3) Mode, (4) Geometric mean and (5) Harmonic mean.

Different measures of central tendency are found useful in different situations. Now let us examine arithmetic mean ($\bar{x}$).

The Concept of an Average

The concept of an average is very important in our daily life. In our everyday speech we use this concept so often that its importance need not be overemphasized.

What is generally called an ‘average’ by means of use in statistics, is termed as the arithmetic mean. It is one of the widely used statistical measures. It is found or calculated by taking all the items of a series into account. For example, if you have secured 5, 6, 7 and 8 marks in four different subjects, out of 10 of maximum marks in each subject, your average marks will be:

$$\frac{5+6+7+8}{4} = \frac{26}{4} = 6.5$$

The above calculations can be expressed in symbols. There are four items 5, 6, 7 and 8. These four items make a series. The symbols used for items are $X_1$ for the first item, $X_2$ for the second item, $X_3$ for the third item and $X_4$ for the fourth item. Thus 5, 6, 7 and 8 are respectively termed as $X_1, X_2, X_3$ and $X_4$. The number of these items is 4 which is termed as ‘N’. The sum total of values of these items (i.e. $5+6+7+8 = 26$) is termed as $\Sigma X$. The mean is termed as $\bar{x}$. In this way the above calculations can be expressed as follows:

$$\bar{x} = \frac{X_1 + X_2 + X_3 + X_4}{N} = \frac{\Sigma X}{N}$$

$$\frac{5+6+7+8}{4} = \frac{26}{4} = 6.5$$
Calculation Of Arithmetic Mean

Data can be organised in many ways like simple array, frequency array and frequency distribution. Since the method of presentation of data is different in each case the method of calculation of arithmetic mean also becomes somewhat different according to the change in the form of presentation. Accordingly we will explain the calculation of arithmetic mean in following methods of presentation.

a) Simple array

b) Frequency array

c) Frequency distribution

(a) Calculation of arithmetic mean in simple array

A simple array is a series of individual items also called individual series. There are two methods of calculation in this case: (i) Direct method and (ii) Indirect method.

(i) Direct method:

\[
\text{Arithmetic Mean} = \frac{\text{Sum of all the observations in the series}}{\text{Number of observations}}
\]

(ii) Indirect Method:

If the number of observations is small it is convenient to calculate mean by direct method. If the number of observations is large the direct method becomes inconvenient. In such a case it is better to use the indirect method.

\[
X = A + \frac{\sum dx}{N}
\]

(b) Calculation of Arithmetic Mean in Frequency array:

Like in case of simple array there are two methods of calculation in case of frequency array also.

(i) Direct Method:

The main steps in this method are:

1. Multiply each value of X by its frequency (f). By doing so we obtain \(fx = (X \times f)\).
2. Take sum of all values of \(fx\). We get \(\sum fx\).
3. Divide \(\sum fx\) by the number of observations. We get the number of observations by adding all values of \(f\). In other words we get \(\sum f\). By dividing \(2\times fx\) by \(Xf\) we get arithmetic mean \((x)\). So, \(\bar{x} = \frac{1}{2} \times \frac{\sum fx}{\sum f} + \frac{1}{2} \times \frac{\sum fx}{N}\)
(ii) Indirect Method:
Step I - Select a suitable assumed average (A).
Step 2 - Find deviations of each observation from A to get $dx = (X - A)$.
Step 3 - Multiply each $dx$ by its respective frequency ($f$) to get $fdx$.
Step 4 - Add various $fdx$ to get $Xfdx$.
Step 5 - Use the formula:
$$\bar{X} = A + \frac{\sum fdx}{\sum f}$$

(c) Calculation of Arithmetic Mean in Frequency Distribution

A frequency distribution classifies the data into groups. In such case also there are two methods: (i) Direct method and (ii) Indirect method.

(i) Direct Method:
There is an additional step in this method in comparison to frequency array case. To get the value of $fx$ we multiply $x$ with $f$. $X$, in case of frequency distribution, is a group and not an individual item. It is not possible to multiply the group (say 1-3) with $f$. So we take first the mid value of the group and then multiply with ‘$f’$. The mid value is obtained by taking simple average of lower ($L_1$) and upper ($L_2$) limits of the group.

(ii) Indirect Method:
There are two versions of indirect method. In one version we take assumed mean as an additional step. In another version we take a further additional step in form of step deviation.

(ii) Step Deviation Method:
This is another version of indirect method. In this we take an additional step to make the calculation easy. The step is called step deviation. If the value of $x$ is high, value of $dx = (X - A)$ is also likely to be high. To make the calculation simple we first find a common figure by which all the values of $dx$ can be divided. It will reduce the values of $drt$ and make further calculation easy. This common factor by which the values of $dx$ are divided is termed as $At$ a latter stage value of $dx$ are again multiplied by this common factor so that final result of arithmetic mean is not affected.

2. State the advantages and disadvantages of arithmetic mean as a measure of central tendency.

Advantages:
Arithmetic mean is a most commonly used measure of central tendency. This is because of certain merits possessed by it as compared to other measures. For example.
1. It is easy to understand and calculate, that is, it is the sum of the observations divided by their number. It is based on all the observations of the series. It has full coverage. If any part of the series is not known, it cannot be calculated.

2. It is subject to algebraic treatment. That is, various mathematical operations can be carried on it. For example:

(a) If arithmetic mean \( x \) and \( x_z \) and number of observations and \( N_z \) are known for two series, it is possible to obtain the combined arithmetic mean \( (x_u) \)-

\[
\frac{N_jX_j+N_2X_2}{N+N_2}
\]

(b) If each observation of a series are added, subtracted, multiplied or divided by a common factor, say \( a \), the mean is also added, subtracted, multiplied or divided by the same factor. Let us illustrate one of the four operations — addition. Let the series be 4, 6, 8, 10 and 12. Their mean is:

\[
\frac{4+6+8+10+12}{5}
\]

Now increase every observation by 5, we shall find that mean also increases by \( a/5 \) to 13. New series will be \((4+5)\), \((6+5)\), \((8+5)\), \((10+5)\) and \((12+5)\) or 9, 11, 13, 15 and 17. Their mean is

\[
\frac{9+11+13+15+17}{5} = \frac{65}{5} = 13 \text{ i.e.}(8+5)
\]

(b) Disadvantages:

Although arithmetic mean possesses advantages unmatched by other measures of central tendency yet it suffers mainly from three types of defects

1. It is greatly affected by the existence of extreme values in the series, extremely large and extremely small. In such cases, arithmetic mean is not a typical or representative value. These values artificially pull down or push up the mean value. For example five students of a class secured 40, 45, 50, 55 and 60 marks out of 100. The average of marks comes to

\[
40 + 45 + 50 + 55 + 60 = 250 \div 5 = 50.
\]

Suppose two new students jointly secure one mark each, you will find that the average of marks of a class of 7 students is

\[
40 + 45 + 50 + 55 + 60 + 1 + 1 = 252 \text{ pulled down to } = -y = 30.
\]

2. Arithmetic mean is also not representative in case,

(a) Classes are unequal as for example, 0-5, 5-10, 10-20, 20-40, 40-50.

(b) Open-end classes such as less than 5, 5-10, 30-35, 35 and above.

* * *
Index Numbers : Meaning and Their Construction

Introduction

In the previous lesson you have already learnt about ratios, rates, percentages and arithmetic mean. Some of these concepts are used in the construction of index numbers.

In our daily life we come across remarks like ‘prices are rising these days’. It means that the average prices of various commodities that we use in our daily life are rising and we have to pay more for the same goods and services. Index number is a method to find out this average change. When we say that 'prices on an average' are rising, it does not mean that prices of all commodities are rising. Some commodities might have become cheaper also. Index numbers show the average change (increase/decrease) only.

Objectives

After going through this lesson, you will be able to:

● define index number;
● define price relative;
● list the various features of an index number; explain the various problems faced in the construction of an index number.

One Mark Questions

1. Index Numbers

An index number is a statistical device (measure) with a purpose of showing average changes in one or more related variables) between two periods of time (say, between 1991 and 1996) or two places like cities (say, Delhi and Mumbai) or countries (say, India and Japan).
2. Types of index numbers

Index numbers may be simple or weighted depending on whether we assign equal importance to every commodity or different importance to different commodities according to the percentage of income spent on them or on the basis of some other criteria.

3. Unweighted index numbers

Broadly speaking we have two types of index numbers: (a) Simple (or unweighted), and (b) weighted. Weights represent importance of different items in relation to each other. Simple index numbers are index numbers with equal weights.

4. Methods of index numbers calculation

(i) Simple Aggregate Method:

In this case each item is given equal weight. If we give an equal weight to each item it means the same thing, whether each item is given a weight or not. It is the simplest method of constructing an index number. 

\[ P_{01} = \frac{\sum P_1}{\sum P_0} \times 100 \]

(ii) Simple Average of Price Relatives Method

As explained earlier a price relative is nothing but the ratio of current year prices to those in base year i.e. \( \frac{p}{p_0} \). Here the average of the price relatives is obtained by using any of the measures of central tendency. 

\[ P_{01} = \left( \frac{\sum P_1 \times 100}{\sum P_0} \right) \times 100 \]

5. Laspeyres index number

This is one of the methods to calculate index numbers we consider base year as base. Here the formula is

\[ P = \frac{\sum P_1 q_0}{\sum P_0 q_0} \times 100 \]

6. Pascheys index number

It uses current year quantities \( (q_t) \) as the weights. Accordingly the formula is

\[ P = \frac{\sum P_1 q_t}{\sum P_0 q_0} \times 100 \]
Two Marks Questions

1. **What is index number**

   An index number is a statistical device (measure) with a purpose of showing average changes in one or more related variables (like price or quantity) between two periods of time (say, between 1991 and 1996) or two places like cities (say, Delhi and Mumbai) or countries (say, India and Japan). For example, we may be interested in knowing which city of India out of Delhi, Mumbai, Calcutta and Chennai is the costliest or the cheapest in terms of price level. A tourist may be interested in knowing about the cost of living at different tourist places. Consumer price index number or cost of living index number helps in taking such decisions.

2. **Price relative concept**

   A price relative is nothing but the ratio of current year prices to those in base year i.e. \( p/p_0 \). Here the average of the price relatives is obtained by using any of the measures of central tendency.

3. **Explain the concept of weights**

   In weighted index number each item is given weight according to the importance it occupies in the list. There are two groups of methods to calculate index number of this category: (a) Weighted aggregate methods and (b) Weighted average of price relative methods.

4. **Simple Aggregate Method**

   In this case each item is given equal weight. If we give an equal weight to each item it means the same thing, whether each item is given a weight or not. It is the simplest method of constructing an index number. We use the following three steps to find it.

   a) Find the sum of current year prices of all items included in the list i.e. \( (S_p_1) \)

   b) Find the sum of base year prices of the same items i.e. \( (S_p_0) \)

   \[
   P_{01} = \frac{\sum P_1}{\sum P_0} \times 100
   \]

5. **Simple Average of Price Relatives Method**

   As explained earlier a price relative is nothing but the ratio of current year prices to those in base year i.e. \( p/p_0 \). Here the average of the price relatives is obtained by using any of the measures of central tendency. For example, if we use arithmetic mean for averaging, the formula for the index number \( P_{01} \) is

   \[
   P_{01} = \frac{\left(\frac{\sum P_1}{\sum P_0} \times 100\right) \times N}{N}
   \]

   Where, \( N \) stands for the number of commodities included in the index number.
6. **Laspeyre’s Method** :- In this method we consider base year as weights. The formula is

\[ P = \frac{\sum P_1 q_0}{\sum P_0 q_0} \times 100 \]

7. **Paascne's Method** :- In this, we consider present year as weight. The formula is

\[ P = \frac{\sum P_1 q_1}{\sum P_0 q_1} \times 100 \]

### 4 Marks Questions

1. **Distinguish between simple and weighted index numbers.**

A. **Simple Aggregate Method**

   In this case each item is given equal weight. If we give an equal weight to each item it means the same thing, whether each item is given a weight or not. It is the simplest method of constructing an index number. We use the following three steps to find it.

   a) Find the sum of current year prices of all items included in the list i.e. \( S_{p_1} \)

   b) Find the sum of base year prices of the same items i.e. \( S_{p_0} \)

B. **Simple Average of Price Relatives Method**

   As explained earlier a price relative is nothing but the ratio of current year prices to those in base year i.e. \( \frac{P_1}{P_0} \). Here the average of the price relatives is obtained by using any of the measures of central tendency. For example, if we use arithmetic mean for averaging, the formula for the index number \( P_{01} \) is

   \[ \frac{\sum P_1}{\sum P_0} \times 100 \]

   Where, \( N \) stands for the number of commodities included in the index number

### 8 Marks Questions

1. **Explain the meaning of an index number and its main characteristics.**

   Ans. An index number is a statistical device (measure) with a purpose of showing average changes in one or more related variables (like price or quantity) between two periods of time (say, between 1991 and 1996) or two places like cities (say, Delhi and Mumbai) or countries (say, India and Japan). For example, we may be interested in knowing which city of India out of Delhi, Mumbai, Calcutta and Chennai is the costliest or the cheapest in terms of price level. A tourist may be interested in knowing about the cost of living at different tourist places. Consumer price index
number or cost of living index number helps in taking such decisions.

Different commodities are measured in different units. For example, wheat and rice are measured in kilograms, cloth in metres and milk in litres etc. Index number attempts some averages relating to commodities which are measured in different units.

For purpose of comparison we are interested in knowing relative changes and not absolute or total ones. These relative changes are expressed in percentage terms.

Index numbers are the indicators of the various trends in an economy. Price index numbers indicate the position of prices, whether they are rising or falling and at what rate. Similarly index numbers regarding agricultural production indicate the trend of change whether it is falling or rising and at what rate on an average over a period of time.

Index numbers may be simple or weighted depending on whether we assign equal importance to every commodity or different importance to different commodities according to the percentage of income spent on them or on the basis of some other criteria.

(b) Main Features of an Index Number : The features of an index number are as follows :

1. **They are specialized type of averages :**

   Measures of central tendency like mean can be used to compare two or three series. But here also we face a problem of difference in units of measurement. For example, it makes no sense to say that whereas average height of students of a class is 103 cms, their average weight is 50 kilograms. This is due to the fact that whereas height is measured in terms of centimetres, the weight is measured in kilograms. The method of index number helps to overcome this difficulty. That is why they are called specialized type of averages.

2. **Index numbers measure the net change in a group of related variables :**

   They describe the change (decrease/increase) in a group of related variables in terms of a single figure. For example, in comparing the change in prices of goods consumed by a certain groups of people over two periods, say 2001 and 2006, we may construct what is known as consumer price index number. If it is calculated that compared with 2001 (-100, index number for the year 2001 is taken as 100), the price index number in 2006 is 120, it will show that the price level has increased by (120-100) i.e 20 per cent. This 100 for 2001 and 120 for 2006 are single or summary figures of average of prices in these two years. Note again that even when an index number shows increase, it is possible that within the group some goods might have become cheaper and/or some might have become costlier in comparison to others.
3. **Index numbers measure the effect of changes over a period of time or places:**

Index numbers are mostly used for measuring changes over a period of time. We may find out the net change in agricultural prices from 1990 to 1997. Similarly, we can compare the agricultural production, industrial production, imports, exports, wages etc. at two different times. Index numbers can also be used to compare economic conditions of different areas (cities or countries) or different industries.

2. **Point out the main difference between Laspeyre’s and Paasche’s methods of weighted index numbers. Explain Laspeyres’ method.**

In weighted index number each item is given weight according to the importance it occupies in the list. There are two groups of methods to calculate index number of this category: (a) Weighted aggregate methods and (b) Weighted average of price relative methods. In this section we will study only two types of weighted aggregate method. These methods are popularly known as (a) Laspeyres’ Method and (b) Paasche’s Method. Both the methods are used to calculate weighted index numbers. The main difference between the two is that Laspeyres’ uses base year quantities of commodities as their relative weights, while Paasche’s uses current year quantities of commodities as their relative weights for preparing a price index.

(a) **Laspeyres’ Method:**

It uses base year quantities \( q^b \) as the weights. Accordingly, the formula is,

\[
P = \frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} \times 100
\]

**Steps to Calculate Weighted Index Number by Laspeyres’ Method**

(a) Multiply current year price \( p_1 \) with base year quantity \( q_0 \) to get \( p_0 q_0 \) for each item/commodity and service.

(b) Multiply base year price \( p_1 \) with base year quantity \( q_1 \) to get \( p_0 q_0 \) for each item/commodity and service.

(c) Add all \( p_1 \) and \( p_0 \) separately to get \( Xp_1 \) and \( Xp_0 q_0 \) respectively.

(d) Divide \( Xp_1 \) by \( Xp_1 \) and multiply by 100 to obtain Laspeyres’ price index number.

(b) **Paasche’s Method**

It uses current year quantities \( q_t \) as the weights. Accordingly the formula is,

\[
P = \frac{\Sigma p_1 q_t}{\Sigma p_0 q_0} \times 100
\]

***
Introduction

In the previous lesson, you have learnt about the meaning, characteristics and methods of construction of index numbers. We have to face several problems when we attempt to construct an index number, for example in selection of items, weights, base period etc. This lesson attempts to explain the nature of these problems in the construction of an index number. It has many uses in practical life. It is extremely useful statistical information for government. In this lesson, we will also learn about the uses of an index number.

Objectives

After going through this lesson, you will be able to:

- explain the problems arising in the construction of an index number;
- explain the important uses of an index number;
- Study an index number in some book or newspaper and make out its meaning.

4 Marks Questions

1. **Explain some uses of Index Numbers**

   Index numbers have several uses. Some of the uses are explained below:

   1. Price index is a **measure of cost of living**. Prices of goods and services which are used to change over time. Generally, we observe that prices of goods and services we **use at home** or in business have a tendency to rise over the period. It leads to rise in the cost of living. The employees in turn demand higher wages, more dearness allowance, more rent, etc. How much should be the rise in wages etc. is the concern of employers. Price index is a useful guide in this respect. The decisions regarding fixation of minimum wages, government based on price index can conveniently fix dearness allowance, etc.
2. Price index is also a good measure of inflationary and deflationary tendencies in the economy. Governments take suitable policy measures to control these tendencies.

3. Production index is a good indicator of the economic progress-taking place in the different sectors of the economy. They can also be used to forecast future trends in production. As such, these indices are extremely useful for planning.

4. Other indices relating to national income, exports, imports, are also useful. National income index measures the rate of growth. Per capita income index indicates the rate of economic development and an indicator of the level of poverty.

5. Index numbers can also be used to make comparison among different regions of a country and among different countries.

8 Marks Questions

1. **Explain the problems in constructing an index number.**

   While constructing index numbers in actual practice, we are faced with the following problems:

   1. **The purpose of an index number:**

      First, we should carefully decide the purpose of constructing an index numbers that is, what exactly we are going to measure and also how we want to use it. An index number, if properly constructed for the purpose in mind, is the most useful and powerful tool. However, if it is not properly constructed, it can be a dangerous one because it is likely to give wrong and misleading result. There is no all-purpose index number. Every index number is of limited and particular use. Decisions regarding selection of goods and services to be included in index number and their prices, selection of base period/year (reference period) etc., very much depend upon the purpose of an index number. Hence, there is need for extra caution in this respect.

   2. **Selection of base period :**

      Price index number, as mentioned earlier, is expressed as a price relative. Therefore, we have to choose a suitable reference for comparison. This is called base or reference period. This base period is the period with which comparisons are made. It may be a year, a month or a day. The choice of base period depends on the objective or purpose of the index number. It should not be a period too distant in the past because with the passage of time, some of the old commodities fade in importance and some new commodities appear to satisfy given wants. In addition, this period should be a period of normal economic activities. It should not be a period during which any war, earthquake, or any other natural calamities, like floods, droughts and epidemics had taken place.
3. Selection of goods and services:

This also depends on the purpose of the index number. The commodities and services selected for the purpose should be representative of the group. These should be popular and should represent the tastes, habits, customs and fashions of the people for whom the index number is constructed. Suppose we want to construct cost of living index number for industrial workers of Okhla (in Delhi), we should make a list of goods and services consumed by these people. Industrial workers are extremely unlikely to use goods like woolen carpets, refrigerators, cakes and pastries, VCR etc. Hence, they should not be included in the list. It is essential to add that the selection of goods and services, their quantities and numbers etc., are best judged from what we call family budget enquiries. These enquiries can be conducted on the people for whom we are constructing an index number. In our case, the people are the workers of an industrial area (for example, Okhla in Delhi). We can select some families among them and enquire about the goods and services they are generally consuming, prices they are paying and places from where they are buying. We can also find the quantities of each good and service used by them.

4. Collection of price quotations:

Selection of the prices of goods and services (also called price quotations) included in index numbers is our next problem. This also can be solved by looking at the results of the family budget enquiries mentioned above. It would be out of place to take wholesale prices or the prices prevailing in fashionable areas because these workers buy neither on wholesale rates nor from fashionable areas. Perhaps the goods and services they buy might not available in fashionable area at all. To study the cost of living of our industrial workers we have to construct what is called consumer price index number or cost of living index number. For cost of living index, only retail prices are justified.

5. Choice of weights:

It is an important problem in the construction of index numbers. From the family budget enquiries again, it will become clear that not all goods and services consumed by our group occupy the same place or importance. Some goods and services do not force us to spend a greater portion of income. For example, food items in the budget of industrial workers occupy greater importance as in percentage terms; They spend a big proportion of income on it. In contrast they spend a lower percentage on education, entertainment or medicines although items (things) like medicines might be sometimes more important than clothing etc. Therefore, the weights are decided based on the proportion of income spent by the people on each item or group of items/goods. There are various ways of providing weights to different
items (or goods). Some prefer to use base year quantities ($q_0$), some current year quantities ($q_1$), and still others use value weights ($p$).

6. **Choice of an average :**

We have already read that index number is a statistical device with a purpose of showing are average changes in one or more related variables over time and space. Now the question arises which average-arithmetic mean, mode, median, geometric mean etc., should be used for this purpose. It is held that geometric mean is a better method for averaging. However, due to difficulties of calculation, it is rarely used. So most commonly, arithmetic mean is used. Once this decision has been made, the next problem in this category is whether we shall use simple/unweighted average or weighted average method. For less important studies, simple/unweighted average might serve the purpose. However, for studies that are more accurate it is essential to use a suitable weighted average.

* * *
Introduction

Macroeconomics mainly concerns with the study of the behaviour of an economy as a whole. It examines the overall level of nation’s output, employment, prices and international trade. Understanding of macroeconomics helps firms to take decisions regarding what to produce, how to produce, how much to produce. The most important variables useful in analyzing the macroeconomic performance of the economy are, Gross National Product (GNP), the unemployment rate, inflation, net exports, and balance of payments. The importance of the study of macroeconomics is felt since the Great Depression of 1930s, which hit the economic activity of the world at large and developed economies in specific, during this period. The British economist by name J.M. Keynes, through his book titled. The General Theory of Employment, Interest and Money (1936), popularized macroeconomics.

Objectives

- What is Classical Theory of employment
- Explain Keynesian theory of Employment, output and income
- Examine the role of government in Economic Activities.

One Mark Questions

1. Frictional Unemployment

Frictional unemployment is a situation in which, there exists a mismatch between the skills of the persons/job seekers possess and the skills required by the industry. Frictional unemployment is always present in a smaller or a bigger magnitude in an economy. Sometimes it is also called as structural unemployment.
2. **Aggregate Demand**  
Total demand in the economy of different levels of employment.

3. **Unemployment**  
It is a situation when a person interested to work at prevailing wage is unable to get work.

**Two Marks Questions**

1. **Full Employment**  
Full employment is a situation in which all or nearly all persons/resources willing and able to work at the prevailing wages and working conditions will be able to find work. There may be some persons/resources voluntarily unemployed.

2. **Seasonal Unemployment**  
Unemployment resulting because of seasonal variations in production, demand for goods and services is called seasonal unemployment. Persons depending on agriculture stay unemployed in the months of April and May, because of lack of farm work. A person or groups of persons selling woolen clothing stay unemployed during summer. These are some of the examples of seasonal unemployment.

3. **Say’s Law of Market.**  
Say’s law, named after the French businessman and economist Jean Baptiste Say (1767-1832), states that ‘supply creates its own demand’.

**8 Marks Questions**

1. **Explain the assumptions of Classical Theory of Employment.**  
Before Keynes wrote The General Theory in 1936, the major thinkers generally adhere to classical view of the economy. The predominant ideas or theories popular as classical view are J.B. Say’s Law of Markets, Pigou’s Wage Flexibility and Fisher’s Quantity theory of Money.

Assumptions of Classical Assumptions of classical theory of employment.

Classical economics assumed full employment where all or nearly all persons/resources willing and able to work at the prevailing wages and working conditions are able to do so. Classical economics also assumed non-interference of the government in economic activity, perfectly competitive markets, and saving and investment as a function of interest rate.

**No Glut or Over Production**  
Say’s Law states that in a market economy, as goods and services are produced for exchange with other goods and services, production or supply automatically results in demand for goods.
That is, the total supply of goods and services in a market economy will be equal to the total demand for that time period. Even if there are any imbalances in supply and demand, it is of short term nature. It is possible because of an existence of 1) a barter economy, where products are exchanged for other products. 2) Flexible prices, resulting in supply and demand getting adjusted to each other.

**Pigou’s Wage Price Flexibility theory**

A.C. Pigou (1877 – 1959) was an English economist. According to Pigou, only wage flexibility is likely to eliminate unemployment and provides full employment. The argument that price and wage flexibility could prevent unemployment is based on the logic that, if prices and wages fell sufficiently in a slump, full employment would be restored because of the resulting increase in the real money supply. Based on this argument, classicals assumed that economies will be in full employment equilibrium (This analysis was strongly criticized by J.M. Keynes).

**Quantity Theory of Money**

The quantity theory of money was developed by Irving Fisher (1867 – 1947), an American economist. The quantity theory, states that the price level is directly determined by the supply of money and it shows that price level has a direct and proportional relationship with the money supply.

**Fisher’s Quantity Theory of Money is explained with the following equation:**

\[ MV = PT \]

Where,

- **M** = Total Supply of Money
- **V** = Velocity of Circulation of Money
- **P** = General Price Level
- **T** = Total transactions in physical goods.

The equation shows that in an economy the total value of all goods sold during any period (PT) must be equal to the total quantity of money spent during that period (MV). T (total physical transactions) was assumed to be constant, because of the assumption of full employment of classical economics ideology. V (velocity of circulation) was also assumed to be constant in the short run, because it largely depends on the spending habits of the people and technology, which remain constant in the short run. With these two assumptions, there is an exact, proportional relationship between money supply and the price level. The theory also assumed that, the major function of money is medium of exchange. The theory ignored the function of store of value.
money. Hence, production is equal to consumption or demand and saving is not taken into account. In other words, the level of prices in the economy is directly proportional to the quantity of money in circulation. That is, doubling the total supply of money would double the price level.

**Criticisms of Classical Theory**

The classical theory of employment was criticized by J.M. Keynes. Some of the points of criticism are as follows:

1. The assumption of full employment is unrealistic. The economies are not found in full employment equilibrium, but they are found under full employment equilibrium.

2. Wage flexibility is not existing in modern times. Wages are rigid downward due to the trade union activities.

3. Saving is not a function of interest rate, but that of Income.

4. It is not the supply which creates demand, but the demand which creates supply.

5. The function of Money is not only the medium of exchange but also the store of value.

**2. Explain Keynes’ Theory Income and Employment**

Since the dawn of economics, one of the deepest controversies is, the question of the economy tending towards long run full employment equilibrium. The classical approach holds that prices and wages are flexible, so the economy moves to its long run full employment equilibrium. Keynes and his followers believed that prices and wages adjust slowly and there exists under full employment equilibrium. Keynes named his book as General Theory of Employment, Interest and Money, as it is applicable to a general case, as against the classical postulates which are applicable for a special case.

Keynesian income determination model explains that the volume of Employment is dependent on aggregate demand function (proceeds which entrepreneurs expect to receive from employment of ‘N’ men) and aggregate supply function (aggregate supply price of the output from employing ‘N’ men). If for a given value of ‘N’, expected proceeds are greater than the aggregate supply, there will be an incentive to entrepreneurs to increase employment of men beyond ‘N’. Thus the volume of employment is given by the point of intersection of aggregate supply function and aggregate demand function. It is at this point the entrepreneurs’ expectation of profits will be maximized. This point of intersection of Aggregate Supply and Aggregate Demand is called Effective Demand. Classicals believed that supply creates its own demand. Keynes believed that demand creates supply, in the sense, employment, output, income and expenditure. In turn the Aggregate Supply and Aggregate Demand are dependent on many other factors.
This is shown with the help of the following flow chart.

The Income determination model explains that, effective demand determines employment, output, income and expenditure, as effective demand makes entrepreneurs invest more, resulting in employment, as there is increased employment of resources, there is increased output, and the increased output results in increased income for the factors of production. The additional income created is spent on consumption and saving. The saving is converted into investment by the entrepreneurs. As one man’s expenditure is another man’s income, the consumption and investment expenditures boost the aggregate demand and in turn the effective demand. Keynes in his analysis gave much importance to the short run and assumed that Aggregate Supply Function to be constant in the short run. Hence, in the Keynesian analysis, the major emphasis is on the Aggregate Demand Function. Details of how consumption and investment are determined are given in brief in the above chart. Further details may be learnt in the future course of study.
Introduction

Most of you must have heard or read about national income. It is a very important economic concept. However, it has a specific meaning in Economics. It consists of two words ‘national’ and ‘income’. Each of these words have specific meaning in Economics. In this lesson, you will learn about the meaning of ‘income and the process of income generation.

Objectives

After going through this lesson, you will be able to:

- distinguish between factor incomes and non-factor incomes;
- explain the meaning of the four factors of production and the type of factor income accruing to each one of them;
- explain the meaning of a production unit;
- explain the basic economic activities of production, consumption and investment;
- distinguish between money flows and real flows;
- distinguish between a closed economy and an open economy;
- explain the sectorization of an economy into production units, households, general government, capital and the rest of the world sectors; explain the various money and real flows among the sectors.

One Mark Questions

1. Factor Income

   The term ‘factor’ here means factor of production. There are four factors of production: land,
labour, capital and entrepreneurship. The owners of these factors of production sell the services of their factors to the production units. The production units in turn pay the price for the factor services purchased by them from the factor owners. This price is the factor cost to the production unit and factor income to the owner of the factor of production.

2. **Labour**

Labour includes all physical and mental efforts of human beings used for producing goods and services. The physical and mental efforts are inseparable. A worker requires both. The difference is of only degree. Some of the jobs require more of physical than mental labour. For example, a worker who is operating a machine as a routine may be doing more of physical labour than mental labour.

3. **Land**

The alternative term for land as used in economics is ‘natural resources’. It includes all gifts of nature on, below or above the surface of the earth. On the surface there is land used for agricultural, industrial, residential and other purposes like rivers, dams, bridges etc. Below the surface are the mineral deposits, water streams, etc. Above the surface are the sun, the moon, the wind, the rain etc. Thus, the term land includes all that is given to us free by the nature.

4. **Capital**

Capital includes all the man-made assets used for producing a good or a service like structures on land, machines, equipments, vehicles stock of materials etc. The main difference between land and capital is that land is a free gift of nature while capital is produced by man.

5. **Profit**

The remuneration accruing to the entrepreneur is termed as profit.

6. **Open Economy**

The open economy is the term used for a country which has economic relations with the rest of the world. Most countries of the world are open economies.

7. **Closed Economy**

The closed economy is the term used for a country which has no economic relations with the rest of the world. The example of a closed economy is difficult to find in the present day world.

8. **Non Factor incomes**

There are certain money receipts which do not involve any sacrifice on the part of their recipients. The main examples are the gifts, donations, charities, taxes, fines, etc. No sale or provision of any factor service is involved in getting these incomes. These incomes are also known as transfer incomes because such incomes merely represent transfer of money without any good or service being provided in return for the receipts.
Two Marks Questions

1. **What do you mean by income**
   
   We may receive income from many sources. Some receive wages from their employers. Some receive interest on lending money. Some receive gifts, donations etc from others. Some earn profit from doing business. For receiving some of these incomes, one has to give something in return. For example, for receiving wages one has to work for the employers. However, there are some money incomes for which one need not give anything in return. For example, when one receives a gift or a donation he or she need not give anything in return. It means that all income receipts are not of the same type. For receiving some incomes, one has to make some sacrifice and for some others one has not to make any sacrifice.

2. **What do you mean by factor incomes**
   
   The term 'factor' here means factor of production. There are four factors of production: land, labour, capital and entrepreneurship. The owners of these factors of production sell the services of their factors to the production units. The production units in turn pay the price for the factor services purchased by them from the factor owners. This price is the factor cost to the production unit and factor income to the owner of the factor of production.

3. **What do you mean by production unit**
   
   A production unit is when the owners of the four factors of production join hands to produce a good or a service. The factories, shops, offices, schools, colleges, service centres, hospitals, railways, radio station, government offices, police departments etc. are all production units because each one of these produces is either a good or a service. Each one requires the services of all the four factors of production, though not necessarily in equal proportion.

4. **Closed Economy**
   
   In the modern age nearly every country has some economic relations with other countries. Almost all the countries buy goods and services from each other. Borrowing and lending also takes place among different countries. The people of one country also visit other countries. If the two countries have economic relations with each other the goods and money flows also take place between these two countries. The **open economy** is the term used for a country which has economic relations with the rest of the world. Most countries of the world are open economies.

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4 Marks Questions

1. Explain briefly the meanings of the four factors of production and the remuneration accruing to them

The production of any good or service is the result of the joint efforts of the four factors of production. We explain below briefly the meaning of these four factors of production.

(a) Labour

Labour includes all physical and mental efforts of human beings used for producing goods and services. The physical and mental efforts are inseparable. A worker requires both. The difference is of only degree. Some of the jobs require more of physical than mental labour. For example, a worker who is operating a machine as a routine may be doing more of physical labour than mental labour. On the other hand, an engineer who is looking after the machine may be performing more of mental labour than physical labour. The remuneration paid to the workers is popularly termed as ‘wages and salaries’. In national income accounting it is termed as compensation of employees.

(b) Land

The alternative term for land as used in economics is ‘natural resources’. It includes all gifts of nature on, below or above the surface of the earth. On the surface there is land used for agricultural, industrial, residential and other purposes like rivers, dams, bridges etc. Below the surface are the mineral deposits, water streams, etc. Above the surface are the sun, the moon, the wind, the rain etc. Thus, the term land includes all that is given to us free by the nature. Historically, when land was abundant, there was no need to pay any price for owning land. But when land became scarce sale and purchase of land started. Those who owned land started charging payments for the use of the land owned by them. Such a remuneration accruing to the land owner is termed as rent in national income accounting.

(c) Capital

Capital includes all the man-made assets used for producing a good or a service like structures on land, machines, equipments, vehicles, stock of materials etc. The main difference between land and capital is that land is a free gift of nature while capital is produced by man. We cannot reproduce; land but we can reproduce capital. The remuneration accruing to the capital is termed as interest in national income accounting.

(d) Entrepreneurship

It refers to the initiative taken by a person or a group of persons in starting and organizing a business and take upon their shoulders all the good and bad consequences of doing so. The good consequence of a business is the profit it earns. The bad consequence is the losses that may occur. Unless somebody takes this initiative no business can be started. The one who
takes the initiative is termed as ‘entrepreneur’. He brings together the owners of labour, land and capital and uses their factors of production in the production unit. The remuneration accruing to the entrepreneur is termed as profit in national income accounting.

2. **Distinguish between a closed economy and an open economy?**

   Ans. In the modern age nearly every country has some economic relations with other countries. Almost all the countries buy goods and services from each other. Borrowing and lending also takes place among different countries. The people of one country also visit other countries. If the two countries have economic relations with each other the goods and money flows also take place between these two countries.

   The **open economy** is the term used for a country which has economic relations with the rest of the world. Most countries of the world are open economies. The **closed economy** is the term used for a country which has no economic relations with the rest of the world. The example of a closed economy is difficult to find in the present day world.

3. **Explain the sectorization of an economy on the basis of the three basic economic activities.**

   Production, consumption and investment are the three basic economic activities. Those who perform these activities are called producers (or production units), consumers and investors. This classification is based on the activities performed by these persons. A person can perform all the three activities but each of his activity is accounted for in a separate sector.

   Out of the three sectors, the consumer sector is further classified into households and government. **Households** comprise of all individuals and families who purchase or acquire goods and services for personal satisfaction of their wants. The government comprises of all government departments providing free services to the people. Such government departments are called **General Government**.

   The reason behind classifying consumers into households and general government is that the motive behind the consumption expenditure of each is different. Households spend on consumption keeping in mind personal or family welfare. General government spends on consumption keeping in mind public or social welfare.

   The borrowing and lending activities are grouped in a separate sector termed as the capital sector. The savings of all the groups in the society are pooled in this sector which in turn lends these savings to the production units for investment. Thus an economy is classified into four basic sectors i.e. production units, households, general government and capital. Another sector, the **rest of the world**, is added to take care of the flows among different countries. In this way an economy can be divided into the following five sectors:
(i) Production units
(ii) Households
(iii) General government
(iv) Capital
(v) Rest of the world.

8 Marks Questions

1. Explain the basic economic activities of an economy.

Production is not the only economic activity. There are other economic activities as well. Why do production units produce goods and services? They produce them because people need them to satisfy their wants. The use of goods and services for satisfaction of wants is called consumption. It will include all goods and services purchased by households like food items, clothes, shoes, vehicles, TV sets, radios, furniture etc.

We also produce goods and services for using them to produce more goods and services. These include all such items as machines, equipments, materials etc. used by production units. Acquiring such goods and services for use in the production process is called capital formation or investment. So, there is not one but three economic activities i.e. production, consumption and investment.

The three economic activities are interrelated and interdependent. The interrelation is clear from the fact that goods and services produced are either used for consumption or for investment: Let us try to understand it more clearly. Firstly, unless there is need for consumption and investment no production activity will be undertaken. Secondly, it is true the other way round also. Unless there is production, no consumption or investment can take place. Thus besides production, consumption and investment are also the basic economic activities. These three economic activities are responsible for generating the income flows in the economy.

Flows During Economic Activities

The goods and services produced by the production units are generally sold for money. Any sale of a good or service involves two types of flows. One flow is from the buyer and the other is from the seller. These flows are called the real flows and the money flows. The flow of good or service from its seller is a real flow while the flow of money from the buyer is a mone flow.
Let us explain it with the help of an example. Suppose, Ram buys goods worth Rs. 200/- from Rahim. In this transaction the parting of goods by Rahim is a real flow while the payment of money by Ram is a money flow. Similarly, the receipt of goods by Ram is a real flow while the receipt of money by Rahim is a money flow. Both the real and money flows take place continuously in every economy.

Let us try to understand how these flows take place among different sections of an economy namely, the producers, the consumers and the investors. But before it, it is necessary to know (a) the distinction between a closed economy and an open economy and (b) the division of an economy into different groups or sectors.

2. Explain briefly the real and money flows between the sectors of an economy with the help of a diagram.

We now learn the nature of flows that take place between different sectors. The flows are also presented in the form of the following figure

![Fig. 12.1: Inflow and outflows among different sectors](image)

Flows from and to the Production Units

(a) They buy factor services from households (real inflow). In return they make factor payments in the form of wages, rent, interest and profits (money outflows).

(b) They deposit savings in the capital sector (money outflow).

(c) They exports goods and services (real outflow) and in return they get payments for the exports (money inflow).

(d) They pay taxes to the general government (money outflow).
(e) They sell goods and services to the households and general government (real out flow). In return they get payments from households (private consumption expenditure) and general government (government consumption expenditure) (money inflows).

(f) They receive subsidies from government (money inflow).

(g) They borrow from the capital sector (money inflow).

2. Flows from and to the Households

(a) They buy goods and services from the production units (real inflow) and in return make payments (consumption expenditure) (money outflow).

(b) They pay personal taxes to the general government (money outflow).

(c) They deposit savings in the capital sector (money outflow).

(d) They sell factor services to the enterprises (real outflow) and in return get factor incomes (money inflow).

(e) They get free services (real inflow) and transfer payments (money inflow) from general government.

3. Flows from and to the General Government

(a) It purchases goods and services from production units (real inflow) and in return makes payments i.e. government consumption expenditure

(b) It pays subsidies to the production units (money outflow).

(c) It provides free services to the households (real outflow) and makes transfer payments (money outflow).

(d) It deposits savings in the capital sector (money flow).

(e) It receives taxes from production units (money inflow).

(f) It receives personal taxes from households (money inflow).

4. Flows from and to the Capital Sector

(a) It lends capital to the production units (money outflow).

(b) It receives savings from production units, households and general government (money inflows).

5. Flows from and to the Rest of the World

(a) Goods and services are exported to the rest of the world (real inflow) and in return payments are received (money outflow).

(b) Goods and services are imported from rest of the world (a real outflow) and in return payments are made (money inflow).
Introduction

In the previous lesson you have learnt about the meaning of income, different types of income and how this income is generated. You have also learnt about the different types of flows between different sectors. In this lesson, you will learn the meaning of ‘national’ in the context of national income. You will also learn about various other concepts relating to national income. All these concepts are very important economic concepts and without knowing these concepts it is very difficult to understand the meaning and ways of measuring national income.

Objectives

After going through this lesson, you will be able to:

- explain the concepts of economic (domestic) territory and residents;
- distinguish between residents and non-residents;
- distinguish between intermediate products and final products;
- explain the concepts of value of output and value added;
- distinguish between gross and net measures of value added;
- distinguish between market price and factor cost measures of value added;
- explain the different types of factor incomes;
- derive the concept of domestic product and national product;
- explain the concept of final expenditure; state the different types of final expenditure in an economy.
One Mark Questions

1. **Economic Territory**
   The concept of economic territory (or domestic territory) is derived from geographical territory by making certain adjustments. This concept is evolved in connection with the measurement of economic activity of a country.

2. **Gross value in market prices**
   Value added = Value of output – intermediate. The above measure of value added is termed as Gross Value Added at Market Price. (GV Amp)

3. **Net value in market prices**
   obtained is "gross value added". If we deduct consumption of fixed capital from gross value added we get net value added".
   Thus:
   Net Value Added = Gross Value Added - Consumption of fixed capital

4. **Net value at factor cost**
   By subtracting indirect taxes from and adding subsidies to the net value added at market price we get value added at factor cost.
   NVA_{fc} = NV_{amp} - indirect taxes + subsidies.

5. **Domestic Product**
   A large number of production units are located in the economic territory (domestic territory) of a country. The sum total of value added by all such production units is termed as ‘domestic product’.

6. **National Income**
   It is Net National Product at factor cost which is called National Income of a country.
   Net Domestic Product at Factor cost + Net factor income from abroad = Net National Product at factor cost.

7. **Mixed Income**
   The data about the four types of factor incomes is obtained from the income accounts of the production units. Many production units do not keep accounts in a manner so that the four factor payments are clearly identified. This happens in case of those entrepreneurs who also provide their own land, labour and capital services to their production units.

8. **Private Final Consumption Expenditure (PFCE)**
   PFCE includes purchases by the households and the non-profit institutions serving households. The households purchase goods and services for satisfaction of wants of their family members.
The non-profit institutions serving households consist of institutions like mosques, temples, churches, gurudwaras, charitable hospitals, associations, etc. which provide free services to the households.

9. **Government Final Consumption Expenditure (GFCE)**

GFCE is the expenditure on the free services provided to the people by the general government. The main examples of the free services are that of police, military, educational institutions, hospitals, roads, bridges, legislatures and other government departments.

10. **Gross Domestic Capital Formation (GDCF)**

GDCF is a measure of the total expenditure on investment by the production units within the economic (domestic) territory of a country. This expenditure is of two types: (a) on fixed assets like building, machines, instruments, furnitures, transport vehicles etc. and (b) on stocking of raw materials, semi-finished goods and finished goods.

11. **Net Domestic Capital Formation (NDCF)**

The GDCF is called gross because the consumption of Fixed capital has not been deducted from it. If we deduct the consumption of fixed capital from GDCF we get Net Domestic Capital Formation (NDCF). The NDCF is a measure of the net domestic investment during the year.

**Two Marks Questions**

1. **Domestic Territory**

The concept of economic territory (or domestic territory) is derived from geographical territory by making clear adjustments. This concept is evolved in connection with the measurement of economic activity of a country. The adjustments are made in geographical territory to derive economic territory.

   (i) Include all embassies and similar government offices of a country located outside its geographical territory. For example, India’s economic territory will include all Indian embassies and similar offices located in foreign countries.

   (ii) Exclude all foreign embassies, offices of international organisations and other similar offices located within the geographical territory of a country. For example, India’s economic territory will exclude all foreign embassies and offices of international organisations located in India.

2. **Intermediate Products**

The intermediate products are those which are purchased by one production unit from other production units for resale. For example, wheat purchased by a flour mill is intermediate product for the mill. The flour mill will grind the wheat and resale the same in the form of flour. Similarly all other such purchases by the flour mill like electricity, packing materials, lubricants, etc. are intermediate products. Expenditure on all such purchases from other production units is a part of the value of output of flour. The cost incurred on such products is termed as ‘intermediate cost’.
3. **Final Products**

   All goods and services purchased for consumption and investment, and not for resale, are final products. It includes all purchases by households and the purchases of capital goods like machines, furnitures, fittings, transport vehicles, etc. by the production units. The final goods are purchased for own use for consumption or for investment.

4. **Subsidies**

   In contrast to indirect taxes, subsidies are the financial help given by the government to the production units for selling the products at lower prices. Such help is given in case of those selected commodities whose use the government wants to encourage. If there was no subsidy the consumer may not buy at all or buy less because of high price. Subsidies are the additional receipts, other than the market price, available to the production unit for distribution among the factors of production.

5. **Concept of domestic product**

   A large number of production units are located in the economic territory (domestic territory) of a country. The sum total of value added by all such production units is termed as ‘domestic product’. Accordingly,

   i) Sum total of Gross Value Added at market price of all production units = Gross Domestic Product at market price

   ii) Sum total of Net Value Added at market price of all production units = Net Domestic Product at market price.

     Sum total of Net Value Added at factor cost of all production units = Net Domestic Product at factor cost

4 Marks Questions

1. **Explain the concept of value added by giving a numerical example.**

   To explain the concept of value added let us take the example of the flour mill. The mill purchases wheat worth Rs. 10,000. This purchase is the intermediate cost to the mill. The sale of flour worth Rs. 12,000 is the output of the mill. Suppose wheat is the only intermediate cost to the mill. Now, out of the total output of the mill of Rs. 12,000, the contribution of the mill is only worth Rs. 2,000. The remaining Rs. 10,000 is the contribution of the farmers. The contribution of Rs. 2,000 by the mill is called the ‘value added’ by the mill. It is estimated after deducting intermediate cost from the total value of output. Thus:

   \[
   \text{Value added} = \text{Value of output} - \text{intermediate cost} = Rs. 12000 - Rs. 10000 = Rs. 2000
   \]
The above measure of value added is termed as Gross Value Added at Market Price. (GV Amp)
To know what ‘gross’ and ‘market price’ mean in GV Amp, we must know the difference between
(a) gross and net measures and (b) market price and factor cost measures of value added.

2. **Distinguish Between Indirect Taxes and Subsidies**

The difference in these two measures is on account of ‘indirect taxes’ and ‘subsidies’.

(i) **Indirect Taxes**

The term ‘market price’ means the price which the buyers pay to the production units (sellers). The sellers pay a part of this market price as ‘indirect taxes’ to the government.

All taxes levied on production like sales tax, excise duties, octroi etc. are called ‘indirect taxes’. These are called ‘indirect’ because these taxes are levied on the sellers but shifted on the buyers by the sellers. So these are indirectly paid by the buyers. These taxes are paid by the sellers to the government. It also means that the entire market price, that a seller gets, is not available for distribution as incomes among the factors of production.

(ii) **Subsidies**

In contrast to indirect taxes, subsidies are the financial help given by the government to the production units for selling the products at lower prices. Such help is given in case of those selected commodities whose the government wants to encourage. If there was no subsidy the consumer may not buy at all or buy less because of high price. Subsidies are the additional receipts, other than the market price, available to the production unit for distribution among the factors of production.

3. **What are Different measures of Value Added**

The inter-relationship among different measures of value added is given below .

\[
\text{GV Amp} = \text{Value of output} - \text{intermediate cost} \\
\text{NV Amp} = \text{GV Amp} - \text{consumption of fixed capital} \\
\text{NVA}_c = \text{NV Amp} - \text{indirect taxes} + \text{subsidies}. 
\]

4. **Explain the concept of Domestic product.**

A large number of production units are located in the economic territory (domestic territory) of a country. The sum total of value added by all such production units is termed as ‘domestic product’.

Accordingly,

i) Sum total of Gross Value Added at market price of all production units ~ Gross Domestic Product at market price

ii) Sum total of Net Value Added at market price of all production units - Net Domestic Product at market price.
iii) Sum total of Net Value Added at factor cost of all production units = Net Domestic Product at factor cost.

The interrelationship among these aggregates is:

i) Gross Domestic Product at market price - Sum total of Gross Value Added by all production units

ii) Net Domestic Product at market price = Gross Domestic Product at market price - Depreciation

iii) Net Domestic Product at factor cost = Net Domestic Product at market price - indirect taxes + subsidies.

5. **Explain the concept of National Product.**

Domestic Product is a measure of production activity of production units located in the economic territory of a country. Both residents and non-residents provide factor services to these units. As such the income generated in these units is shared by both the residents and non-residents. To get the contribution of only residents we have to deduct from domestic product, the factor payments made to the non-residents.

The residents, in addition to their services to the production units located in the economic territory of a country, also provide factor services to production units outside this economic territory i.e., to the rest of the world. In return for these services they get factor payments (factor income) from the rest of the world.

In brief, residents get factor payments, both from economic territory units and foreign country units. The sum of both is termed as national product. It is found out in the following manner:

National Product - Domestic product - Factor income paid to the rest of the world + Factor income received from the rest of the world or

National Product - Domestic product + Net factor income received from abroad.

Accordingly,

i) Gross Domestic Product at market price + Net factor income from abroad = Gross National Product at market price.

ii) Net Domestic Product at market price + Net factor income from abroad = Net National Product at market price.

iii) Net Domestic Product at factor cost + Net factor income from abroad = Net National Product at factor cost.
8 Marks Questions

1. **Name the different factor incomes. Explain briefly their meaning**

   The NVAFc is a measure of the contribution of a production unit to national income. A production unit is formed by the four factors of production viz. land, labour, capital and entrepreneurship. As such the NVAFc is distributed among the owners of the four factors of production. Such payments made by the production unit are called ‘factor payments’. For the owners of the factors of production who receive such payments. It is ‘factor income’.

   The owners of labour get their share in the form of wages, salaries, bonus and some other benefits collectively termed as the compensation of employees. The owners of land get rent. The owners of capital get interest and the entrepreneur gets profit. Thus, there are four types of factor incomes described below:

   **(a) Compensation of employees**

   It includes all money receipts and benefits both in cash and in kind accruing to the employees. The employees get wages or salaries. In addition they may get many other benefits as employees like bonus, employer’s contribution to provident fund, free accommodation, free conveyance, free medical facilities, free holiday trips, etc.

   In short, compensation of employees includes all monetary and non-monetary benefits that accrue to the employees on account of work performed.

   **(b) Rent**

   It accrues to the owners of land for the use of their land for production of goods and services.

   **(c) Interest**

   Interest is a payment to those who provide funds to the production units. In national income estimation, the interest payments only against the funds provided to the production units for investment are treated as factor payments. Any interest payment against loans given to consumers to meet consumption expenditure is not a factor payment and so cannot be treated as factor income.

   **(d) Profit**

   Profit is the income accruing to the entrepreneur for his entrepreneurial services to the production units. It is a residual income left after factor payments out of the value added in the form of compensation of employees, rent and interest have been made.

   **(e) Mixed Income**

   The data about the four types of factor incomes is obtained from the income accounts of the production units. Many production units do not keep accounts in a manner so that the four factor payments are clearly identified. This happens in case of those entrepreneurs who also
provide their own land, labour and capital services to their production units. Suppose there is a small shopkeeper who has no employees. Also suppose that he has not borrowed any funds and used his own savings for investment in the shop. Further suppose that he is also the owner of the land on which the shop is built. The payment for these services gets merged with profits and recorded as profit in the accounts. Such an income is not truly profit but includes owner’s salary, rent and interest also. In national income estimation, it is treated as ‘mixed income’.

2. Name the different final expenditures. Explain briefly their meaning

A final expenditure is an expenditure on goods and services acquired for final consumption and investment and not for reselling. Expenditure on goods and services acquired by production units for reselling is intermediate expenditure. In other words, final expenditure is an expenditure on final products.

The purchases for final consumption are made by the households and general government. The purchases for investment are made by the production units within the economic territory and by the foreigners. Accordingly, the final expenditure is classified into:

a) Private final consumption expenditure
b) Government final consumption expenditure
c) Gross domestic capital formation
d) Net exports.

Out of the above (a) and (b) are consumption expenditure and (c) and (d) are investment expenditure.

(a) Private Final Consumption Expenditure (PFCE)

PFCE includes purchases by the households and the non-profit institutions serving households. The households purchase goods and services for satisfaction of wants of their family members. The non-profit institutions serving households consist of institutions like mosques, temples, churches, gurudwaras, charitable hospitals, associations, etc. which provide free services to the households.

(b) Government Final Consumption Expenditure (GFCE)

GFCE is the expenditure on the free services provided to the people by the general government. The main examples of the free services are that of police, military, educational institutions, hospitals, roads, bridges, legislatures and other government departments.

(c) Gross Domestic Capital Formation (GDCF)

GDCF is a measure of the total expenditure on investment by the production units within the economic (domestic) territory of a country. This expenditure is of two types: (a) on fixed
assets like building, machines, instruments, furnitures, transport vehicles etc. and (b) on stocking of raw materials, semi-finished goods and finished goods. These two types of expenditure are respectively termed as (a) gross domestic fixed capital formation (GDFCF) and (b) net addition to stock. The excess of the closing stock over the opening stock is the ‘net addition to stock’. Suppose the reference year is 2009. The stock on 1.1.2009 is called ‘opening stock’ and that on 31.12.2010 is ‘closing stock’. The closing stock less opening stock is a measure of the net addition to the stock during the year.

The GDCF is called gross because the consumption of Fixed capital has not been deducted from it. If we deduct the consumption of fixed capital from GDCF we get Net Domestic Capital Formation (NDCF). The NDCF is a measure of the net domestic investment during the year.

(d) Net Exports

In national income accounting any part of the final products produced during the year but not consumed within the economic territory of the country is treated as investment. By this criteria the exports are treated as investment abroad. Similarly imports are treated as disinvestment. So, exports less imports, i.e. net exports, represent net investment abroad.
Introduction

Inflation is one of the severe problems of any economy. The world is suffering from food inflation for the last few years. India is no exception to this. We come across statements made by persons who are responsible for policy making in India, like, Dr. Manmohan Singh, Prof. C. Rangarajan, Dr. Duvvuri Subba Rao, and Sri Pranab Mukherjee regarding steps taken to combat inflation, for every now and then. That means, inflation is a serious problem. In economics, inflation is a rise in the general level of prices of goods and services in an economy over a period of time or it can be said as a continuous rise in the prices, or it can also be said as rising prices. When the general price level rises, each unit of currency buys fewer goods and services. It means inflation results in erosion in the purchasing power of money. That means the value of money decreases. The opposite of inflation is deflation, which means, falling prices. The falling prices are even more dangerous for an economy.

Objectives

After going through this lesson you will be able to understand the following:

- What is inflation
- Types and Measurement of Inflation
- Factors influencing the inflation
- Effects of Inflation
- Measures to control inflation
One Mark Questions

1. **Measurement of Inflation**
   
   In general inflation is expressed as a percentage change in the prices in a period of time.
   
   \[
   \text{Inflation} = \left( \frac{P_1 - P_0}{P_0} \right) \times 100
   \]

   Where, \( P_1 \) is the current period price, \( P_0 \) is the previous year price.

2. **Open Inflation**
   
   Inflation is open when product and factor markets are allowed to function freely, in determining prices of goods and factors of production without governmental interference. Thus open inflation is the result of the uninterrupted operation of the market mechanism. Unchecked open inflation may lead to hyper inflation.

3. **Suppressed Inflation**
   
   When government imposes physical and monetary controls to check open inflation; it is known as repressed or suppressed inflation. The market mechanism is not allowed to function normally by the use of price controls and rationing in order to suppress extensive rise in prices.

4. **Demand pull inflation**
   
   Demand-pull inflation is caused by an increase in the aggregate demand. Demand-pull inflation is helpful in achieving faster rate of economic growth since the excess demand and favorable market conditions will stimulate investment and expansion, leading to increased output, income and expenditure.

Two Marks Questions

1. **Definition of Inflation**
   
   Prof. Samuelson an American economist defined inflation as; “Inflation denotes a rise in the general level of prices”. Keynes defined true inflation in the following words. “When a further increase in the quantity of effective demand produces no further increase in output and entirely spends itself on an increase in the cost-unit fully proportionate to the increase in effective demand, we have reached a condition which might be appropriately designated as one of true inflation”

2. **Hyperinflation**
   
   Hyperinflation occurs when prices rise very fast at double or triple digit rates. This could get to a situation where the inflation rate can no longer be measurable and absolutely uncontrollable. Prices could rise many times every day. Such a situation brings a total collapse of the monetary
system because of the continuous fall in the purchasing power of money. Depending on the government's interference in controlling inflation, there are two types of inflation, Open inflation and Suppressed inflation. Inflation is often open and suppressed.

4 Marks Questions

1. **Explain about Demand pull inflation.**

   Demand-pull inflation is caused by an increase in the aggregate demand. This could be either because of an increase in the ability to buy goods or an increase in the willingness to buy by private individuals or increased investment by Corporate, or increased Government spending. Demand-pull inflation is helpful in achieving faster rate of economic growth since the excess demand and favorable market conditions will stimulate investment and expansion, leading to increased output, income and expenditure.

   **Factors influencing an increase in aggregate demand**
   - High rate of population growth
   - Increase in government expenditure over and above its revenue
   - Increase in incomes of the population
   - Reduction in taxes
   - Increase in the money supply of an economy

2. **Explain about Cost push inflation**

   Cost-push inflation arises from anything that causes increase in cost of production. Demand being the same, when cost of production increases, the same produce will be sold at a higher price, resulting in increased prices. Some of these factors which lead to a rise in the cost of production are wage push by trade unions, profit push by Oligopolists and supply shocks due to natural calamities or increased prices of inputs. For example, a sudden decrease in the supply of oil, leading to increased oil prices, can cause cost-push inflation. Producers for whom oil is a part of their costs could then pass this on to consumers in the form of increased prices. One of the examples can be providers of transportation services.

   **Factors that lead to increased cost of production**
   - Increase of remunerations to the factors of production, i.e., rent, wages, interest and profit.
   - Increase in the prices of raw material
   - Increase in tax rates
   - Magnitude of depreciation of machinery
3. What are the economic effects of Inflation on an economy.

Inflation has its impact on production and distribution. Its impact is different on different sections of the population.

a) Allocative efficiency

A change in the supply or demand for a good will normally cause its relative price to change, signaling to buyers and sellers that they should re-allocate resources in response to the new market conditions. But when prices are constantly changing due to inflation, price changes due to genuine relative price signals are difficult to distinguish from price changes due to general inflation, agents are slow to respond to them. The result is a loss of allocative efficiency.

b) On production

As wages do not increase on par with prices, and as there is lag or gap between the two, the increase in cost is less than increase in price. This may increase output, income and expenditure and boosts economic activity and the GDP. But, when there is hyper inflation, and when people struggle hard to meet their necessities, the demand for goods other than necessities may fall drastically, leading to lesser production of these goods, lesser employment of resources and lesser creation of income, and may lead to reduced growth rate of GDP.

c) On distribution

An increase in the general level of prices implies a decrease in the purchasing power of the currency. That is, when the general level of prices rise, each monetary unit (Rupee) buys fewer goods and services. The effect of inflation is not distributed evenly in the economy and as a consequence there are hidden costs to some and benefits to others from this decrease in the purchasing power of money.

d) Debtors and Creditors

With inflation, lenders or depositors who are paid a fixed rate of interest on loans or deposits will lose purchasing power from their interest earnings, while their borrowers benefit. Due to inflation, debtors gain and creditors loose. For example if you take a loan where the stated interest rate is 6% and the inflation rate is at 3%, the real interest rate that you are paying for the loan is 3%. It would also hold true that if you had a loan at a fixed interest rate of 6% and the inflation rate jumped to 20% you would have a real interest rate of -14%. Banks and other lenders adjust for this inflation risk either by including an inflation premium in the costs of lending the money by creating a higher initial stated interest rate or by setting the interest at a variable rate. As the rate of inflation decreases, this has the opposite (negative) effect on borrowers.
e) Wage earners and pensioners

Individuals or institutions with cash assets will experience a decline in the purchasing power of their holdings. Increases in payments to workers and pensioners often lag behind inflation. With high inflation, purchasing power is redistributed from those on fixed nominal incomes, such as wage earners and pensioners, towards those with variable incomes whose earnings may better keep pace with the inflation. Hence, the fixed income groups suffer due to inflation.

f) Producers and Consumers

During inflation, consumers lose and producers gain.

Depending on the price changes of different commodities, inflation may result in making rich richer and poor poorer. This results in social inequalities and social injustice, resulting in poverty, crime and violence. It may result in political instability.

4. What are the various measurement methods of Inflation.

Though inflation after a particular limit, is one of the severe problems of any economy and by understanding the causes of inflation, it can be controlled by fiscal and monetary measures. If it is not controlled in time, it has its negative impacts on production and distribution of income.

To control inflation, government uses monetary and fiscal policies as instruments.

Monetary measures :-

To stabilize prices, through monetary measures, Central Bank of a country regulates the supply of money, so that the increase in money supply is made to slow down, resulting in increased interest rates, and reduced demand for money.

Fiscal measures

Keynesians emphasize reducing aggregate demand during economic expansions to keep prices stable. Control of aggregate demand can be achieved by increased taxation or reduced government spending and increased public debt. These three measures reduce disposable income with the people and results in reduced demand and reduced prices.
Introduction

In the previous lessons, you have learnt about the various concepts relating to national income. Understanding of these concepts is very necessary for understanding and measuring national income. In this lesson, you will learn how national income is measured. In lesson No.10, you have learnt that national income is a flow. This flow can be looked at from three different angles. Hence, there are three different methods of measuring national income. Each one of these methods is explained in details in this lesson.

Objectives

After going through this lesson you will be able to:

- define national income;
  look at national income from three different angles;
- explain the classification of production units located in the economic territory of a country into distinct industrial sectors;
- explain the meaning of the primary, secondary and tertiary sectors;
- explain the production method (or value added method) of measuring national income;
- explain the precautions to be taken while measuring national income by production method;
- explain the income distribution method of measuring national income;
- explain the precautions to be taken while measuring national income by income distribution method;
- explain the final expenditure method of estimating national income; explain the precautions to be taken while measuring national income by final expenditure method.
**One Mark Questions**

1. **National Income**
   National income of a country is defined as the sum total of factor incomes accruing to the residents of that country from the production activity performed by them both within and outside the economic territory in a year.

2. **Measurement Of National Income**
   National income of a country can be measured by three methods: production, income distribution and final expenditure. It can be measured when it is created (production method); or when distributed among the claimants (income distribution method) or when spent on consumption and investment (final expenditure method).

**Two Marks Questions**

1. **Value Added Angle**
   From the value added angle, national income is defined as the sum total of the net value added at factor cost in a year by all production units located within the economic territory, whether owned by the residents or by the non-residents, plus the net factor income received from abroad. So,
   \[
   \text{National Income at the market prices} = \text{Sum total of } NVAf_c \text{ by production units} + \text{Net factor income received from abroad}
   \]

2. **Concept of National Product**
   Domestic Product is a measure of production activity of production units located in the economic territory of a country. Both residents and non-residents provide factor services to these units. As such the income generated in these units is shared by both the residents and non-residents. To get the contribution of only residents we have to deduct from domestic product, the factor payments made to the non-residents. The residents, in addition to their services to the production units located in the economic territory of a country, also provide factor services to production units outside this economic territory i.e., to the rest of the world. In return for these services they get factor payments (factor income) from the rest of the world.

3. **Mixed Income**
   The data about the four types of factor incomes is obtained from the income accounts of the production units. Many production units do not keep accounts in a manner so that the four factor payments are clearly identified. This happens in case of those entrepreneurs who also provide their own land, labour and capital services to their production units.
4. **Net Exports:**

We consider national income produced is a domestic terifors in a particular year as investment. Similarly imports as investment disinvestment. Hence, by deducting exports from imports we get Net Foreign investment.

5. **Primary Sector**

The primary sector includes all production units engaged in exploiting natural resources like the units engaged in farming, forestry, fishing, mining, dairy farming etc. This sector is treated as the sector of first importance because it is a source of all materials needed for producing goods and services.

6. **Secondary Sector**

Secondary sector units. All manufacturing units or factories producing goods from the use of materials come under this category. The production units producing wheat flour, tinned foods, clothes, shoes, electric goods, furnitures, books, electricity etc., are some of the examples of production units of this sector. The growth of this sector depends on the availability of raw materials from the primary sector. That is why this sector is considered the sector of second importance.

7. **Territory Sector**

All production units engaged in producing services are classified as the tertiary sector units. The banks, insurance companies, government administrative departments producing police, military and other services for the people, domestic servants, transport companies, trading firms are some examples of production units of this sector. The growth of this sector depends mainly on the growth of the primary and the secondary sectors of the economy. That is why this sector is considered the sector of third importance.

4 Marks Questions

1. **Explain the three angles of looking at national income**

The production units produce goods and services. For this purpose they employ the owners of the four factors of production viz., labour, land, capital and entrepreneurship. When these factors of production jointly produce goods and services, it leads to the creation of income termed as "value added". This angle, i.e. the value added angle, is the first angle of looking at the flow of national income. The national income measured from this angle is said to be measured through the "Value Added" or the "Production" method.

The income created in the production units is distributed among the owners of the factors of production in the form of condensation of employees, rent, interest and profit. When we add all these factor incomes we get domestic income. This is the second angle leading to the ‘Income Distribution’ method of estimating national income.
The incomes received by the owners of the factors of production are spent on purchasing of goods and services from the production units for the purpose of consumption and investment. The national income measured by adding the final expenditure is the third angle leading to the ‘Final Expenditure’ method of measuring national income.

To conclude, national income can be measured when it is created (production method); or when distributed among the claimants (income distribution method) or when spent on consumption and investment (final expenditure method).

The first step in the measurement of national income, irrespective of the method adopted, is to classify the production units located within the economic territory of country into the distinct industrial groups or sectors.

8 Marks Questions

1. Explain the nature of functions of primary, secondary and tertiary sectors

Ans. Conceptually, the entire production activity of a country is classified into three broad sectors namely the primary, the secondary and the territory sectors.

(a) Primary Sector

The primary sector includes all production units engaged in exploiting natural resources like the units engaged in farming, forestry, fishing, mining, dairy farming etc. This sector is treated as the sector of first importance because it is a source of all materials needed for producing goods and services.

(b) Secondary Sector

All production units engaged in transforming one good into another are classified as the secondary sector units. All manufacturing units or factories producing goods from the use of materials come under this category. The production units producing wheat flour, tinned foods, clothes, shoes, electric goods, furnitures, books, electricity etc., are some of the examples of production units of this sector.

The growth of this sector depends on the availability of raw materials from the primary sector. That is why this sector is considered the sector of second importance.

(c) Tertiary Sector

All production units engaged in producing services are classified as the tertiary sector units. The banks, insurance companies, government administrative departments producing police, military and other services for the people, domestic servants, transport companies, trading firms are some examples of production units of this sector.
The growth of this sector depends mainly on the growth of the primary and the secondary sectors of the economy. That is why this sector is considered the sector of third importance.

The above three sectors are only the broad groups. These are further subdivided into sub-groups or sub-sectors. For example, the Indian economy is classified into the following sectors and sub-sectors.

**A. Primary Sector**

1. Agriculture.
2. Forestry and logging.
3. Fishing.
4. Mining and quarrying.

**B. Secondary Sector**

5. Registered manufacturing.
7. Construction.
8. Electricity, gas and water supply.

**C. Tertiary Sector**

9. Trade, hotels and restaurants.
10. Transport, storage and communication.
11. Banking and insurance.
12. Real estate, ownership of dwellings and business services.
13. Public administration and defence.
14. Other services.

**2. Explain Various Measurement Methods of National Income**

We have already observed above that there are three methods of measuring national income. These methods are explained below:

(A) Production Method (Value Added Method)

This method approaches the measurement of national income through the value added angle. The main steps involved in measuring national income through this method are as follows:
(a) Classify the production units located within the economic territory into the distinct industrial groups like agriculture, mining, manufacturing, banking, trade etc.

(b) Estimate the net value added at factor cost by the each industrial sector by taking the following sub steps.

(i) Estimate the value of output.

(ii) Estimate the value of intermediate consumption and deduct the same from the value of output to arrive at gross value added at market price.

(iii) Deduct consumption of fixed capital and indirect taxes from and add subsidies to the gross value added at market price to obtain the net value added at factor cost. To summarise: Gross value added at market price = Value of output - Value of intermediate consumption.

(iv) Net value added at factor cost = (Gross value added at market price + subsidies) - (Consumption of fixed capital + Net indirect taxes)

(c) Take the sum of net value added at factor cost by all the industrial sectors to arrive at net domestic product at factor cost.

(d) Add net factor income received from abroad to the Net Domestic Product at factor cost to obtain Net National Product at factor cost which is the National Income

**Precautions**

The following precautions are necessary while estimating national income by production i method:

(a) Avoid double counting of production. To do so instead of taking the value of total output, take only the value added by each production unit. In this way double counting in the estimation of national income is avoided.

(b) That output which is produced for self-consumption and whose value can be estimated, must be included in the estimates of production. It will save national income from under-estimation. For example, suppose a farmer produced wheat and retains the same for meeting his family needs, instead of selling it, the value of such self-consumed output must be included in production.

(c) The sale of second hand goods should not be included in current production because the value of these goods had already been included earlier. However, the value of services rendered in their sales must be counted because these services are freshly produced. For example, suppose you sell your old bicycle, the value of such bicycle will not be included in the value of output because it was already counted as part of output when purchased new.
(B) **Income Distribution Method**

In this method, national income is measured at the stage when factor incomes are paid out by the production units to the owners of the factors of production. The main steps involved in this method are as follows:

(a) Classify the production units into distinct industrial sectors like agriculture, forestry, manufacturing, banking, trade etc.

(b) Estimate the following factor incomes paid out by the production units in each industrial sector:

   (i) Compensation of employees

   (ii) Rent

   (iii) Interest

   (iv) Profit

   The sum total of the above factor incomes paid out is the same as net value added at factor cost by the industrial sector.

(c) Take the sum of factor payments by all the industrial sectors to arrive at the net domestic product at factor cost.

(d) Add net factor income from abroad to the net domestic product at factor cost to arrive at the net national product at factor cost.

**Precautions**

The following are some of the main precautions which must be taken while estimating national income by the income distribution method:

(a) While estimating compensation of employees all benefits accruing to the employees whether in cash or in kind must be included. It should not include only cash payments to the employees.

(b) In estimating interest, the interest on only those loans should be included which are taken for production. The interest on loans taken to meet consumption expenditure is a non-factor income and so is not included in national income.

(c) Gifts, donations, charities, taxes, fines, winnings from lotteries etc., are not factor incomes but transfer incomes. These should not be included in estimating national income.
(C) **Final Expenditure Method**

National income can also be measured at the point of expenditure. *Accost* (H method, we first estimate gross domestic product at market price which is the total expenditure incurred on the final products produced within economic territory and used for consumption and investment. From this we deduct consumption of fixed capital and net indirect taxes and add net factor income received from abroad to get national income.

**Precautions:-**

The final expenditure on consumption is classified into (i) consumption expenditure of households and consumption expenditure of the general government. The expenditure on investment is classified into (i) investment within the economic territory and (ii) investment outside the economic territory.

The main steps involved in measuring national income by this method are:

(a) Estimate the following expenditure incurred on the final products of all the sectors of the economy.

(i) Private final consumption expenditure.

(ii) Government final consumption expenditure.

(iii) Gross domestic capital formation.

Net exports (Exports - imports).
Introduction

In the previous lessons you have learnt about the meaning of national income and various concepts relating to it. You have also learnt the different methods of estimating national income of a country.

You have also studied that national income is basically a measure of the factor incomes accruing in the process of production and it can be looked at from three different angles: (a) as a sum total of value added by production units; (b) as a sum total of factor incomes paid by the production units and (c) as a sum total of expenditure on final products. An obvious question that will come to your mind is of what uses are these national income estimates? This lesson aims at highlighting some of the uses of national income estimates of a country.

Objectives

After going through this lesson, you will be able to:

- explain the concept of real national income; distinguish between national income at current prices and at constant prices;
- explain the method of converting current prices estimates of national income into constant prices estimates;
- establish that the rate of growth of national income at constant prices is a measure of the rate of economic growth of a country;
- explain the usefulness of national income data in assessing the relative significance of different industrial sectors of an economy;
- explain the usefulness of national income data in assessing the distribution of income in a country;
- explain how national income data is useful in revealing the level of living and the pattern of consumption, expenditure in a country;
• explain how national income data is useful in measuring the level and pattern of investment in a country;

One Mark Questions

1. National Income At Current Prices
   In estimating national income of any year the physical output in that year is multiplied by the prices prevailing in that year. For example, for finding the national income for 1996 multiply the physical output of 1996 with prices prevailing during the year 1996. This is called national income at current prices.

2. National Income At Constant Prices
   Now suppose we intend to compare the national income for the year 1996 with the national income for the year 1991. Both, the levels of physical output and the price levels would be different during the two years. If we multiply the output of both the years by the same price level we can eliminate the effect of change in price level on the estimates of national income. Now if we measure the value of output of 1996 at the prices of 1991 we can call such a measure of national income for 1996 as the national income at constant prices.

3. Base Year
   For preparing the price index one particular year is selected first. The year so selected is called the base year. The price level of the base year is taken to be equal to 100.

4. Real Income
   Real income of the people determines the standard of living of the people.

5. Useful In Assessing The Performance Of Different Production Sectors
   Production units of a country are broadly classified into primary, secondary and tertiary sectors. Primary sector includes production units engaged in exploiting natural resources like agriculture, fishing, mining etc. the secondary sector is engaged in manufacturing goods. The tertiary sector produces services like that of transport, banking, insurance, government etc. These sectors generate factor incomes. the data on factor incomes generated by these sectors can be used to measure their relative contributions to national income.

6. Useful In Measuring Inequalities In The Distribution Of Income
   All individuals do not have the same income. Some earn more than the others. In other words some are rich and some are poor. It means national income is unequally distributed among people. Some degree of inequality in the distribution of income is bound to exist because individuals differ.
in age, sex, qualifications, experience of job, physical strength, willingness to take up risky jobs and so on. But when the degree of inequality is very high; and not explained by the natural factors it becomes undesirable.

7. Merits of expenditure Method :-

The standard of living of the people of a country is determined by what people spend on consumer goods and services like food, clothing, housing, education and other necessities, comforts and luxuries. Higher the expenditure on consumption higher is the standard of living of the people.

8. Money Income

Money income is the income that accrues to the people during the year. Real income is the amount of goods and services that can be purchased from the money income.

9. Real Income

Real income of the people determines the standard of living of the people.

Two Marks Questions

1. Concept of Real National Income

National income is a measure of factor income generating activities of a country. Factor incomes are generated in the production units. These are distributed to the owner of the factors of production because of their participation in production process. The income earned is spent on consumption and investment. People spend on consumption to satisfy their wants. They spend on investment to further increase the income generating activities.

2. Measurement of Real National Income

As you know, national income is a money measure of the final goods and services produced in a country during a year. In other words,

National income = Final products X price level.

So a change in national income over a period can be due to a change in production or a change in price level or changes in both. We know that year after year generally the price level increases. So year after year an increase in national income takes place due to increase in prices of goods and services. So an increase in national income is not due to the increase in the total production in the economy only. In other words, it is not a real increase. Though the money value of total production increases but the total production in quantitative terms itself may not increase in the same proportion. It is the quantitative increase that is meaningful.
4 Marks Questions

1. **Explain The Need for the concept of Real National Income Concept**

   National income is a measure of factor income generating activities of a country. Factor incomes are generated in the production units. These are distributed to the owner of the factors of production because of their participation in production process. The income earned is spent on consumption and investment. People spend on consumption to satisfy their wants. They spend on investment to further increase the income generating activities.

   In the process of estimating national income, data is collected on value added by production units; on distribution of this value added among the owners of the factors of production for the factor services supplied by them; and on expenditure on consumption and investment. The data so obtained can be helpful in understanding various aspects of an economy. For example, what is the contribution of each industrial sector to total output? How much equally or unequally are incomes distributed in an economy? What are the relative shares of working class and property class in national income? Are people spending more on consumption to raise their standards of living? How much is being invested every year? At what rate the economy is growing? Is it growing faster or slower than other economies? These and many other related questions can be conveniently answered with the help of the data collected during the process of estimation of national income.

   But before we explain how these questions can be answered we must first be familiar with the distinction between money income and real national income. It is only on the basis of real income that we can find answers to the above questions.

2. **Explain the importance of the concept measurement of National Income.**

   National income is a money measure of the final goods and services produced in a country during a year. In other words,

   \[ \text{National income} = \text{Final products} \times \text{price level}. \]

   So a change in national income over a period can be due to a change in production or a change in price level or changes in both. You also know that year after year generally the price level increases. So year after year an increase in national income takes place due to a increase in prices of goods and services. So an increase in national income is not due to the increase in the total production in the economy only. In other words, it is not a real increase. Though the money value of total production increases but the total production in quantitative terms itself may not increase in the same proportion. It is the quantitative increase that is meaningful.
3. **Explain the difference between national income at current prices and national income at constant prices.**

In estimating national income for any year the physical output in that year is multiplied by the prices prevailing in that year. For example, for finding the national income for 1996 multiply the physical output of 1996 with prices prevailing during the year 1996. This is called national income at current prices.

Now suppose we intend to compare the national income for the year 1996 with the national income for the year 1991. Both, the levels of physical output and the price levels would be different during the two years. If we multiply the output of both the years by the same price level we can eliminate the effect of change in price level on the estimates of national income. Now if we measure the value of output of 1996 at the prices of 1991 we can call such a measure of national income for 1996 as the national income at constant prices.

In practical national income is first calculated at current prices and afterwards converted into national income at constant prices with the help of price index. The constant prices estimates are obtained by dividing the current prices estimates by the price index.

**8 Marks Questions**

1. **What are Uses of National Income estimates?**

Estimates of national income as well as the data collected during the process of this estimation can both be very useful in studying the performance of various sectors of the economy, structural changes taking place in the economy, the growth of the economy and the changes in the standards of living of the people. Such studies also help in formulating economic policies and plans for the future. Some of the important uses of national income data are as follows:

1. **National income as a measure of economic growth**

Estimates of national income at constant prices indicate economic growth of a country. The rate of economic growth of a country is measured by the rate of growth of national income at constant prices. For example, the rate of economic growth in India during the year 1993-94 was 4.4 percent. It means that national income at constant prices was higher by 4.4 percent in 1993-94 as compared to the national income at constant prices in 1992-93. Economic growth is broadly speaking an indicator of increase in the level of physical production of goods and services in the economy.

2. **National income as an indicator of success or failure of planning**

India has adopted planning as a means of economic growth. In a planned economy targets of
outputs and rate of economic growth are fixed and resources are allocated accordingly. Whether these targets are achieved or not is indicated by the rate of growth of outputs of industrial sectors and that of national income at constant prices. In this way national income data can help in assessing the achievements of planning. If the targets are not achieved the government can review the situation and take steps to correct the same.

3. **Useful in estimating per capita income**

Per capita income is obtained by dividing national income by total population of the country. It indicates the average availability of goods and services to the people during a year. Higher the per capita income, higher the availability of goods and services on an average to the people and so higher the average standard of living.

4. **Useful in assessing the performance of different production sectors**

Production units of a country are broadly classified into primary, secondary and tertiary sectors. Primary sector includes production units engaged in exploiting natural resources like agriculture, fishing, mining etc. The secondary sector is engaged in manufacturing goods. The tertiary sector produces services like that of transport, banking, insurance, government etc. These sectors generate factor incomes. The data on factor incomes generated by these sectors can be used to measure their relative contributions to national income.

5. **Useful in measuring inequalities in the distribution of income**

All individuals do not have the same income. Some earn more than the others. In other words some are rich and some are poor. It means national income is unequally distributed among people. Some degree of inequality in the distribution of income is bound to exist because individuals differ in age, sex, qualifications, experience of job, physical strength, willingness to take up risky jobs and so on. But when the degree of inequality is very high and not explained by the natural factors it becomes undesirable.

6. **Useful in measuring standard of living**

The standard of living of the people of a country is determined by what people spend on consumer goods and services like on food, clothing, housing, education and other necessities, comforts and luxuries. Higher the expenditure on consumption higher is the standard of living of the people.

7. **Useful in revealing the pattern of consumption**

The data on commodity wise expenditure on consumption reveals the consumption pattern of the people.
8. **Useful in measuring the level and pattern of investment**

The expenditure method of estimating national income also measures investment expenditure. It gives us information about the total amount of fresh investment made in the country during the year. Investment determines production capacity which in turn influences the rate of growth of the economy. For example, fresh investments made in India during the year 1994-95 were about 25 percent of the gross domestic product. By comparing such figures over the years we can know whether the level of investment in the country is rising or not and also the rate of change.

We can also know the pattern of investment in the country. We can know that how much is invested in agriculture, manufacturing and services, etc. In the year 1993-94, in India, out of about total investment of Rs.160,000 crores 16% was in agriculture, 35% in manufacturing, 23% in transport and 2% in construction. Government can draw many useful conclusions from such data:

9. **Makes international comparisons possible**

We can compare the economies of any two countries on the basis of their national income data. We can know whether a country is rich or poor. We can know how much important is agriculture or any other occupation in a country as compared to other countries. We can also compare the level and patterns of consumption and investment in different countries. We can also compare the standards of living on the basis of the per capita incomes. We can also know the rates of growth of different countries and draw useful conclusions.
What Micro Economics is All about

Introduction

You have already learnt about the basic Economic processes through which an economy functions, the problems faced by an economy, the basic features of Indian economy and some important economic concepts and variables relating to national income. Any meaningful study of an economy will involve a study of any one or all of the processes and of the various economic agents involved in these processes. For example, any study of production process will involve a study of the economic agents engaged in production, consumption and investment activities. In this lesson you will be explained the importance of such studies and how they help in understanding and solving various economic problems.

Objectives

After going through this lesson, you will be able to:

- explain the meaning of micro economics;
- distinguish between micro economics and macro economics;
- explain the scope of micro economics;
- explain how micro economic theories are constructed; explain how graphical diagrams are used in the study of economics.

One Mark Questions

1. Micro Economics

   Micro means small. Therefore, when the study or the problem relates to a smaller part of the economy then the subject of study is microeconomics.

2. Macro Economics

   Macro means large. When the study relates to the whole economy or to the aggregates relating to the whole economy then the subject of study is Macro economics.
3. **Deductive Method**

There are two methods of constructing an economic theory: (A) deductive method and (b) inductive method. For formulating an economic theory by deductive method, the steps required are: (A) selecting the problem, (b) specifying the assumptions, (c) deducing the hypothesis and (d) testing of hypothesis.

4. **Inductive Method**

There are two methods of constructing an economic theory: (a) Deductive method and (b) Inductive method. For formulating an economic theory by inductive method, the steps taken are: (a) selecting the problem, (b) collection, classification and analysis of data and (c) establishing the relationship between variables through logical reasoning.

5. **Line**

When two variables equal a point forms. By adding two points we can get a line.

**Two Marks Questions**

1. **Scope of Micro Economics**

The study of the behavior of an economic unit is the subject matter of microeconomics. The economic units may be households, producers or owners of factors of production. Micro economic studies also include the study of interrelationships between different economic variables such as the relationship between price and demand of a commodity or price and supply of a commodity.

2. **Define Macro Economics**

Macro means large. When the study relates to the whole economy or to the aggregates relating to the whole economy then the subject of study is macroeconomics. The study of any aspect of the economy as a whole such as level of unemployment, growth, general price level etc. is a macro economic study.

3. **Who are Economic Agents**

Consumers, producers, government and owners of factors of production are called Economic agents. Activities one unit influences the activities of another unit.

4. **What do you mean by Deductive Method**

For formulating an economic theory by deductive method, following steps are taken:

(i) Selecting the problem for analysis

(ii) Specifying the assumptions

(iii) Deducing or formulating hypothesis through logical reasoning

(iv) Testing or verification of hypothesis
5. **What do you mean by Inductive Method**

In formulating an economic theory by inductive method, the following steps are taken:

(i) Selecting the problem for analysis

(ii) Collection, classification and analysis of data

(iii) Establishing the relationship through logical reasoning

### 4 Marks Questions

1. **Distinguish Between Micro And Macro Economics**

Micro and macroeconomics are two parts of economics. Micro means small. Therefore, when the study or the problem relates to a smaller part of the economy then the subject of study is microeconomics. Macro means large. When the study relates to the whole economy or to the aggregates relating to the whole economy then the subject of study is macroeconomics.

Let us take an example to understand the meaning of these two concepts more clearly. The human body consists of various organs and cells each of which has some function to perform and they are interrelated. When we study a particular cell or organ, it will be termed as a micro study. Such studies help us in understanding the mechanism and functioning of the human body. A study of the human body as a whole will be termed as a macro study. Similarly, in an economy, production, consumption and investment are its vital processes. They are interrelated. In each of these processes, thousands and thousands of individuals and institutions are engaged. They are called economic agents and are grouped as households, firms etc. A study of the economic activities and behavior of these economic agents individually or as a group and their interrelationship will be called a micro economic study.

2. **Explain The Relationship Between Micro And Macro Economics**

Microeconomics and macroeconomics are two parts of economics but they are not mutually exclusive. In other words, they are interrelated. All micro economic studies can help in better understanding and analysis of the macro economic variables. Such studies also help in the formulation of economic policies and programmers. Let us take a few examples to understand their relationship. If we know how the price of a commodity is determined and understand the role of buyers and sellers in this process of price determination, it would help us in analyzing the changes that take place in the general price level in the economy. A study of the process of price determination and the role of buyers and sellers in this process is a micro economic study whereas the study of the general price level in the economy is a macro economic study. Similarly, if we want to assess the performance of an economy, we will have to find out the performance of each sector of the economy and to find out the performance of each sector we will have to find out the performance of each production unit individually or in groups. A study of each group of production
units or of each sector is a micro economic study whereas the study of the performance of the economy as a whole is a macro economic study. Thus, microeconomics and macroeconomics are two interrelated parts of economics.

3. Explain the Scope of Micro Economics

We know that production, consumption and investment are the three vital economic processes in an economy and they are interrelated. All economic activities are associated with these processes. All those who are engaged in these activities are called economic agents or economic units. These economic agents or units are the consumers, producers and the owners of factors of production. The economic activities of one group of economic agents influences the economic activities of other groups and their interactions influence many economic variables such as the price of a commodity or of a factor of production, the number of consumers etc.

The study of economic behaviors of these economic units is the subject matter of microeconomics. How do the individuals or households as consumers allocate their incomes between alternate uses? How do the producers or firms allocate their resources in the production of different goods and services? How is the price of a good determined? How is the price of a factor of production determined? These are some of the questions that are studied in microeconomics. What should he produce and in how much quantity? How should he react to the actions of the consumers? A study of the actions and reactions of the consumers and producers is also the subject matter of microeconomics. Further, more, the actions and reactions of the consumers and producer’s influence of price of a commodity. The study of such influences is also a subject matter of microeconomics.

The study of the economic behavior of various economic units and their interactions leads to the formulations of various micro economic theories such as the theory of consumer’s behavior, the theory of firm, the theory of price, the theory of wages, the theory of rent, the theory of interest and the theory of profit etc. An understanding of these theories helps us to understand the various problems that may confront us in our day-to-day life.

8 Marks Questions

1. Explain Various Methods Of Constructing Economic Theories

It is not possible to study the economic behavior of each of the numerous economic agents and each of their interactions. From each group of economic agents a study of the behavior of some is made and based on this study some conclusions are drawn. These conclusions are nothing but a generalization of the behavior of that group. These generalizations are then tested and then formulated as economic law or theory. There are two methods of formulating economic theories: (a) deductive method, and (b) inductive method

(a) Deductive Method

For formulating an economic theory by deductive method, following steps are taken:
(i) Selecting the problem for analysis:

The first step is to specify the problem to be enquired into. The variables whose behaviors and interrelationships, are to be analyzed must be clearly known.

(ii) Specifying the assumptions:

Assumptions are made to facilitate the analysis. They limit the area and scope of study. They may be pertaining to the behaviour of the economic variables. For example, when we study the effect of a change in the price of a good on its demand we make that no other factor is influencing the demand of that good. The assumptions may be regarding the motivation of the economic agents. For example, when we make a study about a producer, we assume that his objective is to earn maximum profits. The assumptions may also be purely technological in nature.

(iii) Deducing or formulating hypothesis through logical reasoning:

Based on the assumptions made, a general statement on the relation between economic variables is made and then through logical reasoning certain conclusions are drawn. This is known as formulating a hypothesis.

(iv) Testing or verification of hypothesis:

The hypothesis must be verified before it is given the form of an economic theory. For this the appropriate data are collected which reveal the facts. If the facts support the hypothesis it takes the form of a theory. If the facts as revealed by the data do not support the hypothesis then it is rejected and if necessary, it may be modified or reformulated and tested. In constructing a micro economic theory, the problem selected for analysis relates to an economic agent or a group of economic agents.

B. Inductive Method

In formulating an economic theory by inductive method, the following steps are taken:

(i) Selecting the problem for analysis:

This step is the same as in case of deductive method.

(ii) Collection, classification and analysis of data:

Data relating to the problem is collected, classified and analyzed. Data collected should be based on very large number of observations. By using appropriate statistical-techniques, relationship between various variables are found.

(iii) Establishing the relationship through logical reasoning:

Based on the logical finding the theory is formulated by logical reasoning.

While formulating an economic theory, the terms used must be properly defined to avoid any confusion.
The Theory of Consumption

Introduction

Consumption is the basis for entire economic activity. In order to satisfy their wants people have to consume goods and services which possess utility. The term utility refers to the capacity of a commodity to satisfy a human want. The aim of this chapter is to understand the utility approaches and the consumer behaviour.

Objectives

After going through this lesson you will be able to understand the following.

- The meaning of utility
- Cardinal utility
- Ordinal utility
- Law of diminishing marginal utility – Limitations of the law
- Law of Equi-marginal utility-Limitations
- Consumer’s equilibrium

One Mark Questions

1. Utility

   The concept of utility was originated by Stanely Javons. The want satisfying capacity of a commodity or service in known as utility.
2. **Cardinal Utility**

Utility measured in cardinal numbers is called cardinal utility analysis.

3. **Ordinal Utility**

This approach says that utility cannot be measured, but it can be compared. For example, Apple gives more satisfaction than a banana. The indifference curve analysis is based on ordinal approach.

4. **Law Of Equi Marginal Utility**

In the words of Marshall, “If a person has a thing which can be put to several uses, he will distribute it among these uses in such a way that it has the same marginal utility in all”.

**Two Marks Questions**

1. **Cardinal Utility**

   Ans. Alfred Marshall followed cardinal utility approach to explain the theory of consumer’s behaviour. Cardinal measurement is a numerical expression. Marshall believed that utility can be measured in numerical terms in its own units called ‘UTILS’. 1, 2, 3, 4… are called cardinal numbers. It is possible to measure and compare utilities derived from different commodities in numerical terms.

2. **Ordinal Utility**

   Ans. Hicks & Allen and others have supported ordinal utility analysis. This approach says that utility cannot be measured, but is can be compared. For example, Apple gives more satisfaction than a banana. The indifference curve analysis is based on ordinal approach.

3. **Total utility :**

   Ans. It is necessary to know about the concepts of total utility and marginal utility for better understanding of this law. Total utility is the total amount of satisfaction which a person derives from the consumption of all units of the commodity.

   \[ TU_n = f(Q_n) \]

   Where \( TU_n \) = total utility of ‘n’ commodity

   \( F = \) functional relationship

   \( Q_n \) = Quantity of ‘n’ commodity

4. **Marginal utility**

   Marginal utility is the additional utility. If we continue the previous example, the total utility is 45 utils when consumed 3 apples. If we consume 4 apples the total utility is 50 utils. The marginal utility is 50 - 45 = 05 utils.
It can be explained as

\[ M_u_n = T_u_n - T_u_{n-1} \]

5. **Consumer's equilibrium**

The law of Equimarginal utility explains about consumer's equilibrium. According to this law, when the marginal utility of money become equal in all goods which were consumed, consumer attains equilibrium position.

The following is the condition for attaining consumer's equilibrium

\[ \frac{MU_A}{P_A} = \frac{MU_B}{P_B} = \frac{MU_n}{P_n} \]

8 Marks Questions

1. **Explain the Law of diminishing marginal utility. What are its limitations and importance.**

Ans. The law of diminishing marginal utility was originally explained by Gossen and later developed by Alfred Marshall. This law explains the relationship between the utility and the stock of the commodity.

**Definition of the law :**

“Other things being equal, as the quantity of commodity consumed or acquired by the consumer increases, the marginal utility of the commodity tends to diminish”.

It is the general experience of every body that if a person goes on consuming more and more units of a commodity, the additional utility goes on diminishing. For example if a person is fond of apples when he eats first apple he gets the highest utility. As he eats the second and third apples the utility derived from these successive apples will diminish. After a stage of complete satisfaction, if he further consumes more, the utility will be negative.

**Assumptions**

- The basic assumptions of this law are as follows.
- Utility can be measured numerically
- Consumer is a rational man
- The tastes and preferences of the consumer remain constant.
- Units of the commodity are similar

**Total utility and marginal utility**

It is necessary to know about the concepts of total utility and marginal utility for better understanding
of this law. Total utility is the total amount of satisfaction which a person derives from the consumption of all units of the commodity.

For example a person consumed three apples. He derived 20 utils of utility from the first apple, 15 utils from the second apple and 10 utils from the third one. Then the total utility is 20+15+10=45 utils.

\[ \therefore T_{U_n} = f(Q_n) \]

Where \( T_{U_n} = \) total utility of ‘n’ commodity

\( F = \) functional relationship

\( Q_n = \) Quantity of ‘n’ commodity

**Marginal utility**

Marginal utility is the additional utility. If we continue the previous example, the total utility is 45 utils when consumed 3 apples. If we consume 4 apples the total utility is 50 utils. The marginal utility is 50 - 45 = 05 utils.

It can be explained as

\[ M_{U_n} = T_{U_n} - T_{U_{n-1}} \]

Where \( n \) denotes numbers

\( M_{U_n} = \) Marginal utility of nth units

\( T_{U_n} = \) total utility of n units

\( T_{U_{n-1}} = \) total utility of n-1 units

This law can be explained with the help of a table and diagram 2.5.4 Table and explanation.

**Table**

<table>
<thead>
<tr>
<th>Units of the Commodity (Apples)</th>
<th>Total utility (UTILS)</th>
<th>Marginal Utility (UTILS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>45</td>
<td>-15</td>
</tr>
<tr>
<td>7</td>
<td>45</td>
<td>-10</td>
</tr>
</tbody>
</table>
From the above table the relationship between total utility and marginal utility can be explained like this:

A) when marginal utility falls but positive, total utility increases at a diminishing rate.

B) When marginal utility is zero, total utility is maximum.

C) When marginal utility is negative, total utility decreases.

**DIAGRAM**

In the above diagram TU represents total utility and MU represents marginal utility. When MU is zero total utility is maximum.

**Limitations of the law.**

The law of diminishing marginal utility has certain limitations. They are:

1. The law is based on unrealistic assumptions
2. The law cannot be applied to indivisible goods and durable goods.
3. The consumer may not behave rationally all the time.
4. It does not apply in case of misers, drunkards.
5. Hobbies like stamp and coin collection are an exception to this law.

**Importance of the law.**

1. This law explains the difference between value in use and value in exchange.
2. This law helps the government while formulating taxation policies.
3. This is the basis for law of demand.
2. **What do you mean by Consumers’ Equilibrium? Explain The Law of Equi Marginal utility and its importance.**

Ans. Law of equi-marginal utility is an important law of consumption. This law is also called the law of maximum satisfaction. The law of diminishing marginal utility is applicable only to a single want with a commodity in use. But, in reality, there may be a number of wants, and these are to be satisfied with several goods to analyse such a situation the law of equi-marginal utility explains how the consumer obtains maximum satisfaction with his limited income.

**Definition of the law.**

In the words of marshall, “If a person has a thing which can be put to several uses, he will distribute it among these uses in such a way that it has the same marginal utility in all”.

While purchasing consumer always follows the principle of substitution to get the same marginal utility in case of different commodities. For examples a consumer wants to spend his money on two goods namely banana and cakes. The consumer gets 20 utils of utility from one cake whose price is one rupee. Suppose by spending one rupee on banana, he gets more 20 utils of utility then he substitutes bananas for cakes. This process goes on till the consumer gets same marginal utility for the last rupee from both the commodities. Then the consumer gets maximum satisfaction. So this law is also known as “the law of substitution”.

**Consumers equilibrium**

The law of equi-marginal utility explains consumer’s equilibrium. This law states that the consumer attains equilibrium position when marginal utility of money spent on each commodity is the same. The condition for consumer is equilibrium is –

Where \( \text{MUA} \) = marginal utility of commodity A  
\( \text{PA} \) = Price of commodity A  
\( \text{MUB} \) = Marginal utility of commodity B  
\( \text{PB} \) = Price of commodity B  
\( \text{MUn} \) = Marginal utility of \( \text{'nth'} \) commodity  
\( \text{Pn} \) = Price of nth commodity.

Assumptions of the law.

1. Utility can be measured
2. Consumer is a rational man
3. The marginal utility of money remains constant
4. The prices of goods are constant.
Explanation of the law.

This law can be explained with the help of a table and diagram.

Table – its explanation

<table>
<thead>
<tr>
<th>Units of money (in rupees)</th>
<th>Marginal utility of Expenditure on A</th>
<th>Marginal utility of Expenditure on B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15 (1st)</td>
<td>14 (3rd)</td>
</tr>
<tr>
<td>2</td>
<td>14 (2nd)</td>
<td>13 (5th)</td>
</tr>
<tr>
<td>3</td>
<td>13 (4th)</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Total utility</td>
<td>65</td>
<td>60</td>
</tr>
</tbody>
</table>

It is clear from the above table that the consumer spends three rupees on commodity A and two rupees on B, so that he can maximize his total utility. By spending Rs. 3 on A, he is getting a total utility of 42, and the total utility from B is 27. Therefore by spending Rs 5 on both A and B he is able to get the total utility of 69. (42+27). Thus the consumer gets maximum satisfaction by equating the marginal utilities of A and B by spending Rs. 3 on A and Rs 2 on B.

Here

2.6.6 Diagrammatic explanation.

In the above diagram AA is the marginal utility curve of A and BB is the marginal utility curve of B. By spending Rs 3 on A and Rs 2 on B the consumer derives the same marginal utility i.e. 13 from both the commodities.

Limitations of the law.

There are some limitations for this law

1. It is not applicable in case of indivisible goods
2. This law is based on certain unrealistic assumption.
3. The law of equi-marginal utility is not applicable in case of ignorant consumer.
4. In reality marginal utility of money does not remain constant.

Important of the law:

1. This law is basis for consumer expenditure
2. This law is useful in the theory of Production
3. This law is useful in the theory of distribution
4. This law is also useful for public finance policy.
Introduction

The most unrealistic assumption of Marshall’s cardinal utilitarian approach is that the utility is cardinally measurable. Cardinal measurement of utility (i.e. in units) is not possible even where it is possible to rank a magnitude ‘ordinally’. It is not possible to rank a magnitude and measure how much satisfaction an individual derives from the consumption of goods. We measure distance between two places or the weight of an object. Though cardinal measurement is impossible ordinal ranking may be possible. It was largely because of the difficulty of measuring utility. The economists devised a new technique for the purpose of explaining demand, a technique that makes of concept known as "indifference curves".

J.R. Hicks and RGD Allen fired first shots against cardinal utility in 1928. The propound indifference curves approach on the concept of ordinal utility.

Slutsky E.E (1915) was the first to state the law of demand with the help of ordinal utility. Edgeworth was the first person to use the technique of indifference curves.

Objectives

- Explain meaning of indifference curves
- Explain assumptions of indifference curves analysis
- Examine indifference schedule and derivation of indifference curve
- Explain marginal rate of substitution
- Explain budget line
- Explain consumers equilibrium
- Explain superiority of indifference curves
- Explain weaknesses of indifference curves.
One Mark Questions

1. Ordinal Analysis
   It assumes that utility is not measurable but comparable.

2. Scale of Preference
   On the basis of his “Scale of Preference”, the indifference curves will be drawn. This scale of preference reflects the tastes and preferences.

3. Indifference Curve
   An indifference curve represents satisfaction of a consumer from those two goods. He arranges the various combinations of commodities on the basis of their power to satisfy his wants.

4. Marginal Rate of Substitution
   The marginal rate of substitution can be defined as "the rate at which an individual will exchange successive units of one commodity for another”.

5. Price Line
   The budget line shows all possible combinations of two goods that a consumer can buy with the given limited income and prices of the two goods.

6. Consumers Equilibrium
   The consumer is said to be in equilibrium, when he maximizes his satisfaction with given income and prices of the two goods, i.e, at that point where budget line is tangent to indifference curve.

\[ MRS_{xy} = \frac{P_x}{P_y} \]

Two Mark Questions

1. Marginal Rate of Substitution (MRS)
   The marginal rate of substitution can be defined as “the rate at which an individual will exchange successive units of one commodity for another i.e. the rate at which the consumer is willing to substitute biscuits for setting additional chocolatess (see table 1). We can find diminishing MRS in Table 1. MRS can, mathematically, be written as :

\[ MRS_{XY} = \frac{\Delta Y}{\Delta X} \]

2. Price line or Budget line
   It is observed in the Indifference curves that the consumer always prefers to reach a higher level of indifference curve. But goods are not free and he has to pay prices for them, inspite of his limited income. For this reason we need to examine the concept of price line or budget line. The budget line shows all possible combinations of two goods that a consumer can buy with the given limited income and prices of the two goods.
4 Marks Questions

1. What are assumptions of indifference curves analysis

The indifference curves analysis is based on the following assumptions.

1. Since utility is subjective, the scale of preference is done by consumer only. All the conceivable combinations of commodities can be consistently ranked in order of preference or scale of preference. He builds up this scale of preferences independently of market prices.

2. Utility is ordinally comparable. It is possible to compare the satisfactions obtained by various combinations of goods in terms of ordinal numbers. One combination of goods may be ordinally be ranked higher than another in the consumer’s estimation.

3. The consumer is assumed to be rational, who aims at satisfaction maximization with the given limited income and market prices of goods.

4. It is also assumed that the consumer has full knowledge of market information.

5. Indifference curves are assumed to be convex to the origin. It means that marginal rate of substitution is diminishing.

6. Any two combinations of given two goods (say A and B) can be compared in preference by an individual.

7. It is also assumed that the tastes, habits and income of the consumer remains constant

8. It is assumed that consumer choices are characterized by transitivity.

9. Weak ordering is another assumption. It implies that there is a possibility of consumer being indifferent between two combinations.

2. Explain the Properties of Indifference curves

There are some established properties of indifference curves, which are as follows:

1. An indifference curve slopes downwards to right and convex to the origin

2. Higher order indifference curve represents higher satisfaction.

3. No two indifference curves intercept

4. No indifference curve is tangent to either the axis.

5. In case of substitute goods, an indifference curve will be a straight line and in case of complementary goods are ‘L’ shaped

6. Indifference curve cover the space.
8 Marks Questions

1. **Explain the Consumer’s equilibrium with the help of Indifference curves analysis.**

Now let us examine how a consumer reaches the point of equilibrium under ordinal utility analysis with the help of indifference and price line. The consumer is said to be in equilibrium, when he maximizes his satisfaction with given income and prices of the two goods, i.e, at that point where budget line is tangent to indifference curve.

**Assumptions :**

1. The consumer has an indifference map showing his scale of preferences for various combinations of two goods B and C. The scale of preference remains constant.
2. The prices of two goods B and C are given and remains unchanged.
3. All goods are homogenous and divisible
4. The consumer has limited money to spend
5. No change in tastes, preferences, habits and incomes of the consumer.
6. The consumer is rational and seeks satisfaction maximization.

**Illustration of consumer’s equilibrium :**

If we know the indifference map of the consumer and the price line, we can determine the point of equilibrium defined here as “a position which the consumer does not want to move, when other things remains constant”. The consumer is in equilibrium where the slope of the price line is equal to the slope of indifference curve i.e. MRS is equal to the price ratio of the two goods. Thus at point E,

In Figure, biscuits have been taken on x-axis and chocolates on y-axis. BC is the consumer’s budget line. IC1, IC2, IC3, a set of indifference curves. The consumer is in equilibrium at point E, where IC2 is tangent to BC budget line. The consumer will not stop his consumption either at A or D on IC, as he can get more satisfaction at point E on IC2. How ever, with his limited income he could not reach IC3. Hence he will be in equilibrium only at point E which posses an element of stability.
Introduction

Goods and services are needed by consumers to satisfy their wants and by producers to produce goods and services. In other words, both consumers and producers demand goods and services. The word demand has a specific meaning in economics. In this lesson, you will study the meaning of the word ‘demand’ as used in Economics. You will also study the various factors that influence demand.

Objectives

After going through this lesson, you will be able to:

- explain the meaning of demand;
- define market demand;
- distinguish between want or desire and demand;
- list the factors that affect demand;
- explain how price of a good affects a consumer’s demand for it;
- prepare a hypothetical individual’s demand schedule and draw a demand curve showing the changes in demand as a result of changes in price;
- prepare a market demand schedule and draw a market demand curve;
- explain the law of demand and its exceptions;
- explain how other factors affect demand;
- distinguish between extension of demand and increase in demand; distinguish between contraction of demand and decrease in demand.
Two Marks Questions

1. What Is Individual Demand

Demand for a commodity by an individual is the quantity of that commodity that the individual is willing to buy at a price over some period. Thus, the definition of demand includes (i) the quantity of a commodity that a buyer is willing to buy, (ii) the price of the commodity at which he is willing to buy that quantity, and (iii) the time during which he is willing to buy that quantity at the given price.

2. What Is Market Demand

Market demand means the total quantity of a commodity that all its buyers are willing to buy at a given price over a time. In case of market demand, also any statement about market, which does not state the price or the time, will be an incorrect statement.

3. What Is Substitution Effect

Two commodities are said to be substitutes of each other when one can be used in place of the other. For example, kerosene, oil, LPG, electricity are all substitutes when used as domestic fuel or tea and coffee are substitutes of each other. When the price of a commodity falls and the price of its substitute commodity remaining the same, the buyer of this commodity may start substituting it for the other commodity. This will result in the rise in demand of the commodity whose price has fallen.

4. Law Of Demand

The law of demand states that other things remaining the same, when the price of a commodity falls, its quantity demand rises and the price of a commodity rises, its quantity demanded falls. In other words, other things remaining the same, there is an inverse relationship between the price of a commodity and its quantity demanded.

5. Prestige Goods

There are some goods, which are bought because their possession increases the social prestige of their buyers. For example, diamonds are considered as prestige goods and are bought by upper strata of the society. The higher the price of diamonds, the higher would be their prestige value for some. So more diamonds may be bought at higher prices as their prestige value is more at higher prices. If the price of diamonds falls, the prestige conscious people may buy less of diamonds because with fall in price their prestige value has gone down.

6. Geffen Goods

Sir Robert Giffen, a British, observed in early 19th century in Britain that when the price of bread increased, the British workers actually purchased more bread. As per the law of demand, they
should have purchased less of bread when price of bread rose. However, what happened was just opposite of what is stated by law of demand.

7. Expansion In Demand

When the quantity demanded of a commodity rises due to a fall in its price, such a rise is called expansion of demand.

8 Marks Questions

1. Explain the relationship between price of a commodity and its quantity demanded. Draw a demand curve based on a hypothetical demand schedule.

Ans. The word ‘demand’ has a specific meaning in Economics. Demand by one buyer for a commodity is called individual demand. Demand for a commodity by an individual is the quantity of that commodity that the individual is willing to buy at a price over some period. Thus, the definition of demand includes (i) the quantity of a commodity that a buyer is willing to buy, (ii) the price of the commodity at which he is willing to buy that quantity, and (iii) the time during which he is willing to buy that quantity at the given price. The time may be a day, a week, a month, a year or any other period.

Individual demand curve

If we plot the individual demand schedule on a graph paper, we will get a curve, which is called an individual’s demand curve. The inverse relationship between the price of a commodity and its quantity demanded by an individual buyer can be shown with the help of a schedule. Such a schedule is given in table

<table>
<thead>
<tr>
<th>Price of milk per liter</th>
<th>Demand of a consumer per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1.0</td>
</tr>
<tr>
<td>10</td>
<td>1.5</td>
</tr>
<tr>
<td>8</td>
<td>2.0</td>
</tr>
<tr>
<td>6</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>3.0</td>
</tr>
</tbody>
</table>

This schedule shows the changes in quantity demanded of milk by an individual buyer of milk due to changes in price of milk. At a price of Rs. 12 per litres, the quantity demanded by him per day is 1 litre. As the price falls to Rs. 10, Rs. 8, Rs. 6 and Rs. 4 per litre the quantity demanded rises to 1.5 litres’, 2.0 litres’, 2.5 litres’ and 3.0 litres’ respectively. If you read this schedule from below i.e. you take the price of Rs. 4 per litre as the starting point, you will see that at price of Rs. 4 per litre the quantity demanded of milk is 3.0 liters. As the price of milk rises from Rs.4 to Rs. 6 the quantity demanded falls from 3 litres to 2.5 litres and so on.
In figure, the points A, B, C, D and E represent the five combinations of price and quantity demanded of milk given in table 15.1. Point A shows that at the price of Rs. 12 per litre the quantity demanded of milk is 1 litre per day. Point B shows the quantity demanded is 1.5 litres when the price is Rs. 10 per litre. Similarly, each of the points C, D and E show the quantities demanded at a particular price. If you join points A, B, C, D and E you get a curve. In the figure, this curve is labeled DD. This curve is falling from left to right. This shows that as the price of milk falls, its quantity demanded rises. When price is Rs. 12 per litre per day the quantity demanded is 1 litre as shown by point A. When price is Rs. 10 per litre, the quantity demanded rises to 1.5 litres per day as shown by point B. Thus, a demand curve is downward falling from left to right indicating the inverse relationship between the price of a commodity and its quantity demanded.

<table>
<thead>
<tr>
<th>Price of milk in lt/Rs.</th>
<th>Demand for milk per day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>1.0</td>
</tr>
<tr>
<td>10</td>
<td>1.5</td>
</tr>
<tr>
<td>8</td>
<td>2.0</td>
</tr>
<tr>
<td>6</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>3.0</td>
</tr>
</tbody>
</table>
2. Explain the law of demand and its exceptions.

The effects of changes in the price of commodity and its quantity demanded are stated in the form of a law known as the law of demand.

The law of demand states that other things remaining the same, when the price of a commodity falls, its quantity demanded rises and when the price of a commodity rises, its quantity demanded falls. In other words, other things remaining the same, there is an inverse relationship between the price of a commodity and its quantity demanded. The reasons for this type of relationship between price of a commodity and its demand have been explained to you in section 15.5 of the lesson. The market demand schedule states this law in the form of a table and the demand curve shows the diagrammatic presentation of this law.

Exceptions to the law of demand

There are some situations in which the law of demand does not apply. These are called exceptions to the law of demand. The following are some of the exceptions to the law of demand:

(i) Prestige goods:

There are some goods, which are bought because their possession increases the social prestige of their buyers. For example, diamonds are considered as prestige goods and are bought by upper strata of the society. The higher the price of diamonds, the higher would be their prestige value for some. So more diamonds may be bought at higher prices as their prestige value is more at higher prices. If the price of diamonds falls, the prestige conscious people may buy less of diamonds because with fall in price their prestige value has gone down. Thus in such cases there would be a direct relationship between the price and quantity demanded and not an inverse relationship between the price and the quantity demanded.

(ii) Giffen goods:

Sir Robert Giffen, a British, observed in early 19th century in Britain that when the price of bread increased, the British workers actually purchased more bread. As per the law of demand, they should have purchased less of bread when price of bread rose. However, what happened was just opposite of what is stated by law of demand. Why did this happen? Bread and meat was the food of the workers in Britain. When the price of bread increased, they faced a serious problem. Had they bought less of bread by spending the same part of their money income on bread and continued to consume same quantity of meat, they would not have been fully fed. They started consuming more of bread and reduced the consumption of meat. In this way, they overcame the problem created by the rise in the price of bread. Since Sir Giffen pointed out this situation, such goods are known as Giffen goods. Therefore, in case of Giffen goods, the law of demand does not apply.
(iii) Expectations:

If the price of a commodity is rising and its buyers expect it to further rise in future, they may buy more of it today as it would save them from buying it at a much higher price in future. Therefore, the quantity demanded of this commodity rises though its price is also rising. Similarly, if the price of a commodity is falling and is expected to further fall in future, its buyers may postpone its purchase for the future or may buy less today. Therefore, though the price of the commodity is falling, quantity demanded of it is also falling.

3. **Explain briefly the various determinants of demand**

Ans. The effects of changes in the price of a commodity on its demand. In addition, made an assumption that ‘other things remaining the same’ which means that no other factor except the price of the commodity is affecting demand.

Now we study the effects of these other factors on the demand of a commodity. While doing so we assume that the price of the commodity does not change. The other factors that affect the demand of a commodity are:

(a) Price of the commodities
(b) Income of the buyer
(c) Tastes and preferences of the buyer
(d) Prices of related goods.

We now study the effects of each one of these factors on the demand of a commodity. Remember that we arc assuming that there is no change in the price of the commodity.

(a) **Price of the commodities**

Price is the most important determinant for demand. Usually there will exist inverse relation between price and demand i.e., if price increases demand decreases and if price decreases demand falls.

(b) **Income of the buyer**

Price of the commodity remaining the same, an increase in the income of its buyer increases his purchasing power. He can now buy more of this commodity. So a rise in income of the buyer of a commodity leads to a rise in its demand. Similarly, a fall in income of the buyer of a commodity leads to a fall in its demand, price of the commodity remaining the same. Thus, there is a direct relationship between income and demand. In case of a normal good, there is a direct relationship between income of its buyer and his demand for it. In case of inferior goods, there is an inverse relationship between the income of its buyer and his demand for it.
(c) Tastes and preferences of the buyer

The demand for a good is also affected by the tastes and preferences of its buyer. If a consumer no longer likes a commodity, he will not buy it or may buy less of it. Similarly, if a person develops a taste for a good, he may start buying it or may start buying more of it. Thus, the demand for a good is also influenced by the tastes of the buyers.

(d) Prices of related goods

Prices of related goods also affect the demand of a good. Related goods can be of two types: (i) substitute goods, and (ii) complementary goods.

(i) Prices of substitute good:

Two goods are said to be substitutes of each other when one can be used in place of other; for example, tea and coffee are substitute goods. If the price of a substitute good rises, the demand of a good, for which it is a substitute, will rise because the buyers of substitute good will buy less of it and more of the other good. For example, if price of tea rises, some buyers of tea may start buying coffee in place of tea. This leads to a rise in demand for coffee because of a rise in price of tea, a substitute of coffee.

(ii) Prices of complementary goods

Two goods are said to be complementary of each other when they are used together. For example, pen and ink or scooter and petrol etc. If the price of pen falls its demand may rise, this will lead to a rise in demand for ink also. Therefore, the price of pen has affected the demand for ink.

4. What Do You Mean By Increase In Demand And Decrease In Demand

Ans. We distinguish between a rise in the quantity demanded of a commodity due to a fall in its price, other things remaining the same and a rise in demand due to change in other factors while the price of the commodity remains constant. When the quantity demanded of a commodity rises due to a fall in its price, such a rise is called expansion of demand. Let us redraw the demand curve of figure

![Fig. Expansion of Demand](image-url)
A movement from point A to point B shows an expansion of demand when price falls from OP to OP\textsuperscript{l}.

Thus, expansion of demand on the diagram would mean a downward movement along the given demand curve.

(ii) In case of a

<table>
<thead>
<tr>
<th>Price of Milk per liter (Rs.)</th>
<th>Quantity demanded per day (in litres) when demand rises</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1.0</td>
</tr>
<tr>
<td>10</td>
<td>1.5</td>
</tr>
<tr>
<td>8</td>
<td>2.0</td>
</tr>
<tr>
<td>6</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>3.0</td>
</tr>
</tbody>
</table>

When the demand of a commodity rises at the same price, it means the rise is due to the changes in any one or more of the other factors that affect demand. Such a rise in demand is called increase in demand. Let us show the increase in demand with the help of a schedule given in table

Table : Schedule showing Increase in Demand

Read the table carefully. You will find that at a price of Rs. 12 per litre the quantity demanded of milk rises from 1 liter per day to 1.5 liter per day. Similarly at all other prices the quantity demanded of milk is more. These rises in the demand for milk at the same price. This means that these rises in demand are due to changes in other factors affecting the demand of a commodity. Let us show the above schedule on a graph paper:

DD is the demand curve with original quantities as shown in column (1) of the table 15.4 and D\textsuperscript{l} D\textsuperscript{l} is the new demand curve showing the rise in demand at same prices as given in column 2 of the table 15.4. At price, Rs. 10 the original demand for milk was 1.5 litres. At the same price, the new demand curve (D1D\textsuperscript{l}) shows the demand for milk as 2 litres. Notice that when the demand increases, the demand curve shifts rightward.

Thus expansion of demand results in a downward movement along the given demand curve whereas increase in demand results in a rightward shift of the demand curve.
Introduction

The general law of demand states that, other things remaining constant, if price of a good falls, the quantity of the good demanded expands and vice versa. It explains only the direction, but not magnitude of change i.e. it explains only qualitative relationship between price and demand. It does not explain how much change in demand leads to how much change in price. For this reason we need to examine the concept of elasticity of demand, which explains quantitative relationship between price and demand.

Elasticity of demand is a pure number. It has nothing to do with the units. It is always negative for normal goods. That is why the symbol is negative (‘-’ minus). This is due to the inverse relation between price and demand. However, the numerical value of the elasticity of demand is expressed without any algebraic symbol.

Objectives

After going through this lesson you can understand the following.

- What do you mean by elasticity of demand
- What are the various types of elasticity of demand
- What are the types of price elasticity of demand
- What are the various measurement methods of price elasticity demand
- What is income demand
- What is cross demand
- What are the determinants of elasticity of demand
- What is the significance of the concept of elasticity of demand.
**One Marks Questions**

1. **Elasticity Of Demand**
   
The concept of Elasticity of demand explains quantitative relationship between price and demand.

2. **Price Elasticity Of Demand**
   
   Price elasticity of demand relates to the responsiveness of quantity demanded of a good to the changes in its price.

3. **Types Of Price Elasticity Of Demand**
   
   On the basis of numerical value price elasticity of demand can be classified into following 5 types:
   
   - Perfectly elastic (Ep = 1)
   - Perfectly inelastic (Ep = 0)
   - Relatively elastic (Ep > 1)
   - Relatively inelastic (Ep < 1)
   - Unit elastic (Ep = 1)

**Two Marks Questions**

1. **Price Elasticity Of Demand**
   
   Price elasticity of demand explains “the responsiveness of demand for a commodity to the change in its price”. Hence it can be written as:
   
   Price elasticity of demand

**Four Marks Questions**

1. **Explain the concept of Income elasticity of demand**
   
   Income elasticity of demand examines the responsiveness of demand due to a change in income of the consumer. In case of certain goods it will be positive and case of certain other goods it will be negative. It can mathematically be written as:
   
   \[ E_Y = \frac{\text{Proporteniate Change in Demand}}{\text{Proporteniate Change in Income}} \]
   
   \[ E_Y = \frac{\Delta Q}{Q} \cdot \frac{\Delta Y}{Y} \]

   **Types of Income elasticity of Demand**
   
   Normally, the response of demand for goods due to a change in income of the consumer is of three types:
   
   - Positive income elasticity
ii) Negative income elasticity

iii) Zero income elasticity

i) Positive Income elasticity :

Usually in case of superior goods, there will be positive income elasticity. That means increase in the income of the consumer will lead to a rise in the demand for these commodities.

ii) Negative income elasticity :

In case of inferior goods, there will be negative income elastic. That means increase in the income of the consumer leads to a fall in the quantity demanded. It may be more elastic or less elastic.

iii) Zero Income elastic :

In case of certain goods, whatever may be the change in the income of the consumer, it does not effect the demand. However, it is a rare condition. Here, the value of elasticity will be zero.

2. Explain the concept of Cross elasticity of Demand

Ans. Cross elasticity examines, the relationship between change in price of good Y and demand for good x. That means “Responsiveness of demand for x due to a change in price of Y is called cross elasticity of demand.

It can be written as

\[
E_c = \frac{\text{Proportionate Change in demand for X}}{\text{Proportionate Change in Price of Y}}
\]

\[
= \frac{\text{Change in demand for X}}{\text{Demand for Y}} \div \frac{\text{Change in price of Y}}{\text{Price of Y}}
\]

\[
= \frac{\Delta Q_x}{\Delta Q_y} \div \frac{\Delta Q_y}{\Delta P_y} = \frac{\Delta Q_x}{\Delta P_y} \times \frac{P_y}{Q_y}
\]

Types of cross elasticity of demand :

The cross elasticity of demand is also of three types, namely,

i) Positive cross elasticity

ii) Negative cross elasticity

iii) Zero cross elasticity
i) **Positive cross elasticity** :

The cross elasticity, which is there between substitutes is known as positive cross elasticity. In this case, proportionate increase in the price of Y leads to a proportionate rise in demand on x. Hence, the value is always positive.

ii) **Negative cross elasticity** :

In case of complementaries, there will be negative cross elasticity of demand. Here, a proportionate increase in price of Y leads to a proportionate decrease in demand for good x. There may be more elastic or less elastic.

iii) **Zero cross elasticity** :

When a proportionate change in price of Y does not effect these demand for good x, it is known as zero cross elasticity usually, when we examine the cross elasticity between two goods which do not have any relation, there will be zero cross elasticity.

3. **What are the various Determinants of elasticity of demand**

The elasticity of demand for a commodity depends upon the following factors:

1. **Time element** : The elasticity of demand varies according to time usually, in short-run, the elasticity of demand is low and in longrun will be more.

2. **Proportion to total expenditure** : If consumer spends major portion of his income on a particular good, elasticity of demand will be more, i.e, a small change in price leads to more elastic change in demand. Where as, the price of the commodity has very meagre share in total family expenditure (for ex. Match box, salt etc) its elasticity in less elastic

3. **Price level** : Generally demand is more elastic at higher levels of price and vice-versa.

4. **Nature of the commodities** : Nature of the commodity also determines elasticity of demand for a good. If it is necessary, there will be elastic demand and if it is a luxury, there will be elastic demand.

5. **Complementarity of goods** : Complementarity between the goods also effects elasticity. In case of such goods the elasticity is less or inelastic.

6. **Existence of substitutes** : The demand for a good is elastic, when there are many substitutes and when there are a few or no close substitutes, the demand is inelastic.

7. **Number of uses** : If the commodity has many uses, the demand for it is elastic (for ex. Electricity). If the commodity has few uses less elastic demand will be there.

8. **Postponement chances** : If the purchase of the good is postponable, the demand will be elastic and if purchase can’t be postponed, the demand will be inelastic.
4. **Explain the Importance of elasticity of demand**

1. It is very useful to a trader while determining price. Usually, the nature of demand becomes the base for price determination. If the good is necessary and has inelastic demand, the trader will fix price at higher levels and if, the good has elastic demand, he will fix price at lower levels.

2. The concept of elasticity has a great significance in price determination in a monopoly market. The price determination under monopoly will be done in such a way that, the monopolist does not leave any consumer’s surplus. He discriminates the price on the basis of elasticities in various markets.

3. Even for Finance minister, the concept of elasticity is highly useful. His taxation policy is based on the nature of elasticity. If a commodity has inelastic demand, he will impose more taxes on that commodity. So that, increased tax rate will increase tax revenue.

4. This concept plays a significant role even in the international trade. Much foreign exchange can be earned exporting the goods which have elastic demand, as a small fall in the price leads to great rise in the demand for such goods.

5. This concept is highly useful adjusting the terms of trade. Before resorting to exchange depre-
ciation, elasticities of exports and imports are to be noticed.

In this manner, the concept of elasticity of demand has immense significance in economic analysis.

8 Marks Questions

1. **What do you mean by price elasticity of demand and explain its types.**

   Price elasticity of demand explains “the responsiveness of demand for a commodity to the change in its price”. Hence it can be written as

   \[
   \text{Price elasticity of demand} = E_p = \frac{\text{Proporteniate change in demand}}{\text{Proporteniate Change in Price}}
   \]

   Types of price elasticity of demand

   \[
   = \frac{\Delta Q}{Q} = \frac{\Delta P}{P} = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}
   \]

   On the basis of numerical value price elasticity of demand can be classified into following 5 types

   i) Perfectly elastic \((E_p = \infty)\)
ii) Perfectly inelastic (Ep = 0)

iii) Relatively elastic (Ep > 1)

iv) Relatively inelastic (Ep < 1)

v) Unit elastic (Ep = 1)

i) **Perfectly elastic demand** :

It is an extreme case. A negligible change in price leads to disappearance of demand. But, when the price remains constant quantity demanded increased / decreases. This perfectly elastic demand curve is shown in figure 1. It is a horizontal straight line

Here, \( \frac{\Delta Q}{Q} \cdot \frac{P}{\Delta P} = E_p = \alpha \)

![Perfectly Elastic Demand](image1)

ii) **Perfectly Inelastic demand**

This is another extreme case, where whatever may be the change in price do not effect quantity demanded. Here the value of elasticity is zero, i.e, the quantity demanded remains unchanged, even with a great rise or fall in price. The perfectly inelastic demand curve is shown in the fig 2. It is a vertical straight line parallel to y axis. Irrespective of change in price from OP to OP, demand remains OQ. Here

\[ E_p = \frac{\Delta Q}{Q} \cdot \frac{P}{\Delta P} = O \]

![Perfectly Inelastic Demand](image2)

iii) **Relatively elastic Demand** :

Relatively elastic demand is the case where a small change in price leads to great change in demand. That means, 1% change in price leads to more than 1% change in demand. Fig 3 shows the relatively elastic demand curve. In the diagram, a small fall in price (pp1) resulted a great rise in quantities demand curve is a flatted one and

\[ O BP_1 Q_1 > OA \ PQ \]

\[ \therefore \quad E_p > 1 \]
iv) **Relatively Inelastic demand**:

In the case of relatively inelastic or less elastic demand, a substantial change in price brings a very little change in demand. That means, 1% change in price leads less than 1% change in demand. Fig. 4 shows the relatively inelastic demand curve. In the figure, a great fall in price (PP1) resulted a small rise in quantity demanded (QQ1).

Here the demand curve a steeper one and \( \text{OP}_0 \text{BQ}_1 < \text{OP}_1 \text{AQ} \)

\[ \therefore \, \text{EP} < 1 \]

v) **Unit elastic demand**:

In case of unit elasticity, 1% change in price leads to the same 1% change in quantity demanded. That means, proportionate change in price leads to the same proportionate change in demand. Fig. 5 shows the unit elastic demand curve, which is a rectangular hyperbola. Here the proportionate change in price is equal to the proportionate change in demand.

Here,

\[ \text{OP}_1 \text{AQ} = \text{OPBQ}_1 \]

\[ \therefore \, \text{Ep} = 1 \]

While examining elasticity of demand diagrammatically, it should be noted that, elasticity of demand and slope of the demand curve are not one and same. The slope of a straight line demand curve will be same throughout, but its elasticity will be different at different points on the line.

2. **What are the various Measurement methods of elasticity of demand**

Generally price elasticity of demand is estimated with the help of following methods.

i) Proportionate or percentage method

ii) Total outlay method

iii) Point method

iv) Arc method

i) **Proportionate or percentage method**:

Under this method, we examine percentage change in demand due to a percentage change in price or proportionate change in demand due to a proportionate change in price. Here the formula is:

\[ \text{Ep} = \frac{\Delta Q}{Q} \cdot \frac{P}{\Delta P} \quad \text{or} \quad \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} \]
ii) **Total expenditure method:**

This method is explained by Alfred Marshall. In this method we examine the price elasticity of demand with respect to the change in total expenditure of the consumer as a result of change in the price. Marshall, said that, here the elasticity of demand is of three types, viz; greater than unity, equal to unity and less than unity.

a) In case of elasticity is greater than 1, an increase in price leads to a decrease in total expenditure and a decrease particular point on the demand curve and p, q respectively price and quantity at the time.

b) In case of elasticity is equal to 1, either an increase or decrease in price, do not effect the total expenditure, it remains the same.

c) In case of elasticity is less than 1, an increase in price leads to an increase in total expenditure and a decrease in price leads to decrease in total expenditure, i.e. there exists direct relationship between price and total expenditure.

iii) **Point method:**

This method is also introduced by marshall. This method is also called as Geometric Method or Mathematical Method. It is used to find elasticity at a particular point on the demand curve. It used the principles of derivatives to know the changes in price and demand. Here, $E_p = \frac{dq}{dP} \cdot \frac{P}{Q}$

When demand curve is linear :- When demand curve is linear

$$E_p = \frac{\text{Lower segment}}{\text{upper segment}} = \frac{EB}{EA}$$

iv) **Arc Method:**

The gap between two points on demand curve can be called as an Arc. In the figure point AB exhibits Arc.

$$E_p = \frac{\text{New Demand} - \text{old demand}}{\text{New Demand} + \text{old demand}} + \frac{\text{New Price} - \text{Old Price}}{\text{New Price} + \text{Old Price}}$$

$$= \frac{OQ_1 - OQ}{OQ_1 + OQ} + \frac{OP_1 - OP}{OP_1 + OP}$$

$$= \frac{\Delta Q}{OQ_1 + OQ} + \frac{\Delta P}{OP_1 + OP}$$

$$E_p = \frac{\Delta Q}{\Delta P} \cdot \frac{OP_1 + OP}{OQ_1 + OQ}$$

The concept of Arc elasticity is relevant in case when Arc is involved is small. That is this formula should be used when the change in price is not very large.
Introduction

In the previous lesson, you have studied the meaning of demand, the factors affecting demand and the law of demand. We cannot buy a commodity unless it is available in the market. Therefore, supply of a commodity is also important. In this lesson, you will study the meaning of supply, the factors that affect the supply of a commodity and the law of supply.

Objectives

After going through this lesson, you will be able to:

- define supply;
- list the factors that affect the supply of a good;
- explain how changes in the price of a commodity affect its supply;
- explain how other factors affect the supply of a commodity;
- prepare an individual seller’s supply schedule;
- draw an individual seller’s supply curve;
- explain the meaning of market supply;
- draw a market supply schedule and market supply curve;
- explain the law of supply;
- distinguish between expansion of supply and increase in supply; distinguish between contraction of supply and decrease in supply.
One Mark Questions

1. Supply
   Supply of a commodity by a seller (called a firm) is the quantity of that commodity he is willing to supply at a given price during a time.

2. Law of Supply
   The law of supply states that other things remaining the same, there is a direct relationship between the price of a commodity and its quantity supplied in the market.

3. Individual Supply Schedule
   The direct relationship between the price of a commodity and its quantity supplied by a firm can be shown in the form of a schedule. This schedule is called the supply schedule of an individual firm.

4. Market Supply
   There are generally many firms selling a commodity. Market supply means the total quantity of a commodity that all the firms are willing to sell at a given price during a given time period. It is found by adding the supply of the firms selling the commodity.

5. Supply Curve
   It slopes upwards from left to right.

6. Changes In Quantity Of Supply
   When quantity supplied of a commodity rises due to rise in its price, alone it is called expansion of supply.

7. Increase In Supply
   When supply of a commodity rises at the same price, it is called increase in supply. Increase in supply results in a rightward shift of the supply curve.

Two Marks Questions

1. What is Supply
   Supply of a commodity by a seller (called a firm) is the quantity of that commodity that he is willing to supply at a given price during a time. The definition of supply must include (i) the quantity of the commodity that a firm is willing to supply, (ii) the price at which it is willing to supply that quantity and (iii) the time during which it is willing to supply that quantity.
2. **Explain the Law Of Supply**

The direct relationship between the price of a commodity and its supply is stated in the form of law of supply. The law of supply states that "other things remaining the same, there is a direct relationship between the price of a commodity and its quantity supplied in the market".

### 4 Marks Questions

1. **What is meant by the term ‘supply’? Explain Market supply**

Supply of a commodity by a seller (called a firm) is the quantity of that commodity that he is willing to supply at a given price during a time. The definition of supply must include (i) the quantity of the commodity that a firm is willing to supply, (ii) the price at which it is willing to supply that quantity and (iii) the period during which it is willing to supply that quantity.

**Meaning of market supply**

There are generally many firms selling a commodity. Market supply means the total quantity of a commodity that all the firms are willing to sell at a given price during a given time period. It is found by adding the supply of the firms selling the commodity.

2. **Explain briefly the various factors which influence the supply of a commodity**

Supply of a commodity by a firm is generally not a fixed quantity. It keeps on changing. The factors that affect the supply of a commodity are:

(a) Price of the commodity
(b) Other factors which include
   (i) Prices of other commodities
   (ii) Prices of factors of production
   (iii) Objective of the producer
   (iv) Production technology

The factors affecting the supply of a commodity have been divided into two groups. In the first group only one factor, i.e. the price of the commodity is included. In the second group, four factors have been included and this group of factors is labeled as other factors. This grouping is done because the nature of effects on the supply of a commodity by each of this group is different. We will study the effects on the supply of a commodity of the factors under each group separately. While studying the effects of changes in the price of a commodity on its supply, we assume that the supply of the commodity is not affected by any of the factors included under other factors. This assumption is stated as ‘other things remaining the same’. Similarly while studying the effects of changes in other factors on the supply of a commodity we assume that the price of the commodity does not change. This assumption is generally stated as ‘price remaining the same’
8 Marks Questions

1. **Explain how the price of a commodity influences its supply**

   While studying the effects of changes in the price of a commodity on its supply, we assume that no other factor is affecting the supply of the commodity. There is a direct relationship between the price of a commodity and its quantity supplied.

   **Supply Schedule of a Firm**

   The direct relationship between the price of a commodity and its quantity supplied by a firm can be shown in the form of a schedule. This schedule is called the supply schedule of an individual firm, in a supply schedule of a firm is given.

<table>
<thead>
<tr>
<th>Price (per pen) (Rs.)</th>
<th>Quantity supplied of pen (per month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
</tr>
<tr>
<td>4</td>
<td>200</td>
</tr>
<tr>
<td>5</td>
<td>250</td>
</tr>
<tr>
<td>6</td>
<td>300</td>
</tr>
</tbody>
</table>

   At a price of Rs. 2 per pen, the firm supplied 100 pens per month. When the price rises to Rs. 3, the quantity supplied rises to 150 pens. In this way, as the price of pen is rising the quantity supplied of pen is also rising. Now read this schedule from below i.e. starts from the price of Rs. 6 per pen at which the quantity supplied is 300. When price falls from Rs. 6 to Rs. 5, the quantity supplied also falls from 300 to 250. Thus, there is a direct relationship between the price and quantity supplied of a commodity.

   **(b) Supply Curve of a Firm**

   If we plot the supply schedule as given in table 16.1 we get the following curve.
On the OX axis, we measure the quantity supplied per unit of time and on the OY axis, we measure the price of the commodity. This curve is upward rising from left to right showing a direct relationship between the price of a commodity and its quantity supplied by a seller per unit of time. Point A shows that at the price of Rs. 2 per pen, the quantity supplied by the seller (per month) is 100 pens. Point B shows that the quantity supplied is 150 pens at the price of Rs. 3 per pen. Similarly points C, D and E show that the quantities of pen supplied are 200, 250 and 300 at prices of Rs. 4, 5 and 6 respectively. By joining, these points we get the supply curve SS.

(c) Market Supply Schedule

As explained earlier market supply is the total supply in the market of a commodity at a given price and in a given period. It is found by adding the supply by each seller of the commodity at a given price in a given period. Suppose there are only two firms A and B, selling pens in the market. The supply schedule of these two firms and the market supply schedule are given below in table 16.2:

<table>
<thead>
<tr>
<th>Price per pen (Rs.)</th>
<th>Quantity supplied of pen by firms (per month)</th>
<th>Market Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>150</td>
<td>50</td>
</tr>
<tr>
<td>3</td>
<td>200</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>250</td>
<td>150</td>
</tr>
<tr>
<td>5</td>
<td>300</td>
<td>200</td>
</tr>
</tbody>
</table>

By adding the quantities of pen supplied by these two firms at each price, we get the market supply at each price. It is shown in column 4 of the table 16.2. At a price of Re. 1 per pen, the quantity supplied by firms A and B are 100 pens and 0 pens per month respectively. As in the market, there are only these two sellers of pen, the total market supply is 100 pens per month (100 + 0) at a price of Re. 1 per pen. Similarly, we find the market supply at all other prices by adding the quantities supplied by firms A and B at each price.

(d) Market Supply Curve

If we plot the market supply schedule as given in table, we get a market supply curve. Notice that the shape of the market supply curve is similar to the shape of the firm's supply.
Market Supply Curve

Quantity Supplied of Pen in the Market by all the sellers (per month)

This is so because the market supply is nothing but the sum of the supplies by all the individual sellers of the commodity in the market. This curve is also drawn in the same way as the firm’s supply curve was drawn. This supply curve shows that as the price of the commodity rises its quantity supplied in the market also rises.

2. Explain the law of supply and point out the main assumptions behind the law.

The direct relationship between the price of a commodity and its supply is stated in the form of the law of supply. The law of supply states that other things remaining the same, there is a direct relationship between the price of a commodity and its quantity supplied in the market.

(i) Price of the commodity:

The market supply curve is a diagrammatic representation of the law of supply. You should remember that the law of supply states the relationship between the price and the supply of a commodity. Price of the commodity affects its supply. (It will be wrong to say that law of supply states the relationship between supply of a commodity and its price. In this case, supply of a commodity is affecting its price, which is not the law of supply.)

Other factors affecting the supply of a commodity

While studying the effects of changes in the price of a commodity on its supply we assumed that other factors that can affect supply remain unchanged. In this section, we will study how these other factors affect the supply of a commodity. Now we assume that the price of the commodity does not change. The following factors besides the price of a commodity affect the supply of the commodity:

(i) Prices of other commodities
(ii) Prices of factors of production
(iii) Objectives of the producer
(iv) Production technology

Let us now study how each one of these factors affect the supply of a commodity. Remember that now we assume that the price of the commodity remains constant.
(i) Prices of other commodities:
If the prices of other commodities increase, it becomes more profitable for a firm to produce these other commodities. Therefore, it will shift its resources from the production of the commodity whose price has not changed to the production of the commodities whose prices have increased. For example, suppose a farmer grows sugarcane in his field and suppose the price of wheat rises and he finds growing wheat is more profitable than growing sugarcane. Therefore, he will start cultivating wheat on his field. This will result in a fall in supply of sugarcane although its price has not changed. Thus at the same price of a commodity it supply may increase or decrease due to a rise or fall in the prices of other commodities.

(ii) Prices of factors of production:
If the cost of production of a commodity rises due to a rise in the price of any one or more of its factors of production, and price of the commodity remaining the same then the margin of profit of its producers will fall. They will reduce the supply of the commodity though its price has not changed. Similarly, a fall in the price of factors of production will increase the supply of a commodity.

(iii) Objectives of the producer:
Generally, the objective of a producer of a commodity is to earn maximum profits. Therefore, he produces that much of a commodity, which will fetch him maximum profits. However, it is possible that a producer will be interested in maximizing his sales rather than his profits. He goes on increasing the production and sales so long as his target of profit is not adversely affected. Therefore, the objective of a producer also affects the supply of the commodity.

(iv) Production Technology:
Technological advancement—means introduction of new machines and better methods of production. This reduces the cost of production and increases profit. Therefore, the producer is able to supply more of the commodity at the same price. Thus, improvement in technology increases the supply of a commodity, price remaining the same.

All the factors mentioned above affect the supply of a commodity. Price of the commodity remaining the same, its supply may increase or decrease because of changes in any one or more of these other factors.

3. Distinguish between expansion of supply or increase in supply of a commodity
(a) Expansion of Supply
When the quantity supplied of a commodity rises, due to a rise in its price, other things remaining the same, it is called expansion of supply. Look at table 16.1, which shows a supply schedule. As the price of pen rises, the supply is rising. This is called expansion of supply. Diagrammatically it would mean an upward movement along the given supply curve as shown in figure.
(b) Increase in Supply

When at the same price, the supply of a commodity rises due to changes in any one or more of other factors, then it is called an increase in supply. Thus, increase in supply means more supply of a commodity at the same price. The following table shows the increase in supply.

<table>
<thead>
<tr>
<th>Price of Pen (in Rupees)</th>
<th>Actual Supply</th>
<th>Decreased Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
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<td>30</td>
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<td>50</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
<td>70</td>
</tr>
</tbody>
</table>

In the above table, notice that at each of the prices shown in column (I) the supply has increased [compare the quantities given in columns (2) and (3)]. If we plot this table on a graph paper, we will get the following figure.
The original supply curve is SS and the new supply curve showing increased supply at each price is S'S'. Thus when an increase in supply takes place the supply curve shifts rightwards indicating that at the same price the supply has increased.

Thus, a rise in fee quantity supplied of a commodity due to a rise in its price is called expansion of supply. When supply of a commodity rises at fee same price due to changes in other factors affecting supply, it is called increase in supply. Diagrammatically expansion of supply means an upward movement along the same supply curve whereas increase in supply will result in a rightward shift of the supply curve.
Introduction

In the previous lesson, you studied the meaning of demand, elasticity of demand and its importance etc. You can understand that the consumer demand goods and services to satisfy their wants. But before consumption these goods and services are to be produced. So production is one of the important activities in economics. Production require some resources (inputs). The producer convert these inputs into outputs suitable to satisfy human wants. An input becomes a factor only when it assists in production. The factors which contribute to the production of output are classified into Land, Labour, Capital and Organization.

In this lesson you will study the meaning of production, production function and also you can understand how the production can be increased in the short-run and longrun by changing the factors of production.

Objectives

After going through the lesson you will be able to:

- Define production and its meanings
- Explain production function
- Explain the law of variable propositions and the related issues
- Understand the features of factors of productions.
- Categorize three stages of returns to seal such as increasing constant and diminishing returns.
- Explain internal and external economics arises due to the nuclear concentration of firms in one place.
One Mark Questions

1. **Production**
   Production does not mean creation of matter, but it is the creation of utilities. Producer uses the raw materials (inputs) and transforms into finished goods. When changing the form of inputs into output creates utilities.

2. **Production function**
   Production function is defined as functional relationship between inputs and output under given technology per unit of time.

3. **Organisation (or) entrepreneur**:
   refers to a person who combines all factors of production and bears risk in business

4. **Law of variable proportions**
   Prof. Benham explained that output can be increased by changing one variable factor while other factors are kept constant. It is popularly known as law of variable proportions.

5. **Returns to scale**
   Output can also be increased by changing all factors. This is known as the law of returns to scale.

6. **Total Product**
   The Total Product is the total product, producing by labour and capital at different levels of inputs used.

7. **Average Product**
   AP is the average product. When we divide the total product by total number of labour we get average product.

   \[ AP = \frac{TP}{X} \]

8. **Marginal Product**
   Marginal product is the additional product by increasing additional unit of labour. Suppose when three labours are employed, output is 18 units. If 4th labour employed the total product rised to 20, the marginal product is 20 - 18 = 2. This can be calculated by using a small formula.

   \[ MP_{nth} = TP_n - TP_{(n-1)} \]
9. **Production**

Production does not mean creation of matter, but it is the creation of utilities. Producer uses the raw materials (inputs) and transforms into finished goods. When changing the form of inputs into output creates utilities.

10. **Internal Economies**

When a firm expands its output, get certain advantages. These advantages are called internal economies. These accrue to that firm only. They are sub-divided into technical, managerial, marketing, risk bearing, financial and Labour economies etc.

11. **External Economies**

External economies are those economies accruing to all firms when an industry expands. It means when a number of firms increases, expands their size in a particular region, they get certain benefits.

### Two Marks Questions

1. **Production function**

   Production function is defined as functional relationship between inputs and output under given technology per unit of time.

   This relationship can be expressed algebraically as follows.

   \[ O = f(a, b, c, d) \text{ or } Q = f(x_1, x_2). \]

2. **Land**: It refers to all kinds of natural resources available on the earth.

3. **Labour**: Refers to human efforts, physical and mental used in production activity.

4. **Capital**: Refers to man made factors of production such as equipments, tools machinery, factors, raw materials.

5. **Organisation (or) entrepreneur**: refers to a person who combines all factors of production and bears risk in business.

6. **Internal Diseconomies**

   If a firm goes on increasing its output, after certain stage complexities, and problems of management will increase. The management will not be able to maintain contact with workers, and unable to check all departments. The problem of supervision becomes complex. It leads to increasing possibilities of mistakes and mismanagement, resulting in rise of average cost.

   Too much use of machinery leads to frequent repairs. Production is interrupted frequently and the cost of production increases.
7. **External diseconomies**: When the industry expands, beyond a limit external diseconomies arises. This is because of localization of industry in a particular place.

    Due to increase in the concentration of firms in a particular locality, each firm will find scarcity of available factor. Hence competition among firms in purchasing labour, raw materials etc will increase. Factor prices and profits will fall.

    Too much of localization leads to the spreading of labour troubles from unit to unit.

**4 Marks Questions**

1. **What do you mean by Internal economies**

    When a firm expands its output, get certain advantages. These advantages are called internal economies. These accrue to that firm only. They are sub-divided into technical, managerial, marketing, risk bearing, financial and Labour economies etc.

    1. **Technical Economies**

        A big firm is in a position to install large capacity machines in the place of small size machines. It also adapt latest technology. Similarly a big firm can utilize the unused capacity of the machine which they have purchased earlier when the firm is a small unit. These will give mechanical advantages over small firms, resulting cost of production will come down.

    2. **Managerial Economies**

        When the firm expands its output managerial economies arise. A firm can appoint highly talented specialists to supervise and manage various department, who can be paid good salaries they can supervise the work better resulting productivity of the workers will increase.

    3. **Marketing Economies**

        Marketing economies are economies of buying (raw materials) and selling of (Produced goods). A big firm can purchase raw materials on a large scale at a lowest cost. Further a firm also employs purchasing experts to purchase the required raw materials more economically in time. The advertisement cost will be lower due to large scale output sale. A number of sales experts take up all sorts of selling programmes to promote marketing of its products. All these marketing economies reduces the cost of production.

    4. **Financial Economies**

        A big firm has greater advantage in financial matters than smaller one. Because of wider reputation and greater influence in the money market, a big firm can attract large capital at low
rates of interest. Further a big firm can easily rise required capital by issuing shares and debentures.

5. Risk bearing economies

A big firm is in a position to minimize business risk by producing a wide range of products in different varieties. The loss of one product can be compensated by the gain of other products.

Similarly a big firm sells their products in different markets spreading over the country. The loss in one market can be compensated by the gain from other markets.

6. Labour Economies

A big firm can employ a large number of skilled labour and can introduce division of labour and specialization in production. As a result labour productivity will increase and reduces average cost.

7. Research and development

A big firm can spend crores of rupees on research and development. Consequently there will be an improvement in technology and the quality of the product. This will reduce the cost of production.

Thus a large firms enjoys some advantages over small firms due to the expansion of output. But this will not continue further. When the size of the firm becomes very large diseconomies enter into the production and average cost will rise.

2. What do you mean by External Economies

External economies are those economies accruing to all firms when an industry expands. It means when a number of firms increases, expands their size in a particular region, they get certain benefits. Because of localization of industry, the advantages of localization accrue to all firms in that industry. The external benefits can be classified as follows. 1. Economics of localization 2. Economics of information 3. Economics of disintegration 4. Economics of by products 5. Economics of welfare.

1. Economics of localisation:

When a number of firms are locate in one place, all the firms gets advantages. They are

a) They obtain skilled labour
b) They can have better transport facility
c) Banks and other financial institutions will come up to provide finance at lower interest rates
d) Electricity board may supply sufficient electricity to that region
e) Some institutions come up to supply raw materials and spare parts.
2. Economies of Information:
When the industry expands, all the firms in the industry can share the expenditure for the publication of trade journals relating to the industry, statistical, technical and other market information, within the country and abroad is readily available to all the firms in a growing industry. Thus all these economies reduce the cost of the firms.

3. Economies of disintegration:
These are classified into two kinds. 1. Vertical disintegration 2. Horizontal disintegration. When the firms are divided into different dependent processing categories, it is called vertical disintegration. For example, in a cotton industry some firms may specialize in the production of some firms may specialize in the production of cloth printing and so on. If the firms specializes in one particular production process, the average cost will decrease.

Horizontal disintegration means specialization of firms in production of one particular item instead of producing all items. Due to the specializations of one particular item the average cost will decrease.

4. Economies of byproduct.
A large industry can utilize the waste materials for manufacturing byproducts. Different firms in the industry, fully and effectively utilize the byproducts and supply them to some industries on a large scale.

5. Economies of research and development
When the industry expands, all the firms can share the expenditure to set up research laborations. This will save independent research which is very costly.

6. Economies of welfare:
When the industry develops, all the firms can undertake welfare activities at cheaper costs. For example Housing colonies, educational institutions, hospitals and recreational facilities etc, can be provided to the workers. This would improve the efficiency of workers in the industry and ultimately production will rise.

8 Marks Questions

1. Explain the Law of variable proportions (Law of diminishing returns)
Ans. This law was originally explained by British economists like Thomas Malthus, David Ricardo and J.S. Mill. But it was refined and elaborated in the hands of Alfred Marshall. That is why this theory is associated with the name of Marshall. The law of variable proportions is a refined form of law of diminishing returns.
We have learned that the producer changes output by changing inputs. But in a short period it is not possible to change all inputs like building and machinery. The only way is to increase output by changing variable factor like labour.

For Example if the demand for soaps increases, the producer can not change immediately existing machinery and buildings. He has to use the existing machinery with full capacity and employ more labour to increase production. Thus the producer changes one input by keeping other inputs fixed. This type of production function is called the law of variable proportions. It is the refined form of law of diminishing returns explained by the Benham and stigler.

Marshall confined his law of diminishing returns to agriculture sector only. But the modern economists believe that this law applies to all factors of production including industry.

According to Marshall “An increase in the capital and labour applied in the cultivation of land causes in general a less than proportionate increase in the amount of production raised unless it happens to coincide with an improvement in the art of agriculture.

ASSUMPTION

The law is based on the following assumptions.

A. All variable inputs are homogeneous.
B. There is no change in technology
C. One input is variable and other factors are kept constant.
D. It is possible to change the combination of inputs.
E. This law applicable in shortrun only.
F. Diminishing returns arises after a stage.

This law is explained with the help of a table and diagram.

<table>
<thead>
<tr>
<th>No of Labour</th>
<th>Total Product (TP)</th>
<th>Marginal Product (MP)</th>
<th>Average Product (AP)</th>
<th>Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>I(^{st}) Stage</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>7</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>2</td>
<td>5</td>
<td>II(^{nd}) Stage</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>18</td>
<td>-2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>14</td>
<td>-4</td>
<td>2</td>
<td>III(^{rd}) Stage</td>
</tr>
</tbody>
</table>

Table - Law of variable Proportions
Labour (Variable input)

Here we assume that labour as a variable factor and other factors are kept constant. In table labour is increasing. Three types of products were namely total, average and marginal are shown in the table. TP is the total product, producing by labour and capital at different levels of inputs used. AP is the average product. When we divide the total product by total number of labour we get average product.

Marginal product is the additional product by increasing additional unit of labour. Suppose when three labours are employed, output is 18 units. If 4th labour employed the total product rised to 20, the marginal product is 20-18=2. This can be calculated by using a small formula.

\[ MP_n = TP_n - TP_{(n-1)} \]

Here \[ TP_4 = 20, \quad TP_{(4-1)} = 8 \]

\[ MP_n = 20-18 = 2. \]

In the table We can observe that the total product, marginal average product increasing at increasing rate. This is the stage of increasing returns. A wise producer will not stop production in this stage.
After certain point total product reach a maximum and then decline. In this process marginal product declines first, followed by average product. This is explained with the help of a diagram.

In the figure variable factor labour measured on OX axis and output measured on OY axis. On the diagram output changes are shown in three stages. In this first total product (TPC) increasing rapidly followed by marginal and average products. At 3rd labour marginal and average product is equal. This is the first stage.

In the second stage the total product increasing at a diminishing rate followed by marginal and average (MPC and APC) Products. When the total product reaches maximum, the marginal product becomes zero and the average product following slowly. This can be observed at 5th labour. A rational producer will not go beyond this stage.

In the third stage, as the additional labour is added the total product decreases and the marginal product becomes negative. No producer takes up production in this stage. This can be observed after 6th labour in the diagram. This is the stage negative returns. Therefore a wise producer carries production up to second stage. This is the most important stage in the law of variable proportions.

**Practical Importance**

The law of variable proportions has practical importance in economics as stated here under.

1. Recardian theory of rent is based on law of diminishing returns.

2. Malthusian population theory also based on this law. Malthus stated that population has to be checked due to diminishing returns on land

3. The marginal productivity theory distribution is also based on this law. This theory explains that employment of a factor is to be carried on until diminishing marginal productivity becomes equal to its remuneration.
Introduction

Production is the joint effort of all factors of production, namely land, labour capital and organisation. These four factors collectively work to produce wealth. Hence these factors need to be paid or rewarded for their services for producing wealth. Therefore the problem of distribution arises. Distribution means sharing of wealth among factors of production of wealth distributed to the people, those who contributing for production in the form of 1. Rent as a share of land 2. Wages as remuneration for labour 3. Interest as a share to capital 4. Profits are a reward to organizer or to an entrepreneur. The aggregate of all these is called national income. This also indicates the distribution of national income among the different classes of people in the country namely land lords, labour, capitalists and entreprenures.

Objectives

After going through this lesson you will be able to

- Understand difference between functional distribution and personal distribution.
- Explain the marginal productivity theory of distribution
- Understand various concepts of rent
- Explain Ricardian theory of rent
- Explain modern theory of rent
- Differentiate rent and quasirent.
- Understand different types of wages.
- Explain the views of different economists regarding wages
- To differentiate real wage and nominal wage
- To list the factors that obtain real wages.
One Mark Questions

1. Distribution
   Distribution means sharing of wealth among factors of production of wealth distributed to the people, those who contributing for production in the form of 1. Rent as a share of land 2. Wages as remuneration for labour 3. Interest as a share to capital 4. Profits are a reward to organizer or entrepreneur.

2. National Income
   The sum of all factor remunerations is the national income. This also indicates the distribution of national income among the different classes of people in the country namely land lords, labour, capitalists and entreprenures.

3. Functional Distribution
   The theory of functional distribution explains how the factors of production are rewarded for their services in the process of production i.e. it explains the share of national income received by the people, as agents of production per unit of time, as a reward for the unique functions performed by them through their services. These shares are commonly known as wages, rents, interest and profits.

4. Personal Distribution
   It is a micro economic concept. Personal distribution refers to a given amount of wealth and income received by individuals in a society through their economic effort. Individual may earn income from various sources. But we should concentrate on how it is earned and or in how many forms it is earned.

5. Marginal Product
   The addition made to the total production is called marginal production. If a meter cloth is sold in the market at the rate of Rs. 10 the value of output the marginal labour is 10 x 10 = 100 Rs. Therefore the employer has to pay Rs. 100 to the marginal labour and not beyond that. Here the marginal product of a particular factor is measured as \( MP_n = TP_n - TP_{(n-1)} \).

6. Economic Rent
   Rent in economics means “Economic rent”. Economic rent is differential surplus. According to Ricadro Economic rent is the surplus of the more fertile land over the yields of the marginal or the less fertile hand.

7. MARGINAL LAND
   The land which do not have any rent is called Marginal Land.
8. **Quasi Rent**

   It is a rent derived by man made machines and appliances in short period.

9. **Real Wage**

   The purchasing power of money wage is called real wage. It largely depends on the price level. Therefore real wage is the true indicator of worker’s property.

10. **Gross Interest**

    Gross interest = Net interest + payment for risk, + Reward for management service + compensation for the changing value of money.

11. **Profit**

    Profits are the remuneration received by the entrepreneur to his services as organizer.

**Two Marks Questions**

1. **Functional Distribution**

   The theory of functional distribution explains how the factors of production are rewarded for their services in the process of production i.e. it explains the district share of national income received by the people, as agents of production per unit of time, as a reward for the unique functions performed by them through their services. These shares are commonly known as wages, rents, interest and profits. Here we are of interest to know individual reward separately.

2. **Personal Distribution**

   It is a micro economic concept. Personal distribution refers to a given amount of wealth and income received by individuals in a society through their economic effort. Individual may earn income from various sources. But we should concentrate on how it is earned & or in how many forms it is earned.

3. **Contract Rent**

   Contract rent is a commercial rent, paid periodically for the use of something. It is the price paid per unit of time (say monthly or early) for the services of durable goods, such as land, house, machine, car, furniture etc, on agreement. Hence the rent of house, the rent of car, the rent of a piece of land, the rent of a V.C.R etc. are contract rents.

4. **Economic Rent**

   Rent in economics means “Economic rent”. Economic rent is differential surplus. According to Ricardo Economic rent is the surplus of the more fertile land over the yields of the marginal or the least fertile hand.
5. **Scarcity Rent**

Rent in economics means “Economic rent”. Economic rent is differential surplus. According to Ricardo Economic rent is the surplus of the more fertile land over the yields of the marginal or the least fertile hand.

6. **Quasi Rent**

Rent in economics means “Economic rent”. Economic rent is differential surplus. According to Ricardo Economic rent is the surplus of the more fertile land over the yields of the marginal or the least fertile hand.

7. **Transfer Earnings**

Mrs. Robinson has introduced the concept of transfer earnings. It is called “Opportunity cost in explaining economic rent.” According to Marshall “the price which is necessary to retain a given unit of a factor in a certain industry is called its transfer earnings”. As factor has different uses, in order to retain a factor in its particular use, if must be paid at least equal to its opportunity costs or transfer earnings. i.e what it could earn in its next best employment.

8. **Real Wage**

The purchasing power of money wage is called real wage. It largely depends on the price level. Therefore real wage is the true indicator of worker’s property.

9. **Substance Wage Theory**

This theory was advocated by the physiocrats of France, and developed by Adam Smith. This theory stated that wages tend to settle in the longrun at the level just sufficient to maintain the worker and his family at a minimum subsistence level. This is also called “The Iron law of wages”

10. **Wage Fund Theory**

J.S. Mill developed this theory basing on the ideas of Adam Smith. According to them wages of workers depends on the wage fund meant for purchase of labour. The wages are inversely related with wage fund.

\[
Wage = \frac{\text{Wage Fund}}{\text{No. of Labour}}
\]

11. **Residual Claimant Theory**

F.A. Walker, an American economist propounded this theory. According to him, wages are the residual income after paying the remuneration to other factors of production from the total revenue.

12. **Liquidity Theory of Interest**

Keynes considered interest is purely a monetary phenomenon. He defines that “interest is the reward made to the money lender for parting with liquidity.”
13. **Loanable Funds Theory**

Knut wicksell advocated the loanable funds theory of interest. It is known as neo-classical theory of interest. According to them “interest is the price paid for the use of loanable funds. The rate of interest is determined by the equilibrium between demand and supply of loanable funds.

14. **Gross Interest**

The total amount paid by the borrower to a lender is called gross interest. Gross interest includes the following elements.

15. **Net Interest**

Net interest is a payment only for the service of capital, which is borrowed in the form of money.

16. **Gross Profit**

In ordinary sense, profit means gross profit. The difference between the total revenue of the firm and total cost of production is the gross profit. It is the price paid for the multifaceted activities of the entrepreneur. Gross profit includes the following items.

a) Imputed costs like maintenance and depreciation charges

b) Returns on entrepreneurs own factors of production. It is known as implicit costs.

c) Non-entrepreneurial profits like wind fall gains, monopoly gains etc.

d) Net profit. It is the pure economic profit earned by the entrepreneur for his service and efficiency.

e) Normal profits.

17. **Net Profit**

Net profit is the reward earned exclusively by the entrepreneur for his entrepreneurial functions. They are:

1. Organisational function
3. Reward for innovations
4. Reward for coordination.

18. **Normal Profit**

Normal profits one the minimum profits for the services of management and are sufficient to induce the entrepreneur to stay in the industry.

19. **Abnormal Profits**

When the firm's revenue is over and above the cost of production, a firm gets abnormal profits.
20. **Innovations Theory of Profits**

This theory was advocated by an American economist prof. Joseph Schempeter. According to him the main function of the entrepreneur is the introduction of innovations in the production process. The success of innovations increases the difference between prices and costs. Consequently the entrepreneur earns profits. Hence “profits are the reward for the unique functionary innovations made by an entrepreneur.

### 4 Marks Questions

1. **What are the determinants of Real Wage?**

   The purchasing power of money wage is called real wage. It largely depends on the price level. Therefore real wage is the true indicator of worker’s property.

   **Factors determining real wage:**

   Real wages are influenced by the following factors.

2. **Purchasing power of Money :**

   The purchasing power of money is inversely related with the price level if the prices are higher, purchasing power will be less and it the prices are low, purchasing power will be higher.

3. **Additional facilities :**

   If a worker gets additional facilities along with money wages, his real wage will be considered more. For Example Fine accommodation, subsidized lunch, medical facilities etc.

4. **Regularity of employment:**

   If the employment of a work is permanent, even the money wage is lower, his real wage will be high. Similarly if the Job of a worker is temporary, his real wages are considered lower.

5. **Nature of Work :**

   If the risk in work is more, real wages will be treated as lower. For example a worker in mines undertake more risk and hence his real wages are considered lower.

6. **Future prospects**

   If the chances of promotion for a worker is more, his real wage will be higher.

7. **Conditions of Work :**

   Conditions of work means, number of hours of work, leisure and recreational facilities etc. If the working place is pleasant, the real wage will be higher.

8. **Timely payment :**

   If a worker gets his wages regularly and on the fixed day, his real wage will be considered more.
8. Social status:

Some jobs bring prestige in the society. Even if the money wage is less the real wage is considered as higher. For example the salary of S.I. and senior assistant in an office is equal. But the real wage of sub-inspector of police will be considered as higher.

8 Marks Questions

1. Explain Marginal productivity theory of distribution.

Marginal productivity theory is a general theory of distribution. It was initially profounded to explain the determination of wages (the reward for labour). Later it was generalized as theory to explain the pricing for all factors of production.

The concept of marginal productivity is derived from the Ricardo’s “Marginal Principle”. But this did not gain much importance till the last quarter of 19th country. J.B. clark, Jevars, Wickstead, walrass etc did some work to popularises this theory. Later Alfred Marshall and J.R. Hicks refined and popularized the doctrine of marginal productivity.

The theory states that the price of a factor is to be determined by its marginal productivity. Generally, the aim of the producer is profit maximization. He will employ the factors of production to produce goods and services. As he goes on employing the factors of production the productivity of a factor will increase.

Where as the marginal productivity decreases. Marginal productivity is the additional output due to an increase in the use of a factor.

The theory assumed that there is possibility of substitution of factors. Hence the producer substitutes the factors and this will continue till the marginal productivity of all factors are equal. In a perfect competition all factors get remuneration equal to their marginal productivity. In this way the producer can maximize his profits.

For Example in textile firm, three workers produced 30 meters of cloth and when the fourth Worker employed, the total production rised to 40 meters. The addition made to the total production of cloth is 40-30=10 meters. It is called marginal productivity. If a meter cloth is sold in the market at the rate of Rs. 10 the value of output the marginal labour is 10x10=100Rs. Therefore the employer has to pay Rs. 100 to the marginal labour and not beyond that.

Here the marginal product of a particular factor is measured as $Mp = TP_n - TP_{(n-1)}$.

Factor are $TP_n$ = Total productivity of n factors

$TP_{(n-1)}$ = Total productivity n factors employed previously.

∴ $MP_n = 40 - 30 = 10$ meters.

This theory explained with the help of a diagram.
Quantity of Labour

In the figure – measures quantity of labour on x-axis, and marginal productivity of labour on y-axis. M.P. is the marginal productivity curve. As the workers are goes on employing the marginal productivity will diminish. Hence the MP curve is in downward sloping. The figure shows that at the prevailing wage rate OW the producer employed ON Units of Labour, since the marginal product of labour is equal to OW price (wage).

In a perfect competitive labour market the wage rate is determined by the marginal productivity of labour and in turn determine the demand and supply of labour force.

Assumptions

This theory is based on the following assumption:

1. It assumes perfect competition in the product and factor market.
2. All factors of production are homogenous
3. All factors of production are perfect substitutes for one another.
4. There is no technological change
5. The firm is aiming at profit maximization
6. There is perfect mobility of factors of production
7. There is no government intervention in the fixation of factor prices.
8. It assumes full employment of factors.

2. What do mean by Rent? Explain Ricardian theory of Rent?

The classical economists held the opinion that economic rent was applicable to land only. But the modern economists thought that rent means income of yield derived from any factor whose supply is inelastic. Mrs. Joan Robinson defined that “Economic rent is the excess of factor of a production’s actual earnings over its transfer earnings”. Transfer earnings is the supply price of the factor measured in terms of its opportunity costs. Therefore anything which is earned as a surplus of its transfer earnings by a factor is described as economic rent.

Ricardian Theory of Rent:

David Ricardo, a noted classical economist, presented a theory of rent in his famous book “Principles of political Economy and taxation”. Ricardo did not explain the determination of rent. But he explained how the rent arises on land due to difference in fertility of soil.

Ricardo defined that “Rent is that part of the produce of the each which is paid to the land lord for the use of the original and indestructible powers of the soil”.
From the definition of Ricardo we can derive some of the main points as follows:

1. **Rent is the return for the use of land**: According to Ricardo, rent is paid by the tenant to the landlord for the use of natural productive properties of soil.

2. **Rent is an indication of the niggard liners of nature**: Ricardo tangent that rents are not due to the gift of nature but arise by the niggard liners of nature of means rent arises because of scarcity of fertile land. This scarcity of land leads to higher and higher rents.

3. **Rent is a residual payment**: Rent is the surplus payment after paying to the other facts of production such as labour and capital as per the value of their marginal product.

4. **Rent is a differential surplus**: Ricardo stated that rent is a differential surplus earned by more fertile land in comparison with the less fertile land.

5. **Diminishing returns**: The law of diminishing returns applies here. Because of diminishing returns in agriculture when the demand for land increases due to population growth, less fertile lands will be brought under cultivation.

6. **Rent is a pure economic surplus**: Land is a free gift of nature and hence there will be no cost of production. Therefore rent is a pure economic surplus. It is paid as the surplus over the cost of cultivation involved.

7. **Rent does not enter into cost**: Ricardo stated that rent is a non-cost income and hence it does not enter into the price of corn. “Rent rises when the price of land output rises and not that price is high because price of the corn is high.

**Determination of Rent**: Ricardo explained how rent emerges due to difference in land fertility with the help of an illustration. He started with a new country colonized by a different batches of inhabitants.

The land in the country of three different kinds A, B and C grades. The first batch of inhabitants generally occupy the most fertile land i.e. A grade. By investing Rs 500 in the form of labour and capital they produce 30 bags of paddy. On the initial state the cost of production will be equal to total revenue. Therefore there will be no surplus on “A” grade land.

After sometime, the batch of inhabitants came to that place and cultivate B grade land because of diminishing returns. Here by investing the same amount Rs. 500 they produce only 25 bags of paddy because of less fertility compared to A grade land. The cost of production is more than A grade land which creates a surplus for A grade land to the output of 30–25 = 5 bags paddy. This is the economic rent on A grade land.
With the passage of time, due to increase in population the demand for land will increase and necessary to cultivate land of inferior quality namely grade “C”. Here by investing Rs. 500 in “C” grade land resulting the output is only 10 bags. Ricardo stated that the market price of corn is equal to the cost of product of “C” grade land. Therefore there is no surplus in marginal land (c grade). But in A grade land the surplus now raised to 30-10=20 bags and in B grade land the surplus begins to show the surplus of 25-10=15 bags.

Thus rent arises due difference in land fertility. This can be illustrated in a table and diagram as follows.

<table>
<thead>
<tr>
<th>Land grades</th>
<th>Cost of Output (in Rs.)</th>
<th>Production (in Bags)</th>
<th>Rent or surplus value (in Physical units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>500</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>B</td>
<td>500</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>C</td>
<td>500</td>
<td>15</td>
<td>-</td>
</tr>
</tbody>
</table>

In the figure you can see various grades of land on x-axis and their yield on y-axis. The rectangles represent the yield on different grades of land. C grade land is the marginal land i.e no rent land. All other lands yield economic rent equal to the shaded portion of respective rectangles.

Assumptions:

Ricardian theory of rent is based on the following assumptions:

1. Land is cultivated in a sequential A,B and C
2. There is a perfect competition in the economy
3. Supply of land is limited
4. Cultivated land is subject to law of diminishing returns
5. Land differ in fertility
6. Rent is determined by the price of product produced in marginal land.
Price Determination

Introduction

An interesting feature is that the demand and supply of a commodity both also influence the price of a commodity. How the demand and supply of a commodity influence its price, is the subject matter of this lesson. You will study how the price of a commodity is determined and how changes in demand and supply of a commodity affect its price.

Objectives

After going through this lesson you will be able to:

● explain how the price of a commodity is determined by the demand and supply of that commodity;
● explain the meaning of equilibrium price;
● explain the concept of excess demand and excess supply:
● explain the effects of changes in demand and supply of a commodity on its price.

One Mark Questions

1. Equilibrium Price

   There can be a price of a commodity at which its quantity demanded and quantity supplied will be equal. This price of the commodity is called the equilibrium price.

2. Excess Demand

   When at a price of the commodity its quantity demanded exceeds its quantity supplied then it is a situation of excess demand
3. **Excess Supply**

If at a given price the quantity supplied of a commodity exceeds its quantity demanded then it is a situation of excess supply.

**Two Marks Questions**

1. **Equilibrium Price**

We know that the buyers of a commodity demand more of it at lower price and less of it at a higher price whereas the sellers of the commodity supply more of it at higher price and less of it at a lower price. These behaviors of buyers and sellers are explained by the law of demand and the law of supply. There can be a price of a commodity at which its quantity demanded and quantity supplied will be equal. This price of the commodity is called the equilibrium price. Thus equilibrium price of a commodity is the price at which its quantity demanded and supplied are equal.

2. **Increase in demand and effects on price**

When at the same price there is greater demand of a commodity, it is called increase in demand. If supply schedule remains the same then an increase in demand raises the equilibrium price of the commodity.

3. **Decrease in demand and effects on price**

Decrease in demand means lesser demand at the same price. Decrease in demand means a leftward shift in demand curve.

**4 Marks Questions**

1. **What do you mean by excess demand ? What will be the effect of an excess demand for a commodity on its price ? Show with the help of an example.**

If at a given price the quantity supplied of a commodity exceeds its quantity demanded then it is a situation of excess supply. When the price of potatoes is Rs. 6 per kg., its supply is 30 kg. In addition, demand is for 10 kg. Thus there is excess supply equal to 20 kg.

**Effects of Excess Supply on the Price and Quantity Demanded and Supplied**

Whenever there is excess supply of a commodity the following changes take place:

(i) As supply exceeds demand, all sellers will not be able to sell the total quantities they want to sell at this price. Therefore, there will be competition among sellers. This will reduce the price.
(ii) As the price starts falling, expansion of demand and contraction of supply will take place. This will reduce the excess supply.

(iii) These changes i.e. fall in price, expansion of demand and contraction of supply will continue until the price reaches that level at which demand and supply are equal.

(iv) Thus the excess supply is wiped out and equilibrium price and equilibrium quantity are established.

As was done in case of excess demand let us explain with the help of a diagram about the concept of excess supply and the changes that take place in price, demand and supply due to excess supply. Let us redraw figure.

When the price is Rs. 6 per kg. the quantity supplied is 30 kg. (Alternatively, TO) and quantity demanded is only 10 kg. (Alternatively, TE). So there is an excess supply equal to 20 kg? (or EVE). Competition among sellers reduces the price, say, to Rs. 5 per kg. As the price has fallen from Rs. 6 to Rs. 5 there is expansion of demand and a downward movement along the demand curve shows it from point E to point B. In addition, there is contraction of supply due to fell in price. Downward movement along the supply curve shows this from point F to point C.

At the price of Rs. 5 per kg. There is still excess supply equal to 10 kg. (or BC). This will again initiate a fall in price, expansion of demand and contraction of supply as shown by arrows. Further downward movement along the supply curve (contraction of supply) takes us to point A and further downward movement along the demand curve (expansion of demand) takes us to point A. Point A gives the equilibrium price (Rs. 4 per kg.) and equilibrium quantity (20 kg.).

2. **What do you mean by excess supply? Explain with the help of the diagram as to what will be the effect of an excess supply on the price of the commodity?**

**Excess Demand**

When at a price of the commodity its quantity demanded exceeds its quantity supplied then it is a situation of excess demand.
Effect of Excess Demand on the Price and Quantity Demanded and Supplied

Excess demand results in the following changes:

(i) Price of the commodity starts rising because of the competition among its buyers.

(ii) As the price starts rising, its quantity demanded starts falling as the buyers demand less when price rises.

(iii) As the price starts rising, its quantity supplied starts rising as the sellers sell more when price rises.

(iv) The rise in the price of the commodity causes contraction of demand and expansion of supply, which continues until price reaches a level at which the quantity demanded and quantity supplied, are equal.

(v) This is the equilibrium price, which also determines the equilibrium quantity.

In this way excess demand is wiped out. Let us now explain the concept of excess demand and the process by which it is wiped out with the help of a diagram.

At the price of Rs. 2 per kg. The quantity demanded and supplied of potatoes are 30 kg. (or PC) and 10 Kg. (or PB) respectively. Thus there is an excess demand of 20 kg. (alternatively, BC). The buyers will obviously compete to buy the quantity of potatoes they want to buy at this price. This will lead to a rise in price. Suppose the price rises to Rs. 3 per kg. At this price the quantity supplied and quantity demanded are 15 kg. (alternatively, TE) and 25 kg. (or TF) respectively. Notice the movements along the demand and supply curves as the price rises. There is an expansion of supply shown by an upward movement along the supply curve from point B to point E and contraction of demand shown by an upward movement along the demand curve from the point C to point F. These movements are shown by the arrows. Still there is excess demand equal to 10 kg. (or EF). This farther increases the price and the price rises to Rs. 4 per kg. Notice again the movements along the demand curve and supply curve. The demand contracts as shown by shift from point F to point A and supply expands as shown by shift from point E to point A. At this
price i.e. Rs. 4 per kg. the quantity demanded is equal to 20 kg. (orQA) and the quantity supplied is also 20 kg (orQA). Both are equal. So Rs. 4 per kg. is the equilibrium price and 20 kg. is the equilibrium quantity and there is no excess demand.

3. Market demand and supply schedules of mangoes (per day) are given below:

<table>
<thead>
<tr>
<th>Price (per kg.) (in Kg. per day)</th>
<th>Quantity demanded (in Kg. per day)</th>
<th>Quantity supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>

Based on the above table answer the following:

(i) What will be the equilibrium price of the mangoes? 5
(ii) What will be the quantity demanded and supplied at this price? 8
(iii) What changes will take place if the price is higher than the equilibrium price?
(iv) What changes will take place if the price is less than the equilibrium price? Equilibrium of market demand and surplus. Excess surplus.

8 Marks Questions

1. Explain how Demand and Supply Interaction determines Equilibrium Price?

Sellers are unaware of the intentions of the buyers. Similarly the buyers are also unaware of the intentions of the sellers. In other words neither the sellers know the market demand schedule of their commodity nor the buyers know the market supply schedule. Their decisions about the quantity demanded and supplied at a price are independent decisions. Therefore, in the market when the sellers fix a price of the commodity, they know the quantity to be sold at that price. It may be a coincidence that the demand by buyers of the commodity at that price may just be equal to the supply. If that happens the equilibrium price is instantaneously determined. At this price the quantity demanded and supplied are equal.

As stated earlier it may be a coincidence. But in practical life, it may rarely happen. Actually at the price fixed by the sellers, the market supply may be greater or lesser than the market demand at that price. It means that at this price market demand and market supply are not equal. So it is not
the equilibrium price. What will happen now? In other words, how the equilibrium price will be arrived at. Suppose at the price quoted in the market by the sellers the supply is greater than demand i.e. the buyers are willing to buy less than what the sellers are ready to sell at that price. In this situation not finding enough customers the sellers will reduce the price in order to sell the quantity they wish to sell. You know that as price falls quantity demanded rises and quantity supplied falls. So as the price is reduced the demand increases and supply falls. This will reduce the original gap between supply and demand. This process of fell in price, rise in demand and fall in supply will continue till a price is reached at which the quantity demanded and the quantity supplied are equal. Thus the equilibrium price is reached.

Let us take an example. The table 17.1 contains the market “demand schedule and the market supply schedule of potatoes.

<table>
<thead>
<tr>
<th>Price per kg. (Rs.)</th>
<th>Market Demand per day (kg.)</th>
<th>Market Supply per day (kg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>4</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>10</td>
</tr>
</tbody>
</table>

Column (1) shows the different prices of potatoes. Column (2) shows the market demand of potatoes at different prices and column (3) shows the market supply of potatoes at different prices. Let us read the table carefully. When the price of potatoes is Rs. 6 per kg., its supply is 30 kg. but its demand is for 10 kg. As the price falls from Rs. 6 per kg. to Rs.2 per kg., the demand rises but supply falls. Suppose the sellers fix the price at Rs. 6 per kg. At this price the supply is 30 kg. but demand is for only 10 kg. This means that at this price only 10 kg. of potatoes can be sold. This would result in a fall in the price of potatoes. At this price the demand for potatoes has risen from 10 kg. to 15 kg. and the supply has fallen from 30 kg. to 25 kg. But still the supply is greater than demand. So the price will further fall and when it falls to Rs 4 per kg., we find that the demand and supply are both equal. Buyers are willing to buy 20 kg. of potatoes and sellers are willing to sell 20 kg. of potatoes at this price. This is the equilibrium price.

Let us take another situation where initially the price quoted by the sellers is such that the market demand at that price is greater than the market supply. In such a situation how is the equilibrium price reached? Suppose the price of potatoes quoted by the sellers is Rs . 2 per kg. and the supply is 10 kg. as shown in table. At this price the demand for potatoes is for 30 kg. Obviously the demand is more than supply. This would result in a competition among the buyers for buying
the quantity each one intends to buy. This would lead to a rise in price. Suppose the price rises from Rs. 2 to Rs. 3 per kg. Now at this price the demand for potatoes falls from 30 kg. to 25 kg., but its supply increases from 10 kg. to 15 kg. Still the demand is greater than the supply though the gap between the two is reduced. This would lead to a further rise in price and when the price rises to Rs. 4 per kg., we find that the demand and supply are equal, each is equal to 20 kg. Rs. 4 per kg. is thus the equilibrium price at which the demand and the supply of potatoes are equal. You must have now understood the process by which the equilibrium price of a commodity is reached.

Now let us show the determination of equilibrium price with the help of a demand curve and a supply curve. We plot the market demand schedule and market supply schedule given in table on a graph paper and get the figure.

In the figure DD is the demand curve and SS is the supply curve. Demand curve is downward falling from left to right showing the inverse relationship between price of potatoes and its quantity demanded. Supply curve is upward rising from left to right showing the direct relationship between the price of potatoes and its quantity supplied. The demand curve and the supply curve intersect at point A. As a point on demand curve point A shows that at the price of Rs. 4 per kg. the quantity demanded is 20 kg. As a point on the supply curve point A shows that at the price of Rs. 4 per kg. the quantity supplied is 20 kg. So at the price of Rs. 4 per kg., the quantity demanded and the quantity supplied are equal. Thus point A indicates the equilibrium price and the equilibrium quantity (when quantity demanded and quantity supplied are same at a price then it is called equilibrium quantity).

Thus we can say that equilibrium price of a commodity is determined by the point of intersection of the demand curve and the supply curve of the commodity.
Cost

Introduction

In this lesson you will learn about the various elements of cost used in microeconomics.

Objectives

After going through this lesson, you will be able to:

● distinguish between the meaning of cost as used in business and as used in micro economics;

● explain the meaning and importance of various concepts of cost such as, paid out cost, imputed cost and normal profit in micro economics;

● distinguish between fixed costs and variable costs and explain the concepts of total costs, average cost and marginal cost;

● Find out total cost from marginal cost and average cost and explain the importance of these costs for a producer; find out total fixed cost, total variable cost, average fixed cost, average variable cost, total average cost and marginal cost.

One Mark Questions

1. Total Cost

Total cost of a given volume of output is the sum of the monetary payments, imputed cost and normal profit. In the previous section, we have learnt that production costs are classified into fixed costs and variable costs.

These two costs together make total cost.

\[ TC = TFC + TVC \]
2. **Average Cost**

   ATC is obtained by dividing the Total Cost (TC) by the total units of output:

   \[
   \text{ATC} = \frac{\text{TC}}{\text{Units of output}}
   \]

3. **Average Fixed Cost**

   Average fixed cost is obtained by dividing total fixed cost by the number of units of output produced:

   \[
   \text{AFC} : \frac{\text{TFC}}{\text{Units of output}}
   \]

   Fixed cost by definition remains fixed whatever is the output. Therefore, as production expands, the total fixed cost is distributed over larger lumbers of units.

4. **Average Variable Cost**

   Average variable cost is obtained by dividing the total variable cost by the units of output produced.

   \[
   \text{AVC} = \frac{\text{TVC}}{\text{Units of output}}
   \]

5. **Marginal Cost**

   The concept of marginal cost is a very important concept in microeconomics. The word marginal should be taken to mean additional. For example, marginal cost is the additional cost. Marginal cost of producing a level of output is the addition to the total cost caused by producing an extra unit of output.

6. **Money Cost**

   Normally in business, the accountant takes into account only the actual money expenditure as cost. So in business the cost is normally the “paid out cost’ only

7. **Imputed Cost**

   Compensation for the use of self-owned and self-employed Resources.

8. **Normal Profit**

   Normal profit is the reward, which an entrepreneur must receive for the risk and uncertainties he bears in the production of a commodity.
Two Marks Questions

1. Money Costs

A firm purchases the services of assets like building, material/machine etc. It pays hiring charges for building, normally termed as rent. It employs workers, accountant, manager etc. and pays wages and salaries to them. It borrows money and pays interest on it. It purchases raw material, pays electricity bills and makes such other payments. All such actual payments, on purchasing and hiring different goods and services used in production are called ‘paid out costs’ or ‘explicit cost’.

2. Explicit Costs

A firm purchases the services of assets like building, material/machine etc. It pays hiring charges for building, normally termed as rent. It employs workers, accountant, manager etc. and pays wages and salaries to them. It borrows money and pays interest on it. It purchases raw material, pays electricity bills and makes such other payments. All such actual payments, on purchasing and hiring different goods and services used in production are called’ paid out costs’ or ‘explicit cost’.

3. Fixed Costs

Examples of fixed costs are rent on factory building, interest on money borrowed, property taxes and salaries of permanent employees, like manager, watchman etc. All these costs remain the same whether the output is small or large or zero. Fixed costs are also called ‘overhead costs’. Thus fixed costs are costs that do not vary with changes in the level of output. They remain fixed whatever may be the level of output.

4. Variable Costs

Costs, which change with every change in output, are called variable costs. Examples of variable costs are cost on raw materials used in production, casual labour employed, power consumed in production etc. These costs are incurred only when actual production takes place. When output is increased, expenditure on raw material and labour also increases.

5. Total Cost

Total cost of a given volume of output is the sum of the monetary payments, imputed cost and normal profit. In the previous section, we have learnt that production costs are classified into fixed costs and variable costs.

These two costs together make total cost.

\[ TC = TFC + TVC \]

Where TC stands for total cost, TFC for total fixed cost and TVC for total variable cost.
When a production unit is established but there is no production, total cost is the same as the total fixed cost. As production takes place, variable cost is also incurred and so total cost changes. Total cost increases as the quantity of output rises.

6. **Average Fixed Cost**

Average fixed cost is obtained by dividing total fixed cost by the number of units of output produced:

\[
\text{AFC} = \frac{\text{TFC}}{\text{Units of output}} = \frac{TFC}{X}
\]

Fixed cost by definition remains fixed whatever is the output. Therefore, as production expands, the total fixed cost is distributed over larger numbers of units. As a result, average fixed cost falls with every increase in output. For example, the total fixed cost of our producer is Rs. 60 when he produces one unit. Average fixed cost is Rs. 60 (Rs. 60 + 1). However, if the production is increased to 2 units, average fixed cost is Rs. 30 (Rs.60+2). When it produces 3 units it is Rs. 20 (Rs.60-5-3). Therefore, the larger the output the lower will be the average fixed cost.

7. **Average Variable Cost**

Average variable cost is obtained by dividing the total variable cost by the units of output produced.

\[
\text{AVC} : \frac{\text{TVC}}{\text{Units of output}}
\]

When output of pen is one unit TVC is Rs. 60, so AVC will be Rs. 60 (Rs 60+1). TVC at 2 units of pens is Rs. 100. Therefore, AVC at two units of output of pen is Rs. 50 (Rs. 100:2) and so on.

8. **Average Cost**

ATC is obtained by dividing the Total Cost (TC) by the total units of output:

\[
\text{ATC} = \frac{\text{TC}}{\text{Units of output}}
\]

We can also derive ATC by adding both AFC and AVC.

\[
\text{AC} = \frac{\text{TC}}{Q} \quad \text{(OR)}
\]

\[
\text{ATC} = \text{AFC} + \text{AVC}
\]

Check up from the schedule that ATC can also be calculated in this manner.

9. **Marginal Cost**

The concept of marginal cost is a very important. It is an additional cost in microeconomics. Marginal cost of producing a level of output is the addition to the total cost caused by producing an extra unit of output.

\[
\text{MC} = \frac{\Delta \text{TC}}{\Delta Q}
\]
4 Marks Questions

1. What is “imputed cost”? How is it different from paid out costs?

Ans. The entrepreneur himself provides many a times we find that all inputs are not always bought or hired by the producer from the market some of the inputs. He may use his own building. He may invest his own money in the business. He may be the manager of his own firm. A farmer may cultivate his own land. Now if a producer had rented out his building to another production unit he would have earned rent. In the same way, if he had invested his money in some other business, it would have earned him a certain amount of interest or dividend.

Similarly, if he had worked for another factory as a manager he would have earned a salary. He is not able to receive these rewards (rent for his building, interest on his money and salary for his services) because he has contributed them for his own business. However, he must be compensated for the use of these self-owned and self-employed inputs. By employing these inputs in his own business, he has missed the opportunity of earning income on these by using them elsewhere. It is, therefore, a cost to the producer we can make an estimate of these costs based on their prevailing market prices. Let us term such costs as ‘imputed costs’ (to distinguish them from paid out cost). One example of such cost is the imputed rent of the self-owned factory building. It can be taken as equivalent to the actual rent paid for a similar type of building. Similarly, we can find out imputed interest and imputed wages.

2. Explain the relationship between output and Total cost

Total cost of a given volume of output is the sum of the monetary payments, imputed cost and normal profit. Production costs are classified into fixed cost and variable cost.

These two costs together make total cost.

\[ TC = TFC + TVC \]

Where TC stands for total cost, TFC for total fixed cost and TVC for total variable cost.

When a production unit is established but there is no production, total cost is the same as the total fixed cost. As production takes place, variable cost is also incurred and so total cost changes. Total cost increases as the quantity of output rises. The change in total cost equals the change in total variable cost. This is because total fixed cost remains constant at all quantities of output. Change in total cost is due to changes in variable cost only. The calculation of total cost can be explained through the following example:
Table Cost Schedule of a Pen Producer

<table>
<thead>
<tr>
<th>No. of pens in units (one unit = 100 pens)</th>
<th>TFC Rs.</th>
<th>TVC Rs.</th>
<th>TC (TFC+TVC) Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>60</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>1</td>
<td>60</td>
<td>60</td>
<td>120</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>100</td>
<td>160</td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>150</td>
<td>210</td>
</tr>
<tr>
<td>4</td>
<td>60</td>
<td>260</td>
<td>320</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
<td>390</td>
<td>450</td>
</tr>
</tbody>
</table>

The table shows that total fixed cost is Rs. 60 and remains the same at all quantities of output. The variable cost equals Rs. 60 when one unit is produced, increases to Rs. 100 at 2 units and to Rs. 150 at 3 units and so on. As the total cost is the sum of total fixed cost and total variable cost, it can be obtained by adding them at various quantities of output. For example, when one unit is produced total cost is Rs. 120 (Rs. 60+Rs. 60) and when two units are produced, it works out to be Rs. 160 (Rs. 60+Rs. 100). Thus, we find that total cost varies directly with the level of output.

3. **Classify the following expenditure into money costs and imputed costs:**

   a) A farmer growing seeds and using for cultivation : Imputed

   b) Use of chemical fertilizers by a farmer: Money

   c) Use of the services of a tractor owned by the farmer : Money

   d) Farming by the farmer who owns the land : Imputed

   e) Unpaid family labour used on farms : Imputed

   f) Transport charges : Money

   g) Interest on borrowings : Money

   h) Wages paid : Money

   i) Use of own building for production : Imputed

   j) Excise duty : Imputed
4. **Classify the following expenditure into fixed cost and variable cost:**

i) Rent of the factory building : Fixed

ii) Wages to watchman : Fixed

iii) Annual licensing fee of factory premises : Fixed

iv) Raw material : Fixed

v) Rent of the agricultural land : Variable

vi) Seeds : Variable

vii) Fertilizers : Variable

viii) Interest on borrowings : Variable

ix) Excise duty : Fixed

x) Transport charges. : Variable

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8 Marks Questions

1. **Explain the various elements of cost in micro economics**

In microeconomics there are three types of production costs

(a) Direct cost / Explicit cost

(b) Indirect cost / Implicit cost

(c) Normal profit

In business, direct costs alone considered as cost.

For example let us examine, the total cost incurred by a farmer. He needs labour, equipment, water, seeds, tractor, fuel etc. to cultivate the land. Some of these may be own and some other are hired.

Total cost elements for a farmer

\[
\text{Total cost of produce (Rice) = Money cost + Implicit + Normal Profit}
\]

1. Fertilizers 1. Own land The minimum
2. Insecticides 2. His own well remuneration
3. Wages for labour 3. His own seeds which must be
4. Rent for equipment 4. His and his family earned members’ labour

5. Payments for insurance premium
6. Payments of taxes to Govt.
7. Payments of electricity used
2. Calculate total cost, average total cost, average fixed cost, average variable cost and marginal cost, on the basis of the following information

<table>
<thead>
<tr>
<th>Output</th>
<th>TFC (units)</th>
<th>TVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>60</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>180</td>
</tr>
<tr>
<td>4</td>
<td>60</td>
<td>300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Cost (Rs)</th>
<th>AFC</th>
<th>AVC</th>
<th>ATC</th>
<th>MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFC+TVC</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>60</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>110</td>
<td>60</td>
<td>50</td>
<td>110</td>
<td>50</td>
</tr>
<tr>
<td>150</td>
<td>30</td>
<td>45</td>
<td>75</td>
<td>40</td>
</tr>
<tr>
<td>240</td>
<td>20</td>
<td>60</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>360</td>
<td>15</td>
<td>75</td>
<td>90</td>
<td>120</td>
</tr>
</tbody>
</table>

3. Suppose that TFC is Rs. 120, find out
   (i) TC and TVC
   (ii) MC

   from the following data:

<table>
<thead>
<tr>
<th>Output (in units)</th>
<th>Average total cost (in rupees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>240</td>
</tr>
<tr>
<td>2</td>
<td>160</td>
</tr>
<tr>
<td>3</td>
<td>140</td>
</tr>
<tr>
<td>4</td>
<td>160</td>
</tr>
<tr>
<td>5</td>
<td>180</td>
</tr>
<tr>
<td>Output (units)</td>
<td>ATC (Rs.)</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------</td>
</tr>
<tr>
<td>1</td>
<td>240</td>
</tr>
<tr>
<td>2</td>
<td>160</td>
</tr>
<tr>
<td>3</td>
<td>140</td>
</tr>
<tr>
<td>4</td>
<td>160</td>
</tr>
<tr>
<td>5</td>
<td>180</td>
</tr>
</tbody>
</table>

4. Complete the following table:

<table>
<thead>
<tr>
<th>Output (units)</th>
<th>Total fixed cost</th>
<th>Total ATC cost</th>
<th>Marginal AFC Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>20</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>38</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>44</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>49</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output (units)</th>
<th>Total fixed cost</th>
<th>Total cost</th>
<th>Marginal cost</th>
<th>ATC</th>
<th>AFC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8</td>
<td>8</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>20</td>
<td>12</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>30</td>
<td>10</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>38</td>
<td>8</td>
<td>13</td>
<td>2.7</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>44</td>
<td>6</td>
<td>11</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>49</td>
<td>5</td>
<td>10</td>
<td>1.6</td>
</tr>
</tbody>
</table>
Introduction

In this lesson, you will learn about the concept of revenue. Let us remind ourselves that we are studying the concepts of cost and revenue because the aim is to know how profit is calculated in microeconomics. You know by now that the aim of a producer generally is to earn maximum possible profit. It is in this context that we study the various measures of revenue.

Objectives

After going through this lesson, you will be able to:

- explain the term revenue;
- explain the terms total revenue, average revenue, and marginal revenue;
- find out differentiate between revenue and profit

One Mark Questions

1. **Formula for Total revenue**

   \[ TR = Q \times P \]

   where \( TR \) = Total Revenue, \( Q \) = Quantity produced and sold, and \( P \) = Price per unit of the product

2. **Formula for Average revenue**

   Average revenue is simply the average receipt of a producer from the sale of a product, it is obtained by dividing TR by the total quantity (Q) produced and sold.

   \[ AR = TR/Q \]
3. **Formula for Marginal revenue**

Marginal revenue is also defined in the same manner. Addition to TR, when sales increase by one unit, it is termed as marginal revenue.

**Two Marks Questions**

1. **Total Revenue**

Total revenue of a product is the total receipt from the sale of output of that product. It is obtained by multiplying the quantity produced and sold by the price per unit of the product.

\[
TR = Q \times P
\]

Where TR = Total Revenue, Q = Quantity produced and sold, and P Price per unit of the product

2. **Average Revenue**

Average revenue is simply the average receipt of a producer from the sale of a product. It is obtained by dividing TR by the total quantity (Q) produced and sold.

\[
AR = \frac{TR}{Q} \text{ Therefore, } AR = P
\]

3. **Marginal Revenue**

Marginal revenue is also defined in the same manner. Addition to TR, when sales increase by one unit, is termed as marginal revenue.

\[
MR = \frac{\Delta TR}{\Delta Q}
\]

**4 Marks Questions**

1. **Complete the following table**

<table>
<thead>
<tr>
<th>Output</th>
<th>Average Revenue</th>
<th>Total Revenue</th>
<th>Marginal Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 8 Marks Questions

1. Prepare an imaginary TR, AR and MR schedule in a market situation in which the firm is able to sell more only by reducing the price of the product

<table>
<thead>
<tr>
<th>Output</th>
<th>Average Revenue</th>
<th>Total Revenue</th>
<th>Marginal Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>23</td>
<td>46</td>
<td>21</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>63</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>19</td>
<td>76</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>90</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>90</td>
<td>0</td>
</tr>
</tbody>
</table>

### Marks Questions

2. Fill the following table

<table>
<thead>
<tr>
<th>Output</th>
<th>Price</th>
<th>Average Revenue</th>
<th>Total Revenue</th>
<th>Marginal Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Let us represent the various measures of revenue cm diagram. We take two market situations described in this lesson separately.

(a) Price is constant as more is sold

The following table is based on this situation/

<table>
<thead>
<tr>
<th>Output (in units)</th>
<th>Price (Rs.)</th>
<th>TR (Rs.)</th>
<th>AR (Rs.)</th>
<th>MR (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>200</td>
<td>400</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td>200</td>
<td>600</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>4</td>
<td>200</td>
<td>800</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>5</td>
<td>200</td>
<td>1000</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

Let us draw TR, AR and MR curves based on the above data. We represent 'output' on the X-axis and the 'revenue' on the Y-axis.
We observe the following in the above diagram:

(i) TR curve is upward sloping from left to right. It implies that TR is constantly growing as the output level expands.

(ii) AR curve is paralleled to the X-axis because price is the same at all the levels of output.

(iii) MR curve is also parallel to the X-axis because the price being constant the successive additions to the TR on account of increase in output each time is the same.

(iv) MR and AR curves are same because AR-MR at all the levels of output.

All the above observations are true only in a market situation with price being constant at all the levels of output. If price is not constant then TR, AR and MR curves are of different shapes as shown in the second market situation below:

(b) Price falling as the output increases

The following table is based on this market situation.

Let us draw TR, AR and MR curves based on the above data.

<table>
<thead>
<tr>
<th>Output</th>
<th>Price</th>
<th>Total Revenue</th>
<th>Average Revenue</th>
<th>Marginal Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>90</td>
<td>180</td>
<td>90</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
<td>240</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>70</td>
<td>280</td>
<td>70</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>60</td>
<td>300</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>50</td>
<td>300</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>40</td>
<td>280</td>
<td>40</td>
<td>−20</td>
</tr>
</tbody>
</table>
We observe the following in the above diagram:

(i) TR curve is upward sloping up to 5 units output. It is constant between 5 and 6 units. It is sloping downward from 7 units onwards.

(ii) AR curve is constantly sloping downwards.

MR curve is constantly sloping downwards. It cuts X-axis at the output level of 6 units because at this output MR is zero. Beyond 6 units the MR curve lies below the X-axis because MR is negative.
Profit Maximisation

Introduction

A producer generally wants to earn maximum profits. We have to find out the position of maximum profit for a producer. With the help of the knowledge about costs and revenue, we will try to find out the position of maximum profit for a producer.

Objectives

After going through this lesson, you will be able to:

- explain the concept of profit as used in business;
- explain the concept of normal profit, as an element of cost;
- explain the concept of above-normal or super-normal profit;
- find out the amount of profit at different levels of output, given the data on total cost and total revenue;

One Mark Questions

1. Profits
   
   The excess earned than the expenditure is called profit.

   (Money Cost + Imputed Cost + Normal Profit)

2. Maximum Profits
   
   This is greater than TC (i.e. TR>TC), the level of profit is greater than zero. Since zero profit is the same as normal profit, the ‘greater than zero profit is termed as above normal profit.
3. **Normal Profit**

Profit is defined as the excess of TR over TC. Thus if TR=TC, level of profit is zero. Zero level of profit is also the same as ‘normal profit’. It is because ‘normal profit’ is in the part of TC.

**Two Marks Questions**

1. **What do you mean by normal profit**

Profit is defined as the excess of TR over TC. Thus if TR=TC, level of profit is zero. Zero level of profit is also the same as ‘normal profit’. It is because ‘normal profit’ is the part of TCU. In a situation when TR = TC, the producer has realised his minimum expectations in full because he has received back the entire cost incurred by him in full. Therefore, in microeconomics, zero profit is the same as normal profit.

**4 Marks Questions**

1. **Explain the meaning of the term ‘profit’. Distinguish between ‘above normal profit’ and ‘normal profit’**.

The word ‘profit’ is used in many different ways. To understand the different concepts of profit used let us take an example. Suppose a carpenter decides to manufacture wooden tables with his own labour, own capital and in his own house, and manufactures 10 such tables in a week. He must have spent some money on the purchase of wood and other material. This expenditure incurred by the carpenter is his money cost of making these tables. Let such cost be Rs. 600 and these tables are sold for Rs. 1,300. The carpenter will think that he has earned a profit of Rs. 700 (Total revenue - Money cost). This is how the concept of profit is used in business or accounting sense. However, the carpenter has not calculated the total cost of making tables; he has taken into account only the money cost. He has used his own labour, his own capital and his own house. In addition, each one of these inputs has a cost, which is called imputed cost. You have already learnt in lesson No. 18 the meaning of imputed cost.

**Normal (or zero) Profit** : Profit is defined as the excess of TR over TC. Thus if TR=TC, level of profit is zero. Zero level of profit is also the same as ‘normal profit’. It is because ‘normal profit’ is the part of TC. In a situation when TR=TC, the producer has realised his minimum expectations in full because he has received back the entire cost incurred by him in full. Therefore, in microeconomics, zero profit is the same as normal profit.
Lift above Normal (or more than zero) Profit:

The profits are greater than TC (i.e. \( TR > TC \)), the level of profit is greater than zero. Since zero profit is the same as normal profit, the 'greater than zero profit is termed as above normal profit. So a (positive-greater than zero) profit is the same as above normal profit.

2. **Explain with the help of marginal revenue and marginal cost data how a producer chooses the maximum profit position.**

   **MC=MR. Position: An Additional Condition**

   However, the equality of MR. and MC alone does not ensure maximum profit to a producer. The equality must be at such a level of output from which no profitable movement in terms of changing the level of output is possible. It may be possible that the MR and MC will be equal at two different levels-of output. In such a situation, that level of output would be chosen from which any change would reduce the total profit. In other words, profits would be maximised when MR is equal to MC at such a level of output beyond which MR<MC and prior to that MR>MC.

   To sum up, we can say that level of output will give maximum profit to the producer at which the following two conditions are fulfilled:

   (i) MR must be equal to MC.
   
   (ii) At any level of output greater than the one at which \( MR = MC \) MR should be less than MC and at any level of output less than the one at which \( MC = MR \), MR should be greater than MC.
   
   (iii) When \( MR < MC \)

   If produces goes on increasing output even after \( MR = MC \), his marginal revenue losses. Hence, he tries to stop his production at a stage where \( MR = MC \).

**8 Marks Questions**

1. **Explain with the help of total revenue and total cost data how a producer chooses the maximum profit position**

   Once a producer has selected a commodity he would like to produce and sell, we have to find out how much quantity of this commodity he should produce and sell so that he gets maximum profit. For this we must get the information about the total cost and total revenue at different levels of output, the table imaginary figures are given on the level of output, TC and TR at each level of output.
In lesson No. 19 on “revenue”, we have pointed out two situations. In one situation, a producer is in a position to sell any quantity at a given price. In another situation a producer is able to sell more only at a lower price. Here we are taking the second situation. However, it would make no difference in finding out the maximum profit position if we take the first situation.

<table>
<thead>
<tr>
<th>Output (units)</th>
<th>Price (Rs.)</th>
<th>TR (Rs.)</th>
<th>TC (Rs.)</th>
<th>Profit (Rs.) (TR-TC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>50</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>45</td>
<td>90</td>
<td>70</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>40</td>
<td>120</td>
<td>90</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>35</td>
<td>140</td>
<td>120</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>150</td>
<td>160</td>
<td>-10</td>
</tr>
</tbody>
</table>

Here it is necessary to point out that even if we had taken the first situation it would have made no difference. The process of locating the maximum profit position remains tiles it. In this situation as output rises TR increases but every successive addition is less than the previous addition because of fall in the price. So the producer earns maximum profit of Rs. 30 when he produces only 3 units and not any other level of output. Thus, we take the excess of TR over TC at each level of output and select that level of output at which this profit is maximum.

This method of finding the position of maximum profit can be understood more easily with the help of bar charts.

The unshaded rectangles show the TR at different levels of output and the shaded rectangles show the TC at different levels of output. We observe that up to 4 units for each level of output, the area of unshaded rectangle is more than the area of shaded rectangle. In case of 5th unit
shaded rectangle (TC) is higher than unshaded rectangle (TR). In figure, we have simply represented TR and TC. Excess of TR over TC is represented separately below in figure. We show below the difference between the areas of unshaded and shaded rectangles for each level of output.

![Graph showing profit and output levels]

Profits area of each of these rectangles shows above-normal profit. The rectangle for fifth unit of output is below the X-axis and show ‘position of loss’. Since the producer wants to earn maximum profit, he will select that rectangle whose area is maximum and is above the X-axis. Such a rectangle in the figure 20.2 is the one with dotted shade. This shows that if the producer produces 3 units, he will get maximum profit equal to Rs. 30. If he produces more or less than 3 units, his profit would be less than Rs. 30.

To sum up, we can say that a producer will compare the total revenue and total cost at each level of output and will decide to produce that level of output at which the excess of TR over TC is maximum, as this will give him maximum profit.

Profit is maximum when excess of total revenue over the total cost is maximum.

2. **Is it enough to say that profit is maximised when MC = MR? Give reasons for your answer.**

MC = MR Position : An Additional Condition

However, the equality of MR and MC alone does not ensure maximum profit to a producer. The equality must be at such a level of output from which no profitable movement in terms of changing the level of output is possible. It may be possible that the MR and MC may be equal at two different levels of output. In such a situation, that level of output would be chosen from which any change would reduce the total profit. In other words, profits would be maximised when MR is equal to MC at such a level of output beyond which MR<MC and prior to that MR>MC.
<table>
<thead>
<tr>
<th>Output</th>
<th>Marginal Revenue</th>
<th>Marginal Cost</th>
<th>Maximum Profit</th>
<th>Comparisation of MR, MC</th>
<th>Producers behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>45</td>
<td>5</td>
<td>MR &gt; MC</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>49</td>
<td>40</td>
<td>9</td>
<td>MR &gt; MC</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>47</td>
<td>42</td>
<td>5</td>
<td>MR &gt; MC</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>45</td>
<td>45</td>
<td>0</td>
<td>MR = MC</td>
<td>Equilibrium</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
<td>50</td>
<td>-10</td>
<td>MR &lt; MC</td>
<td>Excess production, don't accepts</td>
</tr>
</tbody>
</table>

To sum up, we can say that level of output will give maximum profit to the producer at which the following two conditions are fulfilled:

1. MR must be equal to MC.

2. At any level of output greater than the one at which MR = MC, MR should be less than MC and at any level of output less than the one at which MC = MR, MR should be greater than MC.
The Government Budgeting

Introduction

You may be knowing that government’s budget in India is normally presented in the month of February every year in the Parliament. You must have also observed that many days before the budget is presented, there are speculations all round by the people about the expected changes in taxes. However, the fact is that the government budget is much more than this. Besides changing tax rates government budget is a comprehensive exercise in allocating expenditure and planning the sources of financing this expenditure. This lesson aims at describing the structure of a government’s budget and the acts behind the exercise of framing this budget.

Objectives

After going through this lesson you will be able to:

- explain the meaning of a government budget;
- state the components of government budget;
- explain the meaning and composition of revenue receipts and capital receipts;
- distinguish between capital and revenue expenditure;
- distinguish between plan and non-plan expenditure;
- explain the concepts of budgetary deficit and fiscal deficit;
- explain the sources of financing deficits;
- Explain the meaning and objectives of budgetary policy.
One Mark Questions

1. **Government Budget**
   A government budget is a statement of expected expenditure of the government and the sources of financing this expenditure during a financial year.

2. **Revenue Receipts**
   Revenue receipts are current income receipts from all sources. The main forms of such receipts are taxes, profits of public enterprises, grants, etc. Capital receipts constitute borrowing by the government.

3. **Capital Receipts**
   There are three major sources of capital receipts of central government: (a) Borrowings, (b) Recovery of loans and (c) Resale of shares of public sector undertaking.

4. **Capital Expenditure**
   Capital expenditure is the expenditure on creation of assets. Such expenditure is incurred on items like construction of buildings, roads, bridges, canals, capital equipments etc.

5. **Revenue Expenditure**
   Revenue expenditure is the expenditure on items, which do not lead to creation of any asset it is incurred on items like payment of salaries, maintenance of property, providing free services to people, etc.

6. **Plan Expenditure**
   India has adopted the path of planning to achieve economic development. Provision of plan expenditure in the budget is called plan expenditure.

7. **Non-plan Expenditure**
   Government also makes provisions for spending on its routine functions of looking after the administration of the country. It has to spend on police and judiciary, military. Besides there are routine types of Expenditures on various government departments, legislatures, provision of public utility services: like water supply, sanitation, etc. All such expenditures are called non-plan expenditures.

8. **Budget Deficit**
   This concept is based on all receipts and all expenditures. Budgetary deficit is defined as the excess of all budgeted expenditures over all budgeted receipts. Or,
   
   \[ \text{Budgetary deficit} = \text{Total budget expenditure} - \text{Total budget receipts} \]
9. **Fiscal Deficit**

This concept of deficit does not take into account all types of receipts. It does not take into account borrowings. As such fiscal deficit is defined as the excess of all expenditures over total receipts reduced by borrowings.

10. **Budget Policy**

A budget is a statement of expenditures and receipts of the government relating to a financial year.

**Two Marks Questions**

1. **Government Budget**

A government budget is a statement of its expected expenditure of the government and the sources of financing this expenditure during a financial year. Such an exercise is undertaken much before the financial year starts. The statement details all expenditures to be incurred during the coming financial year and the sources of meeting this expenditure.

2. **Revenue Receipts**

Taxes have been the traditional source of government’s income since time immemorial. During the present century another source of government’s income emerged. Government has started participating in production by opening enterprises of their own. Such enterprises are called public enterprises. Railways, nationalized banks, State Trading Corporation, Air India, Indian Airlines, are some examples of public enterprises. Profits of public enterprises are a source of income to the government. There is another source in addition to taxation and profits. Government may also get grants from foreign countries.

3. **Non-tax Revenues**

Non-tax revenue is the income accruing to the government from sources other than tax. The three major sources of the non-tax revenue of the central government in India are:

(i) Interest receipts

(ii) Dividends and profits

(iii) External grants

4. **Capital Receipts**

There are three major sources of capital receipts of central government: (a) Borrowings, (b) Recovery of loans and (c) Resale of shares of public sector undertaking.
5. Plan and non plan expenditures

India has adopted the path of planning to achieve economic development. Five year plans are prepared and implemented. Provisions are made every year in the government budget about expenditures to be incurred every year according to the priorities laid down in the five-year plans. Provision of such expenditure in the budget is called plan expenditure.

Besides, government also makes provisions for spending on its routine functions of looking after the administration of the country. It has to spend on police and judiciary, military. Besides there are routine types of expenditures on various government departments, legislatures, provision of public utility services: like water supply, sanitation, etc. All such expenditures are called non-plan expenditures.

6. Deficit Financing

There are three sources by which the Government can finance the deficit. These are:

(a) Borrowings from public and foreign governments.
(b) Withdrawing from its cash balances with Reserve Bank of India.
(c) Borrowings from the Reserve Bank of India.

7. Fiscal Deficit

This concept of deficit does not take into account all types of receipts. It does not take into account borrowings. As such fiscal deficit is defined as the excess of all expenditures over total receipts reduced by borrowings. Or,

\[
\text{Fiscal deficit} = \text{Total budget expenditure} - (\text{Total budget receipts borrowings})
\]

4 Marks Questions

1. What do you mean by revenue receipts?

Taxes have been the traditional source of government’s income since time immemorial. During the present century another source of government’s income emerged. Government has started participating in production by opening enterprises of their own. Such enterprises are called public enterprises. Railways, nationalized banks, State Trading Corporation, Air India, Indian Airlines, are some examples of public enterprises. Profits of public enterprises are a source of income to the government. There is another source in addition to taxation and profits. Government may also get grants from foreign countries. All these sources are called revenue receipts and classified into:

(a) Tax revenue, and (b) Non-tax revenue
(A) **Tax revenue**

Tax is a legally compulsory payment imposed on the people by the government. You must have heard about the taxes like income tax, sales tax, excise duty etc. Income tax is imposed on those who earn income. We earn income in the form of wages, salaries, rent, interest and profit.

(B) **Non-tax revenue**

Non-tax revenue is the income accruing to the government from sources other than tax. The three major sources of non-tax revenue of the central government in India are:

(i) **Interest receipts**: Central government departments give loans to people, enterprises, local governments etc. and receive interest in return.

(ii) Dividends and profits: Central government owns production units. These are called public sector enterprises who produce goods and services like private enterprises do. Some examples are Railways, Air India, Mahanagar Telephone Nigam, nationalized banks etc. Central government is either shareholder or owner of such enterprises and receives dividends and profits in return.

(iii) **External grants**: Government departments receive financial help from foreign governments in the form of donations, gifts, etc.

2. **Explain the concept of Direct Taxes Vs Indirect Taxes**

We find that the two taxes are different with respect to (a) the liability of payment of tax to the government and (b) actual burden of the tax.

In case of income tax the liability of payment and the burden both lie on the same person. In this case the burden of tax cannot be shifted to other persons. Such a tax is called **direct tax**.

In case of sales tax the liability of payment to government lies on the seller while the actual burden of tax lies on the buyer. The buyer pays sales tax to the seller who in turn pays the same to the government. Such a tax is called **indirect tax**. In case of such a tax the burden is shifted to other persons. All taxes on production are indirect taxes because the producer tries to recover these taxes from the buyers.

All taxes are thus broadly classified into (a) direct taxes and (b) indirect taxes. Main examples of such taxes in India are:

**Direct taxes:**

1. Corporation tax: Tax on profits of companies
2. Income tax: It is a tax on individual's income.
3. Interest tax: It is a tax on income from interest.
4. Expenditure tax: It is a tax on expenditure incurred.

5. Wealth tax: It is a tax on wealth of individuals.

6. Gift tax: It is a tax on gifts required.

**Indirect taxes**

1. Custom duties: These are taxes on imports and exports.

2. Union excise duties: These are taxes on manufacturing goods imposed by the

3. Service tax: It is a tax on producing services.

4. Sales tax: It is a tax on sales

3. **What do you mean by capital receipts?**

   There are three major sources of capital receipts of central government: (a) Borrowings, (b) Recovery of loans and (c) Resale of shares of public sector undertaking.

   **(a) Borrowings:**

   Central government borrows from the sources:

   (i) **Domestic borrowings:** These are the borrowings from within the country. Government borrows from the financial market by issuing government securities and treasury bills. Government also borrows from people through the various deposit schemes like Public Provident Fund, Small Saving Schemes, Indira Vikas Patras, Kisan Vikas Patras, National Saving Scheme, National Saving Certificates, etc. The money deposited in these schemes is loan to the government.

   (ii) **External assistance:** These are the borrowings from foreign countries.

   **(b) Recovery of Loans:**

   Central government gives loans to state and local governments in the country. Recovery of these loans constitute capital receipts in the budget.

   **(c) Resale of Shares of Public Sector Undertaking:**

   It is a remit source of capital receipts. Until recently central government owned 100 percent shares of public sector undertakings. It means that the entire investment in these enterprises was made by the central government. In 1991, the central government adopted the policy of privatizing these undertakings. As first step towards implementation of the policy the central government has started reselling the shares held by it to the general public and financial institutions. Resale of such share by government is termed as 'disinvestment in shares'.
4. **Distinguish between Plan expenditure and Non-plan expenditure**

India has adopted the path of planning to achieve economic development. Five year plans are prepared and implemented. Provisions are made every year in the government budget about expenditures to be incurred every year according to the priorities laid down in the five year plans. Provision of such expenditure in the budget is called plan expenditure.

Besides, government also makes provisions for spending on its routine functions of looking after the administration of the country. Planning or no planning such an expenditure is a must for every country. No government can escape from its basic function of protecting the lives and properties of the people. It has to spend on police and judiciary to perform these functions. Government also cannot escape from its function of protecting the country from foreign invasions. For this it has to spend on military. Besides there are routine types of expenditures on various government departments, legislatures, provision of public utility services: like water supply, sanitation, etc. All such expenditures are called non-plan expenditures.

5. **Explain the concepts of Fiscal Deficit and Budget Deficit.**

**Budgetary Deficit**

This concept is based on all receipts and all expenditures. Budgetary deficit is defined as the excess of all budgeted expenditures over all budgeted receipts. Or,

\[ \text{Budgetary deficit} = \text{Total budget expenditure} - \text{Total budget receipts} \]

The above measure takes into account both revenue and capital receipt and both revenue and capital expenditures. For example, in the central government’s budget of 1995-96, the total expenditure was Rs. 172 thousand crores while total receipts were Rs. 167 thousand crores. It means that budgetary deficit was around Rs. 5 thousand crores. (=172-167). It means that the Central government’s total receipts were falling short of its total expenditure by Rs. 5,000 crores.

**Fiscal Deficit**

This concept of deficit does not take into account all types of receipts. It does not take into account borrowings. As such fiscal deficit is defined as the excess of all expenditures over total receipts reduced by borrowings. Or,

\[ \text{Fiscal deficit} = \text{Total budget expenditure} - \text{Total budget receipts net of borrowings} \]

6. **What are the various sources of Financing Deficit**

There are three sources by which the Government can finance the deficit. These are:

(a) Borrowings from public and foreign governments.

(b) Withdrawing from its cash balances with Reserve Bank of India.

(c) Borrowings from the Reserve Bank of India.
To finance its expenditure government likes to borrow from public rather than withdraw cash balances or borrow from the Reserve Bank of India? The reason is found on the effects on money supply in the country. Borrowing from public has no effect on money supply in the country. When government borrows, money is transferred from the public to the government. The net effect on total money supply in the country is nil.

On the other hand withdrawals from cash balances held in Reserve Bank and borrowing from Reserve Bank leads to increase in money supply. Any money that flows out of Reserve Bank of India leads to increase in money supply. This increase in money supply in turn may lead to rise in prices and may create many problems in the economy. As such government will like to use this source only when it is forced to do so and when no other option of financing is left.

It should not be taken to mean that borrowing from public creates no problems. It may create problems but not that serious as arise from borrowing from the Reserve Bank of India. As we have already pointed out earlier borrowing from public raises liability of government in two ways. First, government has to repay back loans in future. Second, government has to pay interest on these loans. Government generally borrows from the public in the hope that it will be able to raise additional resources in the near future and pay back loans and interest out of these. If government fails to raise additional resources in future even borrowing from public may create problems.

8 Marks Questions

1. **What do you mean by Government budget? Prepare a Model budget.**

A government budget is a statement of expected expenditure of the government and the sources of financing this expenditure during a financial year. Such an exercise is undertaken much before the financial year starts. The statement details all expenditures to be incurred during the coming financial year and the sources of meeting this expenditure.

Governments at all levels, central, state or local, prepare budgets. Government takes decisions on behalf of the people. It is, therefore, accountable to the people through legislatures, parliament, civic bodies etc. The budget is prepared keeping in view the general policy of the government aimed at the welfare of the people. Some of the objectives may be to provide basic facilities, raise production, reduce unemployment, control price level, and reduce inequalities in income and wealth. Items of expenditure and the sources of financing are planned keeping in mind these objectives. Implementation of government policies through budget formulation is termed as fiscal policy or budgetary policy. In brief, the main aspects of a government budget are:

(1) It is a statement of expected expenditure and sources of financing this expenditure.

(2) It relates to a financial year.

(3) Expenditure and sources of finance are planned in accordance with declared policy objectives of the Government.
COMPONENTS OF GOVERNMENT BUDGET

(a) **Structure of a budget**

The basic structure of a government budget is nearly the same at all levels of government. The items of expenditure, the weight age given to different items and the sources of finance may differ from budget to budget. In this section we will explain the structure of the budget as prepared by the central government in India. As reference we take the budget for the year 2010-11.

Budget Estimates of Central Government (2010-11) (thousand crores of Rupees)

<table>
<thead>
<tr>
<th>Receipts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Revenue receipts</strong></td>
<td></td>
</tr>
<tr>
<td>(a) Tax revenue (net)</td>
<td>74</td>
</tr>
<tr>
<td>(b) Non-tax revenue</td>
<td>27</td>
</tr>
<tr>
<td>Total (a) + (b)</td>
<td>101</td>
</tr>
<tr>
<td><strong>2. Capital receipts</strong></td>
<td></td>
</tr>
<tr>
<td>(a) Recoveries of loans</td>
<td>7</td>
</tr>
<tr>
<td>(b) Other receipts</td>
<td>7</td>
</tr>
<tr>
<td>(c) Borrowings and other liabilities</td>
<td>52</td>
</tr>
<tr>
<td>Total (a) + (b) + (c)</td>
<td>66</td>
</tr>
<tr>
<td><strong>3. Total receipts (1 + 2)</strong></td>
<td>167</td>
</tr>
</tbody>
</table>

**Expenditure**

<table>
<thead>
<tr>
<th>Expenditure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4. Revenue Expenditure</strong></td>
<td></td>
</tr>
<tr>
<td>(a) Non-plan</td>
<td>107</td>
</tr>
<tr>
<td>(b) Plan</td>
<td>29</td>
</tr>
<tr>
<td>Total (a) + (b)</td>
<td>136</td>
</tr>
<tr>
<td><strong>5. Capital expenditure</strong></td>
<td></td>
</tr>
<tr>
<td>(a) Non-plan</td>
<td>17</td>
</tr>
<tr>
<td>(b) Plan</td>
<td>19</td>
</tr>
<tr>
<td>Total (a) + (b)</td>
<td>36</td>
</tr>
<tr>
<td><strong>6. Total Expenditure (4+5)</strong></td>
<td>172</td>
</tr>
<tr>
<td><strong>7. Budgetary Deficit (= 6-3)</strong></td>
<td>5</td>
</tr>
</tbody>
</table>
The budget has two main parts: (a) Receipts and (b) Expenditures. The lower part of the table records expenditure planned to be incurred on various groups of items during a given year. The upper part records receipts or the planned sources of financing these expenditures. At the aid of the table is recorded budgetary deficit which equals the excess of expenditure over receipts.

2. What are the objectives of Budgetary Policy

A budget is a statement of expenditures and receipts of the government relating to a financial year. As such the Finance Minister has two broad questions before him. What are the items on which government should spend? How to raise resources to finance this expenditure?

Any government would allocate expenditure among different items and select sources of finance in the light of its policy and priorities. The selection of items of expenditure and sources of finance in tune with government’s policies and programmers is what is termed as budgetary policy of the government

Objectives of budgetary policy

The main objectives of any budgetary policy are:

1. Providing effective administration:
   To fulfill this objective government incurs expenditure on police, military, legislatures, courts, government offices etc.

2. Providing infrastructural facilities
   For this the government spends on education, health, sanitation, water and electricity supply, transport, post and telecommunications services, roads, bridges, parks, etc.

3. Providing employment opportunities
   To fulfill this objective government can take many steps. It can open public enterprises. It can provide subsidies to private enterprises to encourage production and employment. It can encourage small scale, cottage and village industries by giving tax concessions, subsidies, grants, loans etc. It can undertake public works programmes like construction of roads, bridges, government buildings etc. to generate employment

4. Ensuring stability in prices
   Government must ensure stability of prices particularly of essential goods and services. It can do so by opening fair price shops, keeping sufficient stock of food grains etc., fixing up of maximum prices of goods needed by common man like cooking gas, electricity, petrol, etc.
5. Reducing inequalities of income

Government can do so by taxing the rich more and spending more on the poor.

6. Promoting economic growth

Government can promote economic growth by setting up basic and heavy industries like steel, chemicals, fertilizers, machine building, etc. These industries are normally not taken up by the private sector because these involve huge amount of investment but the existence of these industries is essential to encourage the opening of other industries.

7. Correcting the balance of payments deficit

Balance of payment is an account, which records receipts and payments with foreign countries. When foreign payments are more than foreign receipts a deficit appears. The cause of this deficit is found in more imports and less exports. To reduce this deficit government can discourage imports by putting heavy taxes on imports and encourage exports through subsidies and tax-incentives.
Money Supply and Its Regulation

Introduction

Money has always been the most sought commodity. We want money because by this we can buy goods and services. Each one of us keeps some amount of money in our pockets, money-drawers, safes and in banks. How much do we keep depends on our needs in terms of day-to-day spending, possibility of some emergency expenditure or merely for the feeling of economic security. The reasons may differ but all individuals, firms and institutions hold some amount of readily available money. By adding up all such holdings, we can have some idea of the total stock of money in a country. The concept of money supply is derived from certain selected holdings of money in a country. This lesson explains this concept as well as how money supply can be increased or decreased.

Objectives

After going through this lesson, you will be able to:

- explain the need for money and its various forms;
- explain how we make money payments;
- state that who issues currency notes and coins in a country;
- explain the lending activity of commercial banks;
- explain who regulates the lending activity of commercial banks;
- explain the components of the nation’s stock of money and money supply;
- explain the need for keeping a check on money supply; explain how central bank regulates money supply.
One Mark Questions

1. National Money Stock

The total stock of money in an economic system has four components:

(1) Notes and coins with public (other than banks)

(2) Notes and coins with commercial banks

(3) Deposits of the commercial banks with the central bank

(4) Demand deposits with commercial banks.

2. National Money Supply

The general definition of money supply is that it consists of those items that are actually used for transactions, to buy and sell things and make other payments. It includes two of the four components given above:

(1) Notes and coins with public (i.e. other than banks)

(2) Demand deposits with commercial banks.

Two Marks Questions

1. National Money Stock

The total stock of money in an economic system has four components:

1. Notes and coins with public (other than banks)

2. Notes and coins with commercial banks

3. Deposits of the commercial banks with the central bank

4. Demand deposits with commercial banks.

2. National Money Supply

There is no unique definition of money supply. The general definition of money supply is that it consists of those items that are actually used for transactions, to buy and sell things and make other payments. It includes two of the four components given above:

(A) Notes and coins with public (i.e. other than banks)

(B) Demand deposits with commercial banks.
3. Legal Reserve Ratio

Higher the legal reserve requirement lowers the lending capacity of banks. Legal reserve requirement is a direct tool in the hand of the central bank. If it is desired to reduce money supply in the country, the central bank can raise legal reserve ratio. It will limit the lending capacity and consequently the deposit creating capacity of banks.

4. Open Market Operations

Lending capacity or the deposit creating capacity, of the banks can also be checked through the depositors’ route. The depositors themselves may not show interest in depositing less in banks. However, the central bank can create conditions, which may induce depositors to reduce their deposits in banks. The central bank sells securities (loans instruments) to the public. To buy these securities, the public withdraws money from their deposits either in cash or by issuing a cheque in favor of the central bank. In this way, total deposits are reduced and the currency flows into the central bank and goes out of circulation. Reduction in deposits curtails the lending power of banks. Reduction in deposits by one rupee curtails lending and deposit creation by banks by several rupees.

4 Marks Questions

1. What is the need of money?

Is money wanted for its own sake? The answer is ‘no’. Money has no direct use. It is not consumed. Money is also not of any direct use in production. Money cannot be used as a material or as a machine in the actual production process. However, we can use money to buy goods and services either for consumption or for use in production.

The fact of life is that money is not wanted for its own sake. It is wanted because it gives us the power to obtain goods and services. The more money a person has greater is his power to obtain goods and services. This is why most of us run after money. This is how an individual looks at money.

If we cannot directly consume money or directly produce goods and services from it, of what use is money to the society as a whole. The society cannot be rich if it has more currency notes or coins. It can be rich only when it has more goods and services. In fact, the invention of money initially was to facilitate transactions in buying and selling and in borrowing and lending. This function of money is called medium of exchange function. In the primitive societies price of a good was expressed in quantity of other goods. It was a highly inconvenient mode of exchanging one good for another. Money was invented to remove this inconvenience. With the introduction of money, the price of every good or service can be expressed in money units. So for the society money is required to facilitate transactions.

2. Describe the ways in which we can make monetary payments

You go to a bookseller and buy a book. The price of the book is expressed in money. Suppose
the price of the book is Rs.100. You take out currency notes worth Rs.100 and make payment to
the bookseller. This is one way of making a payment. Why does the bookseller accept these
currency notes? He accepts it because he is sure that if he uses these currency notes to make
payment to the publisher of the book he will gladly accept the same. From where does the
bookseller derive this confidence? In fact, this confidence is given to everyone in the country by
the law of the country. According to law no one can refuse to accept payment for any good or
service in the form of currency notes. Any money backed by such legal assurance is called legal
tender money. All currency notes and coins are legal tender money, but within the legal boundary
of the country. For example, In India Rupee currency notes are legal tender money. If currency of
some other country is offered for payment, one is within his legal right to refuse to accept this
currency. British pounds, U.S. dollars, Pakistan rupee, etc. are not the legal tender in India.
British pound is legal tender in Britain. Pakistan rupee is legal tender in Pakistan and so on.
How else you can make the payment. Suppose you do not have enough currency notes to make
the payment of Rs.100. However, you have enough money in your bank account with instant
withdrawal facility. One way is that you go to bank, withdraw the money and make the payment.
This consumes lot of your time. Also, suppose that the bank is closed on that day or during the
hours when you thought of buying the book. What is the alternative before you? You postpone
the purchase of the book and wait for the bank to open. Is this the only alternative? Not necessarily
if the bookseller knows you. You can issue a cherub for Rs.100 in the name of the bookseller and
tell him to collect the money from the bank. Is the bookseller legally bound to accept the cheque?
He may decline to accept payment by cheque. Thus bank deposits are not legal tender
money. To conclude demand drafts are much more convenient mode of payment than currency
notes. Generally, payments involving small amounts are preferred to be made in cash i.e. in
currency notes and coins; and payments involving large amounts are generally made by cheques.

3. **State who issues currency notes and coins in the country**

   Take out a currency note of Rs.2 or of higher denomination from your pocket. Suppose it is a 10
rupee note. On the top of the note is printed Reserve Bank of India. At the bottom it is signed by
the Governor of the Reserve Bank of India.

   The above 10 rupee note is issued by the Reserve Bank of India. All currency notes of Rs. 2, Rs.
5, Rs. 10, Rs. 20, Rs.50, Rs. 100 and Rs. 500 denominations in India are issued by the Reserve
Bank of India (RBI).

   In banking language, RBI is the central bank of the country. It is the apex bank. It is called
‘central’ because it is central to the banking system as a whole and the highest authority to
regulate the functioning of the entire banking institutions of the country. It frames rules and regulations
about their day-to-day working and keeps a watch over their functioning. RBI is a government
owned institution and regulates the entire banking system of the country in accordance with the
policies of the government. It does not deal directly with public. You cannot open an account with
RBI. It deals only with the government and maintains government’s account.
Now take out a one-rupee note. Its top is printed ‘Government of India’. At the bottom the Secretary, Ministry of Finance (Government of India), signs it. The Government of India issues the one-rupee note. The Government of India also issues coins of all denominations.

4. **Why reserve bank should regulate credit.**

The bank uses ‘legal reserve’ requirement to limit the lending capacity of commercial banks. Why is there such a need? Producers need money for investment. If banks lend to them what is the harm. In fact, unregulated lending by commercial banks may do two harms. First, it may harm the interests of the depositors. The bank may not have enough cash to pay to depositors when they need it second, it may unduly increase the total amount of demand deposits in the country. Demand deposits are a part of money stock of the nation. Thus, the unlimited lending may lead to the unlimited increase in the money stock of the nation. It may lead to rise in price.

How does lending by commercial bank increases deposits? When bank lends it opens an account in the name of the borrower. The borrower spends the amount on making payments to the suppliers, creditors, etc. He issues cheques in the names of these suppliers, creditors, etc. They deposit these cheques with their respective banks who collect the money from the bank of the borrower and deposit the same in the respective accounts of suppliers, creditors etc. This raises the total amount of deposits in the bank and raises the money stock of the nation. The story does not end here. When banks receive these fresh deposits they keep a part of it as legal reserve and are in a position to lend the remaining amount if they lend, deposits increase further and so the money stock of the country. This is why commercial banks are sometimes described as manufacturers of money.

If banks do not lend even a rupee out of a fresh deposit made, there will be no more new deposits. If they lend a part of deposit, new deposits equal to the amount of lending are created provided the entire sum lent comes back to the banks. If some people do not have banking habits and keep money paid to them in their safes the deposit creation process is restricted.

The lending power or the deposit creating or money creating power of the commercial banks depends on legal reserve requirement. Higher the legal reserve ratio lowers the lending, or the money creating, power of the commercial banks. The legal reserve ratio is determined by our central bank. (RBI). If RBI raises this ratio, the lending capacity of banks decreases. If it reduces the ratio, the capacity increases. In this way legal reserve ratio becomes a tool in the hands of the central bank to regulate the stock of money in the country.

5. **State the components of nation’s stock of money**

The total stock of money in an economic system has four components:

1. Notes and coins with public (other than banks)
2. Notes and coins with commercial banks
3. Deposits of the commercial banks with the central bank
4. Demand deposits with commercial banks.
Of the above, the sum of first three is total stock of cash in the country. It is also referred to as paper money. The sum of second and third components is total cash with commercial banks. This must not be less than the legal reserve requirement imposed on commercial banks by the central bank. The first component is simply currency with public. The fourth component is money in the form of demand deposits used for payment by cheques. It is also referred to as bank money.

6. Explain the need for keeping a check on supply of money

Money supply includes notes and coins outside banks and demand deposits with banks. Notes, coins and demand deposits must at each moment be in the possession of particular persons, firms, etc. Money represents command over goods and services. More the money more the command. By holding money, and not spending it, one denies himself the satisfaction he could have derived by spending it on goods and services. As such, an individual or the firm will not like to hold all the money it gets. Normally each individual would like to hold a particular amount of money at one time. How much money to hold will vary from individual to individual depending on his income, daily transactions etc. Those who have higher income or make many sale and purchase daily will keep larger amounts. As such, each one of us gets into the habit of holding certain amount of money with us or as demand deposits.

Now what one does when his money holding becomes more than what he would like to keep. He will consider spending the excess on goods and services. It is because by holding more money than he needs for daily transactions etc., he is denying himself the satisfaction, which he can derive by spending money. He either spends it on consumption or invests the same. Therefore, if money supply in the country is increased and people have excess balances they will like to spend on consumption and investment. This raises demand for goods and services and pushes the general price level in the economy.

If money holding becomes less than average because money supply is decreased, people refrain from spending the money they receive to raise their money holding back to the average level. This reduces demand for goods and services and in turn leads to fall in prices. So reducing money supply leads to fall in prices. Large fluctuations in prices, continuous rise or continuous fall, are not good for an economy. Changes in money supply affect prices. Therefore, by keeping a watch on money supply with the people we can check large-scale fluctuations in prices.

8 Marks Questions

1. What are the various measures to Control Credit by Central Bank

How much can banks really lend. It all depends upon two factors. One is the amount of deposits it receives. If less money is deposited initially, less lending is possible. The second is the legal reserve requirement imposed by the central bank.
(a) Legal Reserve Ratio

Higher the legal reserve requirement lowers the lending capacity of banks. Legal reserve requirement is a direct tool in the hand of the central bank. If it is desired to reduce money supply in the country, the central bank can raise legal reserve ratio. It will limit the lending capacity and consequently the deposit creating capacity of banks.

(b) Open Market Operations

Lending capacity or the deposit creating capacity, of the banks can also be checked through the depositors’ route. The depositors themselves may not show interest in depositing less in banks. However, the central bank can create conditions, which may induce depositors to reduce their deposits in banks. The central bank sells securities (loans instruments) to the public. To buy these securities, the public withdraws money from their deposits either in cash or by issuing a cheque in favor of the central bank. In this way, total deposits are reduced and the currency flows into the central bank and goes out of circulation. Reduction in deposits curtails the lending power of banks. Reduction in deposits by one rupee curtails lending and deposit creation by banks by several rupees. Similarly if the central bank desires to increase money supply it buys securities from the public and makes them payment by writing cheques in favour of the buyers. The public deposit this amount in banks. Deposits in banks increase and so there is multiple increase in lending and deposit creating power of commercial banks. This technique of controlling money supply by the central bank is, in technical language, called open market operations. ‘Open market’ here refers to the act of buying and selling of securities by the central bank in the open market.

(c) Bank Rate

So far, we have learnt about two techniques by which the central bank can regulate money supply, Legal Reserve Requirement and Open Market Operations. There is one more technique called the ‘Bank Rate’.

When firms need money, they borrow from the commercial banks. When commercial banks need money, they borrow from the central bank. The central bank charges interest on this. The interest rate so charged in technical language of banking is called bank rate. Therefore, the Bank Rate is essentially the Central Bank’s Rate of Interest on lending to commercial banks. Now if the central bank lends to commercial banks and the commercial banks lend to public the rate of interest charged by the commercial bank must be higher than the bank rate charged by the central bank. If the central bank wants that commercial banks should lend less it raises its own lending rate, i.e. bank rate, charged from commercial banks. (Remember the central bank does not lend to the public). This forces commercial banks to increase their lending rate. The borrowers now have to pay higher rate of interest. It increases their cost of borrowing and they borrow less. This reduces lending by commercial banks. This in turn reduces money supply. Similarly, if the central bank lowers Bank Rate, commercial banks also lower their lending rate. Lending increases and so is money supply.
Introduction

You have so far studied some of the important concepts used in economics, tools of economic analysis as well as their applications without reference to any specific economy. In lesson No. 3, you were familiarized with the characteristics of the Indian economy. In a lesson you will learn about the state of the Indian economy, the need for growth in the economy and the means adopted to ensure that economy moves on a path of rapid economic growth.

Objectives

After going through this lesson, you will be able to:

- enumerate some of the problems of the Indian economy at the time of Independence;
- reason out the need for economic development;
- distinguish between economic growth and economic development;
- point out some of the measures of economic development;
- explain the meaning of economic planning;
- give an account of the planning process in India;

One Mark Questions

1. Economic Growth

   Economic growth means rise in only per capita real income over a long period. Here real income means physical production.
2. Economic Development

Economic development is much more than economic growth. It not only means rise in per capita income, it also means reduction in economic inequality and poverty.

3. Aims of Indian Plans

The overall objectives of economic planning in India are the following:

(a) Accelerating economic growth
(b) Reduction of economic inequalities
(c) Self-reliance
(d) Balanced regional development
(e) Modernisation
(f) Reduction of Unemployment

4 Marks Questions

1. Distinguish between Economic Development and Economic Growth

Economic growth means rise in only per capita real income over a long period. Here real income means physical production. Per capita means total production divided by total population. So economic growth simply means the rise in per capita availability of goods and services over a long period.

Economic development, on the other hand, is much more than economic growth. It not only means rise in per capita income, it also means reduction in economic inequality and poverty. The policy makers in India were clear that India needed economic development. As you know economic development means a sustained rise in national product plus other positive changes.

The economy could not possess more unless it produced more. Increase in production was possible only if more and more resources of the economy were brought into use. More, labour could be put into use only if tool and equipment or machinery was made available. More machinery or tools and equipments called for investment more investment, was therefore, the primary need of the country.

Not only production was required to be raised it was required to be raised at a rate faster than the rate of growth of population so that per capita income could rise. It is only then that people can experience a higher standard of living.
2. **What is the need of Planning?**

We must assure that economic development India needed to raise the levels of living of its people. However, it was not merely a rise in real per capita income that was needed but also a more equitable or less unequal distribution of income, which was also necessary. Moreover, for better levels of living several other things should also happen. There should be increase in literacy. There should be an easier and quicker access to drinking water, postal services, banking service, transport services, educational facilities etc. Economic development results not only from an easier and quicker access to all these and similar services but also from an improvement in the quality of these services over time. For instance if drinking water becomes available in a village it is an improvement in the level of living of the people living in that village. It will be a further improvement if the water taps are available in each residence of the village rather than at one place. Similarly, if there are more educational institutions per kilometer of area of a country there is an improvement. There will be further improvement if the number of pupil per teacher also declines. That would mean that a teacher has to pay attention to fewer students and dean therefore attend to their individual educational needs. Likewise, if the number of doctors, nurses etc. increases per hundred persons then there is an improvement in medical facilities.

Economic development is thus, reflected in the increase in per capita incomes plus a reduction in inequalities in the distribution of incomes plus an improvement in the levels of living. The improvement in the level of living is reflected in the availability of various types of services to the population of the country and their quality. More people having access to drinking water, high literacy rate, more post offices per kilometer of area, more roads per kilometer area, etc. will reflect the level of living. Improvement in these is an improvement in the levels of living.

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**8 Marks Questions**

1. **Examine the state of Indian economy at the time of independence**

   At the time of independence, the Indian economy is featured by the following characterise:

   **1. Mass poverty**

   The average income of an Indian per day was nearly 65 paise (i.e. Rs .238/365). This was an average. Many were getting much more than the average income. In addition, a large number was getting less than this average income. We can easily conclude that not only was the overall level of per capita income low in India but was also accompanied by a large number of people getting much less than was this low average income. Indian economy would obviously be characterised as a poor country with mass poverty.
2. **Inadequate medical facilities**
   The country had been experiencing famines. Expected average age was low. There was a high infant mortality rate. The incidence of communicable and contagious diseases was also very high.

3. **High rate of growth of population**
   Population was increasing at a rapid rate. Birth rate was quite high.

4. **Low level of literacy**
   Level of literacy was low. In 1951 the literacy rate was only 16.7 percent.

5. **Industrial growth was negligible**
   The economy derived more than half of its domestic product from agriculture and nearly 70% of the working people derived their income from agricultural activities. Industrial growth was negligible.

6. **Backward technology**
   Technology was backward. Techniques of production were old and traditional. Productivity was therefore low.

7. **Traditional attitudes**
   The economy was also marked by rigid and traditional social attitudes. Caste rigidities were a hindrance to change in occupational structure. Food habits were guided by tradition. Attitudes towards technological change were also traditional.

   Females, who constitute nearly half of the total population were largely illiterate because of the rigid attitudes towards their education. All these and several other factors were not only adding to the problems of poverty but were also acting as a hindrance to any progress or change.

8. **Social and economic problems created by the partition of the country**
   Moreover, with independence came the partition. This artificial political division not only created social tensions but also aggravated some economic problems. Scarcity of food was increased because some of the food surplus areas were now in Pakistan. Similarly, jute-growing areas were in East Pakistan (now Bangladesh) but the jute factories were on the Indian side. Railway system was also suddenly disrupted. There was also the immediate and huge problem of rehabilitation of a huge mass of population, which migrated from one part of the undivided India to the other parts after division.

9. **Low per capita Income as compared to other countries**
   Compared to some of the other countries of the world India’s economic situation was dismal. Per capita income in India was less than even \( \frac{1}{30} \)th of the per capita income in USA. Even in comparison to some other countries, namely Japan, England, France, Germany, Australia, New Zealand, the per capita income and the standard of living in India was very low.
10. Independence raised expectations of the people

After independence, the expectations of the people were raised. With the end of colonial rule, there was a hope of rise in the standards of living and end to poverty and misery, which had marked the life of a large number of people in India. This required that national product must grow. It should grow at a rate faster than that of the population. Only then the per capita income can rise. It was also necessary that national income of India grows at a rate faster than the rate of growth of income in some of the rich industrial countries like UK, USA, France, Germany, Japan etc. so that the country can catch up with their levels of living in a reasonable period of time.

Conclusion

Thus, Indian economy at the time of independence was an economy marked by mass poverty inequality, illiteracy, backward technology, high degree of dependence on agriculture and rapidly growing population. There was an urgent need to eradicate poverty, build up industry, improve technology, eliminate illiteracy, reduce inequalities and bring about a change in the overall outlook. This required massive resources.

2. What are the main objectives of Indian plans

As we know, economic planning was adopted to ensure rapid economic development and to avoid the weaknesses of the market system by regulating and controlling it. In view of the problems, that the economy was facing at the time of independence the system of economic planning aimed at overcoming those problems. It therefore had certain objectives, which were to be fulfilled over a long period. To fulfill these objectives plans were prepared. Each plan was a step towards fulfilling the objectives of planning in India.

The overall objectives of economic planning in India are the following:

(a) Accelerating economic growth

As stated earlier the per capita income in India was low. It had to be raised. This required an increase in production at a rate faster than that of the growth of population. Planning Commission had expected that the rate of growth would be fast enough in the economy so that the real per capita income will be doubled in about 20 years time.

(b) Reduction of economic inequalities

Indian economy is not only marked by low incomes but also by large inequalities in the distribution of incomes. Those who are rich are very rich. The poor are so poor that they could not meet even their food requirements. They either remain hungry and died of hunger and malnutrition or live on charity of others. Economic planning aims at reducing the inequalities of income by raising the income levels of the poor.
In fact, these two objectives of economic planning are considered equally important ‘Growth with equity’ (i.e. growth with equality of income distribution) is considered as the main objective of economic planning in India.

(c) **Self-reliance**

This is another important objective of economic planning in India. This implies that instead of exporting minerals and agricultural raw materials the country could use them to manufacture the goods that it imports from other countries. The economy would thus be able to increase its industrial production. The objective of self-reliance also meant that the economy would be increasing its productive capacity to pay for its imports.

(d) **Balanced regional development**

Economic planning also aims at reducing inequalities in the levels of development of different regions. Some regions were more advanced industrially whereas others were very backward. For instance, industrial advancement of Maharashtra and Gujarat was in sharp contrast with the neighboring Madhya Pradesh or with Orissa. There was a need to build up the infrastructure, which was ‘necessary for industrial growth in these backward regions. Economic planning aims at reducing the inequalities between different regions of the country.

(e) **Modernization**

Modernization of the economy is another objective of planning in India. Building up new Industries, improving techniques of production, improving organization of production units are necessary for ensuring the economic growth continues to take place over a long period of time. Modernisation aims at increasing the ability of the Indian industries to compete with industries of other countries. Modernisation also aims at changing social attitudes and habits so that productivity and incomes can be increased.

(f) **Reduction of Unemployment**

Planners felt that economic growth will generate employment opportunities. They aimed at accelerating growth not only to raise incomes but also to generate new employment opportunities in such a way that existing unemployment is reduced and new entrants to the job market also get employment.

Keeping these objectives in view the Planning Commission prepares plans with certain immediate or short term objectives: The objectives of each five year plan are only a means to achieve the overall objectives of planning. These plans are prepared for a period of five years so that there is sufficient time to set up industries and complete projects, which take time. After every five-year period, an appraisal of the achievements is made and fresh plan prepared to move forward towards fulfillment of the objectives.
Achievements of Planning in India

Introduction

In this lesson, you will learn about the achievements of economic planning in India. You will be familiarized with some of the achievements in terms of increase in per capita income, reduction of inequalities, improvement in technology, industrial and agricultural growth. You will also learn how the economy has failed to achieve some of the objectives of economic planning along with the factors responsible for the same.

Objectives

After going through this lesson, you will be able to

- compare the changes in per capita income at current prices and constant prices;
- assess the performance of the Indian economy in terms of economic growth;
- identify some of the other achievements of planning in the area of agriculture growth, industrial development, modernization of technology;
- point out the failures in the area of reduction of unemployment, reduction of economic inequalities, self reliance, balanced regional growth;
- identify some of the causes of failures as well as slow growth; appraise the overall achievements of planning in India
One Mark Questions

1. **Plan period**
   In India we adopted five years plans

2. **Plan Interval**
   The annual plan period in India is called plan interval, Between 1966-69 three annual plans implemented.

3. **1ST Five-year plan**
   To increase food grains production and to achieve equilibrium the sitribances caused during world war-II

4. **2ND Five-year plan**
   Achieve industrial development by giving preference to major and basic industries.

5. **3RD Five-year plan**
   Self sufficiency in food grains production and to improve employment opportunities.

6. **4TH Five-year plan**
   Economic stability and self sufficiency in food grains production. Social and economic Justice to poor.

7. **5TH FIVE YEAR PLAN**
   Eradication poverty, explain of employment opportunities. Import substitution and export mobilization.

8. **6TH FIVE-YEAR PLAN**
   Removal of unemployment, improving standard living of poor, provision of basic facilities, provision of employment.

9. **7TH FIVE-YEAR PLAN**
   To improve productions, capabilities and to decrease regional imbalances, poverty and unemployment.

10. **8TH FIVE-YEAR PLAN**
   To achieve the objective of full employment, provision of employment opportunities and to work for developing human capital.
11. **9TH FIVE-YEAR PLAN**  
Social Justice, equality for economic growth.

12. **10TH FIVE-YEAR PLAN**  
Improving human resources for equality and social Justice.

13. **11TH FIVE-YEAR PLAN**  
Inclusive growth.

**Two Marks Questions**

1. **WHAT DO YOU MEAN BY ECONOMIC PLAN**  
Economic planning was adopted in India to ensure economic development. Under this, plan model will be formulated with a strategy is a given priority order. All most all countires in the world are adopted this model.

2. **PLANNING COMMISSION**  
In India planning commission was established in 1950. Prime minister will be the chairman. This commission work as autonomous authority. The present Deputy chairman is Manteg Singh Ahluwalia. State governments unity prepare plans according to their priorities and submit them to this commission. This commission, on the basis of proposals, prepare five year plan according to the availability of resources and rational priorities.

**4 Marks Questions**

1. **What are the general objectives indian five year plans**  
   1. Economic growth through increasing production  
   2. Reduction of income inequalities  
   3. Removal of poverty  
   4. Achieving the goal of Full emplyment  
   5. Achieving the goal of regional balanced development  
   6. Achieving the goal of self sufficiency and self reliance

2. **What are the objectives of 11th five year plan**  
National Development council approved 11th five year plan on 9th December, 2006. The following are the major objective of this plan.
1. Inclusive growth
2. 9 percent growth rate in GDP
3. 4 percent growth rate in Agriculture
4. Unemployment among educated should be less than 5 percent
5. Physical infrastructural facilities should be made available.
6. Electricity should be made available to all by 2009.
7. Pure drinking water should be made available to all by 2009.
8. Creation of 70 million new employment opportunities.
9. Poverty percentage should by less than 15 percent.
10. 10 percent growth rate in Industrial sector.
11. IMR should be less than 28 per thousand and MMR should be less than one.
12. Total fertility Rate should be 2.1 percent
13. Telephone facility should be provided to all villages by 2007.

8 Marks Questions

1. Explain achievements of Indian five year plans

   1. Economic Growth:

       Economic growth means raise in per capita real income. You may recall that one of the major objectives of economic planning in India has been the acceleration of economic growth. Rapid economic growth was needed not only to raise the income levels in India but also to catch-up with the developed industrial economies of the world.

   2. Reduction of Income inequalities

       The achievements of economic planning in respect of the objective of reduction of economic inequalities are not very satisfactory. Although very little information is available about the distribution of incomes in India. There is a general feeling that benefits of economic planning have not reached the poor to the extent anticipated contrasts in the living standards of the rich and the poor have become much sharper. Items of consumption of the rich are changing in favor of luxuries whereas the poor are not able to meet even their minimal food requirements.
3. **Increase in agricultural production**

India was heavily dependent on food imports. At present India has become a net exporter of food grains. There has been a significant increase in the agricultural production.

4. **Increase in Industrial production**

The country has also experienced a widespread increase in industrial production. India was dependent upon the imports of a large number of manufactured goods like needles, bicycles, cars, trucks, railway engines etc. Indian industry is now able to manufacture all these and many more items. India has, in fact become an exporter of several manufactured products. Between 1950-51 and 1995-96 the production of finished steel has gone up by 21 times, that of electricity generated by 76 times. Production of aluminum has increased by more than 125 times, that of bicycles by nearly 100 times, of cars by 40 times and so on. There has, thus, been a considerable expansion of the industrial sector.

5. **Modernisation of technology**

At the same time, the country has made rapid strides in technology. India is one of the very few countries, which can manufacture its own satellites. It has the capability of manufacturing nuclear power reactors. Considerable progress has also been achieved in manufacturing some of the sophisticated defense equipment, super computers and other technologically advanced products. Most of this technological advancement is the result of industrial and educational development under economic planning.

6. **Modernisation of economy**

Besides the modernisation of technology, there has been considerable modernisation of the economy. Banking sector has spread to even the rural areas. Attitudes towards new technology are changing fast. Social rigidities are also gradually breaking. Female education is spreading. Caste rigidities are also not as strong as they were at the time Independence.

7. **All-round development of economy**

Overall, there are several achievements to the credit of economic planning particularly in the field of industrial growth, technological advancement and modernization of institutional structure. On the agricultural front, the famines, which occurred almost regularly in the first half of the 20th century, have become outdated. Banking and insurance services, which contributed nearly 1 percent of the national income in 1950-51, are at present contributing about seven percent. In other words, there has been considerable all-round development of the Indian economy under the influence of economic planning.

2. **What are major failures of indian five year plans**

There are certain achievements, but are, however, not enough. In terms of the objectives of economic planning, the economy failed to make any progress at all. Some of these are as follows:

1. **Objective of rapid economic growth not fulfilled**

Economic planning in India aimed at increasing the rate of economic growth not only to raise the levels of living but also to catch up with the levels of living in some of the industrially and
economically advanced countries. The economy has been able to raise its national income at the rate of about 4 percent per annum. However, this has been much slower than anticipated. Since population increased at the rate of more than 2 percent, per annum the per capita income increased even more slowly.

2. **Objective of reduction of economic inequalities not fulfilled**

You have already learnt in the previous section of this lesson that poverty and inequality have remained as major problems even after 45 years of economic planning. You have learnt that nearly 36 percent of the population in India lived below the poverty line in 1993-94.

Economic planning ‘has thus not been able to improve the quality of life for a large part of the population in a substantial manner.

3. **Objective of self reliance not achieved**

The goal of self-reliance for the Indian economy through economic planning has hardly been realised. There has been a large expansion of the industrial sector. The country is now producing its own food requirements. However, the growth of the Indian economy continues to depend upon the foreign aid. Foreign aid involves the burden of interest plus the repayment. Unless the country earns more foreign exchange than required for its imports, it will not only be able to repay its old debts but also will also to obtain more debt from other countries. The possibility of the country being able to repay all its old debts and pay for its imports does not appear to be a realizable one in the near future.

4. **Unemployment problem remains**

One of the major areas of failure of economic planning in India has been the objective of reduction of unemployment. According to the official estimates more than 2 crores people in India in 1992 were unemployed. In addition, there is a large number of people who are engaged in work but earn very low incomes. They may appear to be ‘employed’ but they are waiting for and seeking better employment opportunities with higher income.

5. **Balanced regional growth not achieved**

Economic planning in India has also failed in bringing about equality among different regions and states. We all can see that benefits of economic planning have got concentrated in urban areas. Rural areas have remained neglected. Medical, sanitation, communication, educational, banking and other similar facilities are available in rural areas in far smaller proportion than in urban areas.

It is thus clear that economic planning in India has not been able to achieve all that it aimed to achieve. Economic growth has not been rapid. Inequalities and poverty have not declined. Quality of life has not improved substantially. Indian economy continues to depend upon foreign aid. Unemployment has continued to persist Different regions have not grown to an equal level. Some of the major objectives of planning have, thus, not been achieved.
New Economic Reforms and the Role of Planning

Introduction

The year 1991 will remain a year of notable and widespread changes in the policy for economic development in India. In this year, the economy faced an economic crisis, which was unprecedented. This crisis put into doubt the effectiveness of economic planning in India. It was felt that some of the measures of policy that were followed so far needed a change. The changes that were made in economic policy gave a different direction to the policy as compared to the policy that was followed so far. As such, these changes have been given the name of economic reform by some writers. We shall learn in the present lesson the role of economic planning in India after these economic reforms.

Objectives

After going through this lesson, you will be able to:

- point out some of the factors that created a crisis like situation in 1991;
- identify the policies that had to be changed;
- list some of the major changes in economic policy;
- give an account of the nature of the changes in 1991;

Explain the future role of economic planning in the context of economic reforms

One Mark Questions

1. 1991 Economic Crisis

War between Kuwait and Iraq caused the foreign exchange crisis of 1991. The change in policy in 1991 was a part of the policy of economic planning.
2. **Foreign Exchange Crisis**

One of the most important areas of shortages was that of foreign exchange. Indian economy had experienced some rise in exports in the preceding decade. However, the rise in imports was far more. Thus, the economy demanded more foreign exchange than was available. The prices of ‘foreign currencies’ were, therefore, rising persistently.

**Two Marks Questions**

1. **1991 Economic Crisis**

At the beginning of 1991, India faced a severe foreign exchange shortage. As you have learnt in the earlier section, there was a growing gap in the officially fixed exchange rate of the rupee with other currencies and the market-determined rate. Since the market determined rate was very high and was rising, there was growing incentive not to report the foreign exchange earned to the official agencies i.e. Reserve Bank of India. At the same time, there was an increasing demand for withdrawal of foreign exchange from official sources because it was cheaper. The foreign exchange reserves were, therefore, depleting rapidly.

2. **Reforms in industrial policy**

   (i) Delicensing of industries
   (ii) Freedom to import technology
   (iii) Freedom of foreign investment
   (iv) Restriction on large industry removed
   (v) Industries reserved for government open for the private sector

3. **Reforms in external sector**

   (a) Trade and Foreign Exchange Policy Changes
   (i) Reduction in import duties
   (ii) Import licensing liberalized
   (iii) Controls on foreign exchange removed

4. **Reforms in fiscal policy**

   Government also brought about several changes in fiscal policy.
   (i) Reduction in excise duties
   (ii) Reduction in the rates of direct taxes
   (iii) Reduction in government expenditures
   (iv) Sale of government capital
4 Marks Questions

1. **What was the justification for the economic policy reforms in 1991?**

   At the beginning of 1991, India faced a severe foreign exchange shortage. As you have learnt in the earlier section, there was a growing gap in the officially fixed exchange rate of the rupee with other currencies and the market-determined rate. Since the market determined rate was very high and was rising, there was growing incentive not to report the foreign exchange earned to the official agencies i.e. Reserve Bank of India. At the same time, there was an increasing demand for withdrawal of foreign exchange from official sources because it was cheaper. The foreign exchange reserves were, therefore, depleting rapidly.

   At the beginning of 1991, because of a war between Kuwait and Iraq, there was a shortage of petroleum products. Their prices rose. India’s earnings from these and other Gulf countries were suddenly blocked, as Indian’s workers in these countries were not allowed to transfer incomes to India. Moreover, there were a large number of workers who returned to India because of the war.

   Indian political situation was also not very stable. There was a minority government at the centre. Those depositors who had deposited their foreign currency in India started withdrawing their deposits. There was, therefore, a growing withdrawal of foreign exchange.

   The situation became so difficult that India had to take drastic measures to meet the foreign exchange requirements. Reserve Bank of India mortgaged its gold reserves to borrow foreign currencies to meet the requirements of the country. India also sought loans from the International Monitory Fund.

8 Marks Questions

1. **Briefly state the factors that caused the economic crisis of 1991.**

   Some of the problems that the Indian economy was facing at the beginning of the decade of nineties were as follows:

   1. **Inflationary pressure**

      Indian economy was facing a strong inflationary pressure. Prices of essential commodities were rising rapidly. Since this raised the cost of living of the working class, they asked for higher wages, which raised industrial costs. The industrial costs were also rising because of the rising costs of materials. High industrial costs and prices were leading to stagnation in the demand for their products both in the domestic market as well as abroad.

   2. **Shortage of finance**

      The economy was experiencing shortages of finance for industrialization etc. There were also shortages emerging in the economy in the area of transportation, communication. These shortages were suppressing industrial growth.
3. Shortage of foreign exchange

One of the most important areas of shortages was that of foreign exchange. Indian economy had experienced some rise in exports in the preceding decade. However, the rise in imports was far more. Thus, the economy demanded more foreign exchange than was available. The prices of ‘foreign currencies’ were, therefore, rising persistently.

4. Unemployment

Even though industrial growth was taking place, employment in industry was not increasing proportionately.

5. Decline in the share In the world trade

In the world economy India’s share in the world trade was declining. At the beginning of the era of economic planning India had 2 per cent share in the world trade. By the beginning of the decade of nineties, this share had declined to less than half a percent i.e. 0.5 percent.

6. Higher rate of economic growth in other countries

Some of the other developing countries like South Korea, Philippines, Hong Kong, Singapore, Malaysia, Indonesia, and China were experiencing a far higher rate of economic and industrial growth than India.

Policies responsible for problems

It may also be noteworthy that some of the policy measures followed in the past was considered responsible for these problems of the Indian economy. We may enumerate some of these policy measures:

1. System of licensing

Government was controlling and regulating the growth of industry through a system of licensing.

2. Some industries in the hands of government only

A number of industries were meant to be developed only by the government some of these industries notably power-generation and transmission, transportation and communication, mining, heavy machinery etc. were to be expanded only by the government.

3. Restrictions on foreign technology

Government had placed several restrictions on the import of foreign technology and prior approval of the government was required if an industrial enterprise was to import technology from a foreign firm.

4. Restrictions on foreign investment

There were several restrictions on the participation by foreign investors in the Indian industries. They were not allowed to invest in any one enterprise more than 25 percent of the total capital.
5. Protection from foreign competition

Indian industry had been protected from competition with foreign industry by imposing heavy import duties on competing foreign goods. Indian industry had, however, not increased its competitive strength in view of this protection that it received through high import duties. For increasing exports, Indian industry was demanding more and more of subsidies from the government.

2. State the main changes in economic policy in 1991.

The government, in early 90s thought of bringing about a massive change in its policy. Industrial policy was modified Foreign exchange control system was changed. Government’s role in the economy was reduced considerably. We may note some of the policy measures that were taken.

(A) Industrial Policy Changes

(i) Delicensing of industries

There was a delicensing of all industries except a few whose growth had harmful impact on the environment. This introduced an element of competition within the economy. It was expected that there will be expansion of industry and industrial efficiency would improve.

(ii) Freedom to import technology

Indian industry was given freedom to import technology from abroad. It was expected that the best technology will be imported and there will be continuing improvement in technology.

(iii) Freedom of foreign investment

Foreign investors were given freedom to enter into selected industries with upto 51 percent of the total capital. This would not only bring finance from other countries but will also help bring the latest technology, management methods etc. in Indian industry.

(iv) Restriction on large industry removed

Restrictions placed on large industry in order to prevent the growth of monopoly were removed. Large industrial houses were free to expand their activities in several directions.

(v) Industries reserved for government open for the private sector

Industries, which were reserved for development by government, were now opened up for the private sector except for some of the industries producing defense goods and other similar industries.
(B) Trade and Foreign Exchange Policy Changes

(i) Reduction in import duties

There was systematic reduction in import duties on several items of imports. This increased the competition between the domestic producers and foreign producers.

(ii) Import licensing liberalized

Many of the items of imports were put on the category, which did not require any license for imports.

(iii) Controls on foreign exchange removed

Initially the price of foreign currencies in terms of the Indian rupee was raised officially. Later controls on foreign exchange were removed. Now foreign exchange is available in the open market only and there are no differences between the official and market rates.

(C) Fiscal Policy Changes

Government also brought about several changes in fiscal policy.

(i) Reduction in excise duties

There was a reduction in excise duties on a number of items. This enabled to increase their competitiveness with imported goods for which the import duties were reduced.

(ii) Reduction in the rates of direct taxes

There was a gradual reduction of direct tax rates to improve the compliance of tax payment. It was expected to raise the total tax revenue as it was expected that the evasion of taxes will not be beneficial any more.

(iii) Reduction in government expenditures

The government was expected to reduce its avoidable expenditure to increase its ability to invest

(iv) Sale of government capital

The government also decided to sell a part of the capital of some of its enterprises. This was done to mobilise resources for meeting the expenditure requirements of the government.

Overall, there was a general environment of relaxation of controls, opening the sectors reserved for government, investment to private sector, opening up the economy to foreign investment and technology inflow, reduction of taxes, etc.
Economic Development of Andhra Pradesh

Introduction

Andhra Pradesh was formed on 1st November, 1956 by the merger of the Telugu speaking areas of the erstwhile state of Hyderabad with the then Andhra state, which it self formed a part of the composite Madras state till 1953. Andhra Pradesh is fifth largest state in the country in terms of both area and population. It has an area of 2.75 lakh sq. km. forming 8.4 percent of the total geographic area of the country. The state’s population according to the 2001 census is 7,57,27,541 crores which constitutes 7.41 percent of the all India population.

Objectives

After giving through this lesson, you will be able to:

- Explain the trends in SGDP, sector wise SGDP and percapita income of Andhra Pradesh.
- Explain the trends in Agricultural Development in A.P.
- Explain the issues in social sector development in A.P.
- Explain what are the trends that take place in industrial development of A.P. in recent times.
- Explain the important welfare programmes which government of APP. is implementing.

One Mark Questions

1. Physical Features of AP

The state is situated in a tropical region between the latitude 13° to 20° north, and the longitudes 77° to 85° east. The state is divided into 23 districts for administrative purposes. At present, Andhra Pradesh consists of three regions. There are
1. Coastal for Andhra Pradesh consisting 9 of districts.

2. Telangana which is consisting 10 of districts and

3. Rayalaseema which consisting of 4 districts

2. State Gross Domestic Product

The state gross domestic product is also called as the state income. The total value of the final/finished goods and services produced with in the geographical boundaries of the state during a year is called State Gross Domestic Product (SGDP). The SGDP was estimated by the Directorate of Economic and statistics, Andhra Pradesh.

3. Irrigation facilities in AP

There is a great potentiality in our state to have better irrigation facilities. In our state, the rivers like Godavari, Krishna, Penna, Vamsadhara and host of 36 small rivers’ flow through this state. The data provided by Directorate of Economics and Statistics 2008, the utilization reveals that Drinking water (601), Irrigation (64252), Industries (288), Power generation (28) million cubic meters have been estimated. During 2004, the govt. of AP has planed to utilize full, the available yields of Godavari and other rivers and initiated a historical beginning named ‘Jalayagnam’ with the aim of completing the ongoing and new projects in a record time to provide immediate irrigation to water starved areas on top priority by mobilizing funds from all possible sources. Totally 86 projects were considered under Jalayagnam

4. It Industry in AP

There is any other industry in the state, which registered such fast progress as 15 industries. Some NRI also showed keen interest, came back from the U.S.A. to setup units here. It started with the setting up of the Software technology park under the department of Electronics, Govt. of India at Hyderabad way back in 1991.

5. Electricity/power in AP

Power is crucial one in getting speedy economic development. The Govt. of AP noticed its importance and has been doing well for the better development of power sector in the state. To overcome the weakness of this sector government bifurcated APSEB in to APTRANSCO and APGENCO. The total consumers of Electricity in 2009 were 206.81 Lakhs. The percapita power consumption is 746 Kws.

6. Road Ways in AP

The development of Road network plays key role in the development of state. Both private and public sectors engaged in providing road transport facilities. Our state has the largest state road transport undertaking in the country. 80 percent of goods and passengers are transported through road ways only.
7. Airways

For any development of the State speed, transport is necessary. Civil aviation and airports are extending their services to cater the needs of the public and goods transportation.

8. Water Ways

Andhra Pradesh has 972 KM long coastal line on Eastern side. The state has natural harbors at Visakhapatnam maintained by central government. Under the management of state govt. two medium ports and ten small ports are working.

Two Marks Questions

1. State Gross domestic product

The state gross domestic product is also called as the state income. The total value of the final/finished goods and services produced with in the geographical boundaries of the state during a year is called State Gross Domestic Product (SGDP). The SGDP was estimated by the Directorate of Economic and statistics, Andhra Pradesh. While calculating the SGDP the Directorate is following two methods namely output method and income method.

There are three sectors in Andhra Pradesh economy. They are

1. Primary sector : Agriculture, Animal husbandry, Forests, mines and quarries.

2. Per Capita income

Economic growth is measured by the increase of National income. This measurement does not take into consideration of population growth. Hence percapita income became an important measure to calculate Economic growth. Which consider population also. We can get the percapita income of the state by dividing state income by population.

3. Health

Good health will be attained through hygiene, protected water, pollution free environment, education etc. Inspite of best efforts made by the Government of A.P., still there are many villages in the state where people are suffering from fluorosis. To reach the goal of ‘Health for All’ of WHO, the Govt. of A.P. is implementing different programmes like National Maternity Benefit Programme, ICDP, Supplementary Nutrition programme for Women, Balika Samrudhi Yojana, Special Development Programme to Adolescent girls, Janani Suraksha Yojana etc.
An innovative programme ‘Rajiv Arogya Sri’ is initiated by the state Govt. on 2 April, 2007, which is a Unique in its applicability and provides financial protection upto Rs.2.00 lakh in a year to white card (BPL Ration Card) holders.

4. Population

The population of A.P. has been doubled between 1961 and 2001. It was increased from 3.60 crores in 1961 to 7.62 crores as per 2001 census. With the population of 76.2 million enumerated in the 2001 census, constituting about 8 percent of India’s population, Andhra Pradesh is fifth most populous state in India.

5. Welfare Programmes

Government of Andhra Pradesh has taken up many welfare programmes. These programmes are meant for the development of weaker sections. The main objective of this programmes is to improve the standard of living among the poor people. The Agriculture and industrial sectors are providing employment to the people and the importance given to social sector development in the context of Human development. Human Development has become an important indicator for the Economic development of any country. The Human Development invariably highlights the importance in improving the social sector issues like education, health care Nutrition, water supply, housing social security etc. Govt. of A.P. has been implementing various programmes relating to Human Welfare.

4 Marks Questions

1. Explain the trends in SGDP and per capita income of Andhra Pradesh

   The state gross domestic product is also called as the state income. The total value of the final/finished goods and services produced with in the geographical boundaries of the state during a year is called State Gross Domestic Product (SGDP). The Directorate of Economic and statistics, Andhra Pradesh, estimated the SGDP. While calculating the SGDP the Directorate is following two methods namely output method and income method.

   There are three sectors in Andhra Pradesh economy. They are
   1. Primary sector : Agriculture, Animal husbandry, Forests, mines and quarries.
Data on the changes that taken place in GSDP of A.P. and GNP of India during 2000-01 and 2007-08 proves that the SGDP of Andhra Pradesh has increased about one and half times from 2000-01 to 2007-08 and it has been increased in the same proportion in India. Where as the growth rate of GDP in India has doubled during the same period.

From the data it is clear that the share of SGDP of Primary sector of A.P. in 1960-61 was 63% and the share of service sector was only 25 percent where as in 2002-03 the share of primary sector has declined to 28.5 percent and the share of service sector has increased to 50.2 percent. This is the indication of Economic development of the State.

2. Importance of Social Sector in A.P. economy.

There is an inseparable relationship between social development and economic development. Generally education, health, nutrition, safe drinking water, housing etc., are considered as social sector. These indicators directly or indirectly reflects the human development. Hence, development of social sector is the development of humans. The physical resources for human development will be provided by economic development. However, economic development alone cannot be called as social development. When the fruits of Economic development are far from the reach of poor, it indicates inequalities in income distribution. Hence, to achieve human development, there must be the simultaneous development of economic and social sectors.

The share of this sector in the SGDP has shown a considerable rise from 25.02 percent to 51.3 percent between 1960-61 and 2007-08. During 2008-09 this sector registered 10.06 percent annual growth rate. The most important reason for this high growth rate in recent times is because of a large scale expansion of information and technology, banking, insurance sectors and the policies of the state government during post-liberalisation era.

Education

A famous educationalist Kothari stated that the future of India is written in ‘class rooms’. That means human development is highly depended on education development. Data reveals that about two thirds of the state population is literate in 2001, it was just 21.19 percent in 1961. In case of sex wise analysis, the growth rate of male is more when compared with female. Only half of the female in the state are literates. The efforts of the state government in providing education is highly encouraging. During 2008-09 there were 65,609 primary schools, 14942 U.P. schools, 17376 secondary schools and 100 higher secondary schools. With regard to plus two education, there were 4263 Junior colleges with an enrolment of about 8.5 lakh approximately. In Higher Education 420 degree colleges and 48 PG colleges are providing educational facilities. There were 28 universities in 2008-09.
HEALTH

Good health will be attained through hygiene, protected water, pollution free environment, education etc. Inspite of best efforts made by the Government of A.P., still there are many villages in the state where people are suffering from fluorosis. To reach the goal of ‘Health for All’ of WHO, the Govt. of A.P. is implementing different programmes like National Maternity Benefit Programme, ICDP, Supplementary Nutrition programme for Women, Balika Samrudhi Yojana, Special Development Programme to Adolescent girls, Janani Suraksha Yojana etc.

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Electricity/ Power

Power is crucial one in getting speedy economic development. The Govt. of AP noticed its importance and has been doing well for the better development of power sector in the state. To overcome the weakness of this sector government bifurcated APSEB in to APTRANSCO and APGENCO. Because of this historical bifurcation the power sector is performing well in the state. The installed capacity of power in 2009 was 12427 MWs. The total consumers of Electricity in 2009 were 206.81 Lakhs. The percapita power consumption is 746 Kws. There are 3695 sub-stations and 6,74,217 distribution transformers in the state by the end of 2009.

Transportation

Transportation system is one of the Basic infrastructure facilities for the development of all factors. It leads to the Economic development of A.P. It transport the goods and passengers from one place to another place and it encourages business and trade.
Environment and Economic Development

Introduction

The word Environment is derived from the French word environed which means to surround or to encircle. Everything, which surrounds us, may collectively be termed as the environment. We are surrounded by both living and non-living things. The living things are called as biotic part and the non-living things as abiotic part of the environment. The abiotic part is also called as physical environment and the biotic part as biological environment.

The biotic structure of the environment consists of water and other liquids, gases, particles and solids, rocks, hills, mountains, deserts, grasslands, land, energy etc. The biotic structure of the environment consists of flora (plants) and fauna (animals). Biologically all living creatures are classified as animals. Man lives in these biotic and abiotic structures of the environment as the nucleus,

Objectives

After going through this lesson you can understand the following:

- Component and functions of environment
- Environment and Economy
- Concepts of Environment
- Pollution and degradation of forests
- Sustainable development

One Mark Questions

1. Physical Components of Environment

   Land, water, air, mountains, forests, rivers are the physical components of environment
2. **Biological components of environment**
   Flora and fauna etc are the biological components of environment

3. **Natural ecosystems**
   The ecosystems, which operate themselves, are called as natural ecosystems. They operate under natural conditions without any interference of man.

4. **Artificial Ecosystems**
   The ecosystems maintained by man artificially are called as artificial ecosystems. Man interferes with the natural ecosystems and disturbs their natural balance by adding of energy and planned manipulations. He tries to control and modify the biotic community existing in an ecosystem.

5. **Living Components**
   Living organisms (biotic) like plants and animals represent this part of the ecosystem. This biotic part of the ecosystem can be classified into three groups of living organisms.

6. **Non-Living Components**
   The physical and chemical factors that affect the living organisms are called non-living (abiotic) components. Sunlight, temperature, nature of soil, fire, is the physical factors. Percentage of water, air in soil, salinity of water, oxygen dissolved in water is the chemical factors. This part is the reservoir of the six most important elements necessary for life such as oxygen, carbon, hydrogen, nitrogen, sulfur and phosphorus.

7. **Degradable Pollutants**
   The pollutants that can be rapidly broken down by natural processes are called degradable Pollutants. Ex: discarded vegetables, domestic sewage etc. These pollutants are also called as biodegradable pollutants.

8. **Slowly Degradable Pollutants**
   Some pollutants remain in the environment for many years in an unchanged condition. Pollution results when their discharge exceeds the capacity of the environment to degrade them. These pollutants are actually waste products. For ex: DDT, Plastics etc.

9. **Non Degradable Pollutants**
   The pollutants, which cannot be degraded by natural processes, are called as non-degradable pollutants. Once they enter into the environment, it is difficult to eradicate them. They continue to accumulate in the environment. For ex: Nuclear wastes.
Two Marks Questions

1. Eco - Systems

   The British ecologist A.G. Tansley coined the term ecosystem in 1935. An ecosystem is a region with a specific and recognizable landscape (form) such as forest, grassland, desert, or coastal area. Every ecosystem has several interrelated mechanisms that affect human-life. These are the water cycle, the carbon cycle, the oxygen cycle, the nitrogen cycle and the energy cycle. The ecosystem functions through these cycles. The first and second laws of thermodynamics are the basis for continuous interaction of matter cycles and energy flows. Each ecosystem is also controlled by these cycles and these controls make each ecosystem’s abiotic and biotic features distinct from each other. Human lives are closely linked to the proper functioning of these cycles. The activities of these cycles are altered, humanity cannot survive on Earth.

2. Biodiversity

   The earth is the home for living organisms. People, animals, birds, plants, trees, fish, are the different forms of life. We find mountains, rocks, air, soil, climate on earth. All these forms of living and non-living things are called as bio-wealth of the earth. This complex collection of innumerable organisms is known as Biodiversity.

3. Air Pollution

   There are several gases in the atmosphere like oxygen, hydrogen, carbon dioxide, nitrogen etc. Air is the common name for the combination of all the gases that make up the earth’s atmosphere. Air itself is not a gas. It is a mixture of individual gases. Each of these gases retains its own properties. Air constitutes about 80 percent of the man's daily intake by weight. We breathe about 2200 times a day, inhaling around 16 to 20 kgs of air. Animals and plants also breathe. Air as a gas that envelops the earth and protects from abrupt changes in temperature. Most of the people spend more than 90 percent of their time in their homes, educational institutions, offices, theatres and work places etc... The undesirable changes in the air that exist in these indoors is called as indoor air pollution.

4. Soil Pollution

   Soil is the upper layer of the earth’s crust. It is formed by weathering of rocks. It is a gift from nature to man. It is a living resource. Along with sunlight, air and water, soil nourishes all plant life, animal life and supports human life. Typically one gram of soil contains one, warm, a few viruses, a few protozoa and about 1 lakh bacteria. The health of the soil decides the quality of plants, ground water and productivity of all crops grown.

5. Noise Pollution

   Generally we hear various types of sounds in and outside of our surroundings. Sound is a form of energy. Any vibration can produce sound. Sound spreads through the solid and liquid mediums.
Sounds vary in pitch. Some sounds have high pitch and some have low pitch. Some sounds are pleasant and some or not. This intensity of sound is measured in decibels (dB). Increase of one dB represents a large intensity of sound.

6. Degradation of Forests

Forests occupy an important place in our environment. They are so important as air and water. They perform essential social, economic and environmental functions. They are the producers of oxygen and guardians of ozone layer. Forests are the sources for rainfall, regulation of climate, and products like wood, paper, timber, medicinal plants. They absorb carbon dioxide and other greenhouse gases. They provide a comfortable temperature in the environment. Biodiversity is possible only with forests. There is no environmental equilibrium without forests.

4 Marks Questions

1. Describe the relationship between environment and economy?

The functions of the environment explain the importance of environment. It acts as the supplier of raw materials to the economy and absorbs the wastes discharged by the economy.

“In economic terms, the resources supplied by the environment can be called as environmental goods. These goods are public goods. Many individuals can use them at the same time without any competition from other individuals. There is no rivalry among users of environmental goods.

However, in modern days, the reckless and exploitative behavior of the economic active is setting a limit to the efficiency of environment to supply the resources. The capacity of environment to absorb the wastes is also declining.

It can be concluded that this material balance model depends upon the first two laws of thermodynamics. The first law explains that the energy can be changed from one form to another. However, it can neither be created nor destroyed. The second law is the law of entropy. Economic activities of production and consumption are dependent on these two laws. Similarly generation in addition, assimilation of wastes is also dependent on these two laws.

2. Write an essay on air pollution

There are several gases in the atmosphere like oxygen, hydrogen, carbon dioxide, nitrogen etc. Air is the common name for the combination of all the gases that make up the earth’s atmosphere. Air itself is not a gas. It is a mixture of individual gases. Each of these gases retains its own properties. Air constitutes about 80 percent of the man’s daily intake by weight. We breathe about 2200 times a day, inhaling around 16 to 20 kgs of air. Animals and plants also breathe. Air as a gas that envelops the earth and protects from abrupt changes in temperature.
Most of the people spend more than 90 percent of their time in their homes, educational institutions, offices, theatres and work places etc... The undesirable changes in the air that existing these indoors is called as indoor air pollution.

**Sources of Air Pollution**

It is estimated that 2 billion tones of air pollutants are released every year. Besides natural sources, a number of fabricated sources are causing air pollution. Burning of firewoods for domestic purposes, burning of fossil fuels, industrialization, agricultural activities, vehicular emissions, nuclear tests, deforestation, mining, power generation, refrigeration industries, etc., are the sources of air pollution.

**Effects of Air Pollution**

Air pollution adversely affects people, plants, animals, aquatic life and materials. It leads to health disorders in human beings; damages the leaves of the plants and trees; interferes with photosynthesis and plant growth. Air pollution discolors the historical monuments; breaks down the exterior paint on cars and houses, and deteriorates the quality of natural beauty sites.

Air pollution affects the stratosphere and climatic conditions. Global warming, acid rains, depletion of ozone layer, changes in the distribution of solar energy, rising temperatures, occurrence of droughts, changes in the natural plants, crops, insects, livestock and increased ultraviolet radiation are the effects of air pollution.

**Control Measures**

Air pollution can be controlled by two ways.

They are 1. Preventive techniques and 2. Effluent control.

1. Air monitoring methods should be implemented to identify the sources of air pollution.
2. The causes of air pollution are to be identified.
3. Concentration of CO, SO₂, NO₂ etc. should be monitored regularly.
4. Pollutants are to be reduced by adopting modern and efficient technology.
5. Necessary modifications are to be brought in designs of the automobile engines. Operational efficiency of the engines must be increased to minimize the emissions.
6. Fuel substitutes are to be invented.
7. The industrial units should be equipped with all modern devices to control pollution.
8. Use of fossil fuels must be reduced.
9. Air pollution laws are to be strictly implemented.
10. Use of renewable energy must be increased.
3. Write an essay on water pollution

Water is blue gold. Like air, water is very essential for the existence of all the living organisms. It accounts for about 70 percent of the weight of the human body. About 80 percent of the earth’s surface is covered by water. About 97 percent of the total water available on earth is found in the oceans. The remaining 3 percent is fresh water. Of this 3 percent, 2.977 percent is locked in the glaciers. Thus, only 0.003 percent of water is available to us. This proportion makes water a precious resource, without which there is no life on the earth.

Water pollution is defined as “the addition of some substance or factor which degrades the quality of water, so that it becomes unfit for use”. We have two sources of water-surface and ground water. Water that is found in streams, tanks, rivers and artificial reservoirs is called surface water. Water that percolates into the ground is called as ground water.

Sources of Water Pollution

The major pollutants that pollute water are:

1. Domestic wastes and sewage.
2. Surface run-off.
3. Silt
4. Industrial effluents
5. Hot effluents
6. Fertilizers and pesticides
7. Accidental oil spills
8. Compounds of toxic metals
9. Mining wastes
10. Untreated waste water and garbage etc.

Effects of Water Pollution

Water pollution generates the following effects:

1. Transmits the water-borne diseases
2. Deteriorates the quality of drinking water
3. Affects the productivity of irrigated agricultural lands
4. Sea food becomes contaminated.
5. Depletes oxygen in water. Brings undesirable changes in temperature and breeding of fish.
6. Makes water unfit even for swimming
7. Produces offensive odours in water
8. Water related diseases cause a heavy economic burden particularly for poor people.
9. Leads to loss of human days due to illness.
10. Children suffer from intestinal diseases.

**Control Measures**

The following measures are necessary for effective control of water pollution.

1. Application of fertilizers and pesticides is to be minimized.
2. Organic farming must be increased.
3. Plantation of trees should be undertaken in a large scale to prevent the run-off water.
4. Treatment of waste water is essential.
5. Setting up of effluent treatment plants in industries is necessary.
6. Polluters Pay principle should be enforced. Along with strong environmental laws, industries then try to reduce discharge of waste and hot water.
7. Government investment must increase in the provision of safe drinking water, particularly in rural areas.
9. Rain water should be collected and stored.
10. People must recognize that they have the right to clean drinking water.

4. **Write an essay on conservation of Forests**

Forests are the carbon sinks and treasures of scenic beauty, in view of their contribution to environment, conservation of forests is very important. The following are the some protective measures.

1. Forest lands should not be allotted to poor for house sites.
2. Public woodlots and community woodlots must be developed under social forestry programmes.
3. Waste land must be brought under plantations
4. Forests must be protected from fires.
5. Measures must be taken to refill the depleted forest area.
6. Forest-based enterprises must be encouraged.
7. Establishment of Joint Forest Management Communities is necessary

8 Marks Questions

1. Write an essay on sustainable development?

The concept of Sustainability dates back to 18th and 19th centuries given by European Foresters. The forest was the driving force behind the then European economy. They have resorted to sustainable forest development and began to replace the trees cut by planting trees. The idea behind this replacement of trees is that the wood would be available for future requirements. The idea behind this attempt is that we have to use resources over the long run. The present use of resources should not decrease the ability of the resource base to support the future generations. However, it does not mean that the resources should remain untouched. We have to choose a rate of use that sustains the resource for the future Sustainability means as non-declining utility. Similarly it also means a non-declining per capita human well-being over time. Sustainability can also be defined as achieve mint of constant real consumption through time, keeping the capital intact. A flow of consumption without inducing the capital is also called as Sustainability.

The Brundtland Report defined Sustainability as meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life. In 1992, the Earth Summit defined sustainable development as meeting the needs of the present without compromising the ability of the future generations to meet their own needs. These definitions explain that the society, ecosystem and economy must be made functioning with key resources.

Components of Sustainability

There are three basic components of sustainable development. They are economic, social and environmental components. These three components are interdependent. A balance is to be achieved among these three components for achieving the sustainable development this balance

These three aspects of sustainable development indicate that:

1. The next generation should inherit both fabricated and environmental assets.
2. The stock of environmental assets to be inherited by the next generation should not be less than the assets inherited by the present generation.
3. The inherited stock must consist fabricated, natural and human assets.
Sustainable development reminds us that:

1. We should not deplete or degrade Earth’s physical, chemical and biological capital. If we go, we loose our life supporting capital.

2. We must understand the environment. We must remember that we belong to this earth and the earth is not for us only but for all living organisms.

3. We must respect the Earth and cooperate with it by respecting all forms of life and all non-living Things.

4. We must use our environment in such a way that does not pass any negative effects to other species.

5. We must recognize that every species has the equal right to live as we have.

6. No species should become extinct because of our activities.

7. Do little things based on think globally and act locally.

8. Work with others to help, sustain and heal the earth.

9. Enjoy the nature, beauty, friendship and love.
Introduction

Land is the crucial factor of production of a country. Land is used for growing crops, raising forests, constructing roads, factories, houses and so on. Cultivable land is the source of food both for human beings and animals. It is also a source of raw materials for most industrial products. You can imagine what will happen if the amount of land is insufficient or the land available for cultivation is not properly managed. In that case we will not get sufficient food, our animals will not get enough fodder, our industries will starve of raw materials.

In this lesson you will read about the importance of the agricultural sector in the Indian economy. You will also read about the various problems faced by this sector and the measures taken to solve these problems.

Objectives

After going through this lesson you will be able to:

- explain the role of agriculture in the Indian economy;
- state the need for increasing agricultural production;
- define the term productivity of land;
- compare the level of productivity in India with other countries,
- establish that productivity in Indian agriculture is low.
- identify the different factors that cause low productivity.
- list the steps taken to increase productivity.
One Mark Questions

1. Share of agriculture in national income:
   Nearly one-third of the national income of our country originates from agriculture and allied activities. As such it is one of the biggest contributor to national income of India.

2. Extensive cultivation
   By extensive cultivation we mean increasing the total area under cultivation. The total area under crops can be increased by bringing under cultivation, cultivable land which was lying waste or making uncultivable land suitable for growing crops through agricultural research.

3. Intensive cultivation:
   Intensive cultivation implies growing more on the same area. How can this be done? This can be done through the use of better and modern methods of cultivation, use of better quality seeds, fertilizers, pesticides, proper irrigation facilities. In other words by using better inputs we can grow more on the same piece of land.

4. Agriculture productivity
   The term productivity in general means the total output per unit of the factor input. For example, land productivity means output per hectare of land. Productivity is an average and is calculated by dividing the total output of a particular crop by the total cultivated area under that crop.

5. Division of land holdings
   The increase in population along with the law of inheritance has led to subdivision and fragmentation of land holdings.

6. Fragmentation of land holdings
   Consider the following example, A farmer has 100 hectares of land. He has 4 sons. Then after his death the land would be subdivided into 4 parts of 25 acres each. Now if each of the 4 sons has 4 sons then each grandson of A would receive 25/4 i.e. about 6 hectares of land. As this process goes on, the size of piece of land under individual ownership i.e. land holding goes on becoming smaller and smaller. It makes the use of modern machinery and tools difficult. As a result productivity remains low.

7. Termination of intermediaries
   By intermediaries is meant the intermediaries between the tiller and the State. These were mainly responsible for collection of revenue from die tiller and handing over to the State.
8. **Tenant farmers**

Tenant farmers are those who take cultivable land on rent and share the produce with the land owners.

9. **Ceiling on land holding**

Ceiling here means fixing a maximum limit to which an individual can own agricultural land. The purpose is to take away surplus land and distribute the same among the landless and the small farmers.

10. **Consolidation of land holdings**

This is possible by grouping small pieces of land into one large block through the mutual exchange of land holdings.

11. **NABARD (National Bank for Agriculture and Rural Development)**

NABARD was set up in July 1982. It is the apex body in the field of rural credit. NABARD provides credit to the agricultural sector through cooperative credit societies, regional rural banks, commercial banks etc. It provides financial support and ensures coordination in the working of various rural credit institutions.

8 Marks Questions

1. **Explain the importance of agricultural sector in Indian economy**

Agriculture is the most important sector of the Indian economy for the following reasons:

   1. **Provides food and fodder**
      
      The three basic needs of human beings are food, clothing and shelter. Of these food is the most important. If we do not get food, we will not be able to survive. Agriculture is the most important sector of the Indian economy because it provides us with food and fodder to our animals.

      In India, the demand for food is continuously increasing due to the rising population and the rising level of income. Therefore, agriculture will continue to play its role in the country’s development.

   2. **Source of raw materials**
      
      Agriculture provides raw materials for various industries. It provides raw cotton for producing cotton yarn and cotton textiles, raw jute for jute products, sugarcane for producing sugar, oil seeds for oil, natural rubber for rubber products like tyres and tubes etc.

      As industries grow, the demand for raw materials also grows. As a result the agriculture sector must also grow in order to meet the growing requirements of industries.
3. **Main source of livelihood**

Agriculture has been and continues to be the main source of livelihood in India. Even today about 2/3rd of the Indian population is engaged in agriculture and allied activities. It is likely to continue to be the major source of employment in India.

4. **Contribution to foreign trade**

Agriculture occupies an important place in India’s foreign trade. Traditionally, India has been an exporter of agriculture related commodities e.g. tea, coffee, sugar, cocoa, tobacco, cotton textiles, jute, raw wool, vegetable oils. Agriculture is a big earner of foreign exchange for India.

In recent times, the importance of agriculture in foreign trade has increased further. India now also exports foodgrains such as wheat and rice. India also exports a number of varieties of fruits and flowers which are in great demand abroad.

5. **Market for industrial products**

From the income that we earn we just buy food and then spend our income on satisfying other wants such as clothes, shoes, furnitures, sewing machines, gas stoves, radio, T.V., fridge etc. All of these goods are produced in factories.

You know that approximately 2/3 rd of the Indian population depends on agriculture for livelihood. These people need goods like cloth, houses, kerosene, diesel, furniture, shoes, books and many other goods for their consumption. All these goods are produced by the industrial sector. Therefore, people in the agricultural sector is a large potential market for the goods produced by the manufacturing sector.

As agricultural development takes place, the income of the people increases. This increases demand for manufactured goods leading to industrial development.

6. **Contribution to national income**

Nearly one-third of the national income of our country originates from agriculture and allied activities. As such it is one of the biggest contributor to national income of India.

2. **What do you mean by agricultural productivity**

The term productivity in general means the total output per unit of the factor input. For example, land productivity means output per hectare of land. Productivity is an average and is calculated by dividing the total output of a particular crop by the total cultivated area tinder that crop.

\[
\text{Productivity of land} = \frac{\text{Total physical output of a crop}}{\text{Total cultivated area of the crop}}
\]

Thus, if we have a piece of land with an area of 2 hectares and the total amount of wheat grown on it is 50 quintals, then the productivity of land is 25 quintals per hectare.
3. What are the reasons for low productivity in agricultural sector

1. Lack of incentive for making improvements on land

Many cultivators do not own the land. They are tenant farmers (farmers who had taken the farm on lease or rent). A tenant farmer would not be interested in making any permanent improvement on the land unless he is sure that he continues to be tenant in future. Also, the tenant farmers have to pay such high rents that they hardly left with any resources for making improvements on land they cultivate.

The owners of the land cultivated by the tenant farmers are also not interested in making improvement on land. This keeps productivity of land low.

2. Subdivision and fragmentation of land holdings

The increase in population along with the law of inheritance has led to subdivision and fragmentation of land holdings. Consider the following example:

A farmer has 100 hectares of land. He has 4 sons. Then after his death the land would be subdivided into 4 parts of 25 acres each. Now if each of the 4 sons has 4 sons then each grandson of A would receive 25/4 i.e. about 6 hectares of land. As this process goes on, the size of piece of land under individual ownership i.e. land holding goes on becoming smaller and smaller. It makes the use of modern machinery and tools difficult. As a result productivity remains low.

3. Lack of proper irrigation facilities

Water is an essential input in agriculture. Yet, even today, due to the absence of proper irrigation facilities, 70% of the total cultivated area depends on the uncertain monsoon. Therefore, the success or failure of the monsoon determines the success or failure of agricultural production. The rains, as a source of irrigation, are unreliable due to two factors;

4. Dependence on traditional methods of cultivation

Another factor that leads to low productivity is the dependence of a large number of farmers on traditional methods of cultivation. The illiteracy and traditional beliefs and attitudes towards production are an obstacle in the adoption of new farming techniques. Even today a large number of farmers in our country use wooden ploughs and bullocks. Also, there is widespread ignorance about the use of modern inputs and techniques such as multiple cropping. Instead of using proper quality and quantity of fertilizers, a number of farmers leave the land fallow so that it can regain its fertility. These factors contribute to low productivity of land.
5. Lack of use of other inputs

(a) Seeds

Good quality seed is an important factor in agricultural productivity. The use of good quality seeds leads to higher land productivity. However, it is seen that many farmers are not in a position to use good quality seeds due to many reasons.

if Farmers do not have enough resources to purchase these seeds, ii) Farmers are unwilling to accept the HYV (High Yielding Variety) seeds, about which you will study later, developed through agricultural research.

(b) Fertilizers

Fertilizer is a necessary input for increasing agricultural productivity. The most commonly used fertilizer in India is manure which is prepared from cowdung and other waste products.

(c) Pesticides

More than 5% of the crop in India is damaged by pests, insects and also weeds. It is because of the lack of use of pesticides. However, we must not make indiscriminate use of toxic pesticides as they can have an adverse effect not only on human health but can also lead to environmental degradation through soil, water and air pollution.

6. Lack of rural credit

A major problem that leads to low agricultural productivity is lack of proper credit facilities. Farmers need credit for two main purposes:

(i) For the purchase of various inputs such as seeds, pesticides, fertilizers and for the repair of implements.

(ii) For meeting long term investment needs e.g. for buying land or for investment to improve the quality of land, buying new implements and developing proper irrigation facilities.

7. Lack of other facilities such as storage and marketing

A farmer would be encouraged to produce more only if he gets a fair price for produce. For this it is necessary that proper marketing and storage facilities are available. The main alternatives available to a farmer to sell its produce are (a) selling to local traders, (b) selling in local fairs and (c) selling in regulated markets.
4. Explain various measures to improve agricultural productivity.

There are large number of measures which can be taken to improve agricultural productivity. These measures are broadly classified into institutional and technological. The institutional measures aim at rational distribution of cultivable land among the actual cultivators, improving the size of farms and providing security to the tenant cultivators. The institutional measures are popularly called ‘land reforms’. The technological measures aim at the use of improved methods of cultivation and improved inputs. All these measures are briefly explained below:

(a) Institutional measures (or land reforms) The main measures are:

1. Abolition of intermediaries: By intermediaries is meant the intermediaries between the tiller and the State. These were mainly responsible for collection of revenue from die tiller and handing over to the State. In this process they exploited farmers. There was no incentive for the farmers to make improvements on land. So the Government has passed legislation in all the states and legally abolished the intermediaries from the scene.

2. Providing security to tenant farmers

Tenant farmers are those who take cultivable land on rent and share the produce with the land owners. The main problems they faced were (i) high rent and (ii) fear of eviction from land by the landlords. Government has passed many laws to regulate rent and providing security from eviction from land. Government also took steps to provide ownership rights to the tenants.

3. Ceiling on land holdings

Ceiling here means fixing a maximum limit to which an individual can own agricultural land. The purpose is to take away surplus land and distribute the same among the landless and the small farmers. To fulfil this aim government has fixed the maximum limits in different states.

4. Consolidation of land holdings

We have observed in the earlier section that fragmentation and subdivision of land holdings is a major factor responsible for low land productivity because it does not allow the use of modern techniques and implements for cultivation. This problem can be solved through consolidation of land holdings. This is possible by grouping small pieces of land into one large block through the mutual exchange of land. A farmer in village may have 2 pieces of land which are not adjacent to each other. Through the process of exchange he may be able to get one compact block of land instead of scattered pieces of land.
Consolidation of land holdings was started in India on a voluntary basis through the formation of cooperatives. Consolidation has had a favourable effect in certain regions such as Punjab, Haryana and Western U.P. where farmers have begun to use modern farm practices and this has led to a growth in agricultural production. However, the pace of consolidation across the country is still very slow.

5. **Technological measures**

1. **Irrigation facilities**

   Irrigation is an important factor that affects agricultural production. Even today 70% of the cultivated land is dependent on the monsoon for irrigation. There are two main types of sources of irrigation.

2. **Availability of better quality of inputs**

3. **Provision of Rural Credit**

6. **Provision of other facilities**

   Regulated markets have been set up all over the country. These markets have a system of competitive trading which makes it possible for farmers to sell their crop at the maximum available price. These markets are managed by committees comprising growers, traders, local bodies and the state government. The farmers have a number of benefits in this market. They get correct information about the market, correct weights and fair market price.
Introduction

There are three sectors in any economy: primary, secondary and tertiary. In the previous lesson (No. 26) you have studied about agriculture which is the main constituent of the primary sector. In this lesson you will study about the secondary sector of the economy i.e. the industry. Food is our main need. But apart from food there are other goods we need, like clothes, shoes, soaps, transport equipment such as cycles, cars, buses, trucks and aeroplanes; electricity, paper, stoves, sewing machines, radio, T.V., fridge etc. These are all provided by the industries. Industries produce a wide range of goods from safety pins to aeroplanes. In this lesson you will learn about the role of industries in the Indian economy. You will also study the types of industries, the performance of various industries in India, factors on which industrial growth depends and the policy of the Government of India towards industries.

Objectives

After going through this lesson, you will be able to:

● explain the role of industries in the Indian economy;
● list the grouping of industries in different ways;
● explain the factors which affect industrial growth; state the policy of the Government of India towards industries since Independence

One Mark Questions

1. Consumer goods industries

These industries produce goods for consumption, for example clothes, shoes, soaps, pins, watches, T.V., radio, fridge, washing machines etc.
2. Producers goods industries
   These industries produce goods needed for further production like fertilizers, iron and steel, cement, chemicals, tools, machinery, etc.

3. Industrial policy
   Industrial policy includes all rules and laws enacted by the government from time to time to provide a direction for industrial activity in the country. The government expresses its policy towards industries through the various industrial policy resolutions passed from time to time. Let us have a look at these resolutions.

4. What do you mean by small scale industries
   In India a small scale enterprise is one in which investment in plant and machinery is less than Rs. 3 crores.

5. What do you mean by Cottage industries
   Cottage units are those which mainly produce traditional products, for example handicrafts, and use traditional methods of production. They employ family labour.

6. Public sector
   By public sector we mean enterprises owned by the government. The public sector is assigned an important role in the Indian economy for the following reasons:

4 Marks Questions

1. What are the various factors on which industrial growth depends?
   Various factors on which the growth of industries depends are:

   1. Availability of raw materials
      Raw material is the basic input in production. However, other facilities like infrastructure, credit, machinery and workers are available no output can be produced without raw materials. As industries grow, more raw materials are required. If the raw materials were not available, industries would not be able to expand or grow.

   2. Availability of technology
      The technology is a major factor that determines the growth of industries. Higher the level of technology, higher the output. Production units using more labour produce less than the production units using more machines.

   3. Availability of infrastructural facilities
      The term infrastructural facilities includes roads, railways, airports, bridges, dams, telephones and other means of communication, water systems, electricity provision, etc. These facilities
are basic requirements for running and development of industries. Simply looking at the infra-
structure or whatever is included in it, you will be able to understand why the availability of
these facilities is essential for undertaking industrial production in particular and the growth
and development of industries in general.

4. Availability of manpower
   Availability of manpower is a very important factor affecting industrial growth. The term man-
   power includes both the unskilled and skilled labour. Managerial staff to manage the working
   of the enterprise and entrepreneurs who are willing to take the lead and bear risks are also
   included in manpower.

5. Employer and employee relations
   For smooth functioning of industries, healthy relations between workers and employers are
   very important. If relations are strained, it will lead to strikes and lockouts and ultimately loss
   of production. Therefore, there is a need for ensuring peaceful and cordial labour relations.

6. Demand for goods
   Goods are produced when they are in demand. It is, therefore, necessary that there exists’
   markets i.e. demand for these goods. Before making an investment, any businessman first
   surveys the market to find out if there is a demand for his products. If he finds that such a
   demand does not exist, then he will not make investments. However, it is hot necessary that
   the demand should come from within the country.

2. Explain the importance of small scale industries in India
   Small scale units are different from cottage enterprises they use modern production techniques
   and hired labour (not just family labour).

   Importance of small scale industries
   The small scale sector has always been given an important place in the development process of
   India. The main reasons are follows:

1. Large employment potential
   A small scale enterprise requires less capital per worker. India is capital deficient and over-
   populated country. The number of persons seeking employment is increasing year by year.
   Small scale units have potential of employing large number of workers and require less amount
   of capital for the same.

2. Can conveniently adopt changing demand patterns
   These enterprises have a small scale of operation. Therefore, it is easier for these enterprises
   to change their production pattern according to the changing demand patterns.

252
3. Use of local talents

In all parts of India talents are available at local levels. These people are experts in traditional goods. Small scale enterprises give opportunities to such talents. In the absence of small scale industries such opportunities would never be available to them.

4. Help in reducing inequalities of incomes

Large scale production lead to concentration of income and wealth in few hands. On the other hand a comparatively much large number of small sale enterprises leads to distribution of income in large number of hands. So small scale industries help in reducing inequalities of income.

5. Help in balanced regional development

The small enterprises can be conveniently opened in most parts of the country. These can reach in every corner of the country. As such these enterprises help in balanced regional development of the economy.

You are now familiar with reasons for the important role assigned to the small scale sector in India. Let us now look at some of the measures taken by the government to promote and protect small scale enterprises.

3. What are the steps undertaken by Government of India to promote Small Scale Industries

Measures taken to promote small scale industries

1. Items reserved for exclusive production in small scale sector

As compared to small scale industries, large scale enterprises enjoy a better competitive advantage. It is because they have better access to resources, raw materials, finance, markets, modern technology. To protect the small scale industries from this unequal competition a large number of items have been reserved for the small scale sector.

2. Preference in Government Purchases

The small scale industries often face a problems of finding proper markets for their goods. The government has taken a number of measures to help small scale units market their goods. As such the government gives preference to this sector over other sectors in making purchases of goods produced by small scale industries.
3. **Loans on priority basis**

The small scale sector has been designated as a priority sector for the purpose of loans from commercial banks. In 1990 the Small Industries Development Bank of India (SIDBI) was set up to look after the financial needs of small scale enterprises.

4. **Help in modernisation**

The small scale sector often used old techniques and outdated machinery. This keeps its cost of production high. As such it is not able to compete with large scale enterprises. Various schemes have been started to help the small scale enterprises in buying modern machinery.

4. **Examine the role of public Sector industries?**

By public sector we mean enterprises owned by the government. The public sector is assigned an important role in the Indian economy for the following reasons:

1. **To ensure rapid industrialisation**

   The public sector is an unending source of investment. It can take risks easily and work according to government policies. In this way it can help in speedy industrialisation.

2. **To prevent concentration of economic power in few hands**

   Public sector is owned by the entire society and not by a few persons. Therefore, setting up of industries in the public sector would mean profit to the entire society and not to a few persons. It means a more equitable distribution of economic power.

3. **To develop industries not undertaken by the private sector**

   There are certain industries such as steel plants, dams, railways, irrigation projects which require large amounts of investment and yield returns after a gap of many years. Private entrepreneurs are unwilling to invest in such industries. But these industries are crucial for the development of the country. This responsibility therefore had to be taken up by the government.

4. **To ensure balanced regional growth**

   Private investors set up industries in only those regions of the country where basic facilities like that of roads, electricity, water, transport, education, etc. are available. Backward regions of the country do not have such facilities. Therefore, the government sets up enterprises in less developed regions of the country to bring them at par with other regions of the country.
5. **Use profits for further investment**

In the private sector most of the profit is distributed among the owners. In the public sector no such distribution is required. Therefore public sector enterprises are in a better position to reinvest what they earn and lead to more industrialisation in the country.

5. **Offer certain measures to overcome the problems of public sector?**

The public sector has indeed played a significant role in India’s economic development but it also faces problems. There are some government enterprises which are making profits such as Steel Authority of India Ltd. (SAIL), Oil and Natural Gas Corporation (ONGC), Bharat Heavy Electrical Limited (BHEL), etc. But on the other hand there are a large number of other public sector enterprises e.g. Fertilizer Corporation of India, Rashtriya Ispat Nigam, Indian Airlines Corporation, which are not commercially profitable. The main reasons are:

1. **Location of enterprises not based on commercial considerations**

   The public sector enterprises set up in backward areas were not guided by commercial considerations. They were set up to fulfil the aim of balanced regional development.

2. **Interference by Government**

   There has been too much of government interference in policy and day to day working and decisions. This leads to delays in decision making.

3. **Lack of incentive and accountability**

   There is no incentive to the employees to perform better. Also there is no accountability because no one is held responsible for a failure in achieving targets.

4. **High cost of projects**

   Improper planning and delays in implementation of projects lead to rise in their cost.

5. **Absence of competition**

   Public sector enterprises have long enjoyed a monopolistic position. Private sector was not allowed entry. This, in the absence of any competition, means that any performance was good performance. Due to absence of competitor there was no incentive to cut down costs or improve the quality of the product.

6. **Overstating**

   There is overstating in public enterprises. The number of persons employed is more than what is required to run the public enterprises efficiently. This increases the cost and reduces profitability of these enterprises.
8 Marks Questions

1. Explain the importance of industrial sector in India
   Industries have a very important role to play in our economy because of the following reasons:

   1. **Industries produce goods for consumption**
      Industries produce various types of goods to fulfil the different needs of consumers. The manufactured goods that people desire are pins, paper, pencils, clothes, shoes, soaps, cycles, sewing machines, radio, T.V., fridge, etc. which are produced by industries.

   2. **Industries produce goods for production units**
      Industries also produce goods that are needed by production units like farms, factories, shops, offices, etc. These goods are needed to produce more goods and services.

      For example, farmers need various inputs to grow crops like tractors, harvesters, fertilizers, pesticides, electricity, diesel, etc. All such goods are produced by the industries. Now take the example of industries. Industries need machines, raw materials, electricity and many other goods. All these goods are also produced by industries.

   3. **Industries help in the production of services**
      If there were no industries producing buses, trucks, trains, we would not be able to go from one place to another or transport our goods from one place to another as quickly as we do now.

      If there were no industries producing paper, printing machines, ink etc. we would not have got this lesson to read. Education services require books, stationery, chalks, etc. all produced by industries. For doctors to take care of our health and provide medical services, various things such as stethoscopes, thermometers, blood testing equipment and medicines are needed.

   4. **Industries help to make us self-reliant**
      If there were no industries in our country then all manufactured products would have to be imported from other countries. It would have made us totally dependent on foreign countries. Such dependence on other countries is not good. Imagine what would happen if there was a war and supplies from foreign countries are affected. You must be aware that India is dependent on foreign countries for oil. During the Gulf war over Kuwait, oil supplies to India were affected and there was problem in the availability of petrol in India.

   5. **Industries promote exports**
      Inspite of the best efforts, it is not possible to achieve 100% self-reliance by any country. A country may not be able to produce many goods due to non-availability of the necessary inputs. These commodities, therefore, have to be imported. However, to be able to import goods we need foreign exchange for making payments. The foreign exchange is earned by exporting goods. Thus, we need export to finance our imports.
6. **Industries are a source of livelihood**

Industries provide livelihood to people. The number of workers employed in Indian industries in 1990-91 was over 5 crores. This is about one-sixth of the total working population in the country.

Industries are an increasing source of employment as compared to agriculture. There is limited scope of employment in agriculture because the demand for food items is limited. When income rises, demand for non-food items rises at a faster rate. Clothes, shoes, house, radio, T V, sewing machine, washing machine, gas stove, etc. rises more than the demand for food items.

Nature has endowed our country with large amounts of resources like agricultural land, mineral deposit, forests, rivers, sea, etc. Out of these some are known to us and some are yet to be explored. Industrial goods like machines, equipment etc. help in exploiting the existing resources. For example tractors help in cultivating the land fester. Use of fertilizers etc. improves the fertility of land. Industrial goods also help in exploring new resources.

2. **What are the chief features of 1956 Industrial Policy Resolution (IPR)?**

The IPR 1956 divided all industries into 3 categories or schedules:

**Schedule A:**
This included 17 industries where the public sector or the government would have exclusive responsibility. Some of these are arms and ammunition, atomic energy, iron and steel, air and rail transport, telephones, generation and distribution of electricity etc.

**Schedule B:**
This category included 12 industries and here the government was to take the initiative in setting up new enterprises but the private sector was also expected to play a role along with the efforts made by the government. Examples of some industries included in this category are: machine tools, chemicals, fertilizers, road and sea transport.

**Schedule C:**
This category included all the remaining industries not included in Schedules A and B. Here the development of industries was to be left to the private sector.

The above division of responsibility between private and public sectors indicates that India is a mixed economy. A mixed economy is an economy where both the public sector as well as the private sector exist together and play complementary roles in promoting industrial growth.

A major shift in the roles of private and public sector is however seen in the industrial policy of July 1991. It is called the New Economic Policy. In the policy of 1991 a greater role is being assigned to the private sector. This sector is now allowed to enter into areas which were earlier reserved for public sector enterprises. Under the IPR 1956, 17 industries were reserved for the public sector. Out of these 9 have now been reserved i.e. the private sector is allowed entry. These industries are iron and steel, electricity, air transportation, ship building and heavy machinery.
(ii) **Industrial licensing**

Industrial licensing means taking permission of government to start an enterprise. It aims at regulating industries within the overall industrial policy of government. Some of the aims of a licensing system are as follows:

1. Development of industries according to the policies laid down by the government.
2. Controlling undue expansion by the large scale enterprises and preventing a concentration of economic power.
3. Protecting the small scale enterprises from competition posed by the large scale sector.
4. Promoting balanced regional development.
5. Making proper use of resources.
6. Generating employment opportunities.

However, it was found that the licensing system was abused by the big industrial houses to keep the competitors away. As such the 1991 policy gradually removed the requirement for license for most of the industries. Now only 15 industries are covered under the licensing system.
Introduction

Industry and agriculture are the lifeline of an economy. Agriculture meets people’s demand for food. Industry meets people’s demand for other goods like clothes, houses, electricity, shoes, books, transport vehicles etc. Both food and non-food items are essential for living of human beings. As such both industry and agriculture are must for any society. Industry and agriculture are complementary as far as satisfaction of wants of people are concerned. Both must grow simultaneously. Industry alone cannot progress without progress of agriculture. Similarly, agriculture cannot progress without progress of industry. They are dependent on each other in respect of demand and supply. The population engaged in agriculture needs industrial products. The population engaged in industry needs agricultural products. Agricultural production needs producers goods from industry. Industrial production needs raw materials produced by the agricultural sector. There is therefore, a clearcut interdependence between agriculture and industry. This lesson aims at elaborating this interdependence.

Objectives

After going through this lesson you will be able to:

● explain the dependence of industries on agriculture;
● explain the dependence of agriculture on industries;

8 Marks Questions

1. Explain how industrial sector depends on agricultural sector.

   Industrial sector receives raw materials from the agricultural sector

1. Agriculture provides raw materials to various industries: As more and more enterprises are set up or existing enterprises are expanded, the demand for raw materials increases. This increasing demand can be fulfilled only by increasing agricultural production.
2. Population engaged in agriculture is source of demand for industrial goods

Food is the primary and basic need of all human beings. Once this need for food is fulfilled, we try to satisfy our needs for other goods such as clothes, shoes, houses, cycles, tubewells, tractors, sewing machines, gas stoves, radio, fridge, T.V., washing machines, etc. which are produced by the industrial sector.

About 2/3 rd of the Indian population approximately 60 crores is engaged in agriculture and allied activities. These people also need goods other than food. They also need clothes, houses, shoes, furniture, electricity, vehicles, etc. which are all produced by the industrial sector. Imagine how much dependent industrial sector is on agricultural sector for demand of their products. If income of the agricultural population is low, their demand for industrial products will also be low. The growth of industrial sector is therefore linked with the growth of agricultural sector. For industrial sector to grow agricultural sector must grow. For the income of the people engaged in industrial sector to rise the income of those engaged in the agriculture sector must rise.

3. Agricultural sector is a source of labour for the industrial sector

When a country is underdeveloped, it is primarily an agricultural economy. As development takes place the comparative need for labour in agriculture declines. It is because of two reasons. First, as incomes rise the demand for food items rises but at a slow rate. Man consumes food in limited quantity. At the most he starts consuming better quality of food. On the whole the demand for food rises at a very slow rate.

Second, per hectare productivity in agriculture increases due to the use of better quality seeds, fertilizers, pesticides, proper irrigation facilities. As a result lesser number of people are now required to produce the same amount of crops from a given piece of land. Consider an example.

4. Agricultural sector provides food to the population engaged in industrial sector

Agriculture sector satisfies man’s basic need which is food. It provides cereals, pulses, vegetables, fruits, spices and beverages etc. The demand of the entire population for food whether they are working in agriculture, industry or the services sectors is fulfilled by agriculture.

The population in the industrial sector is directly dependent on agricultural sector. Any problem in the availability of food in the industrial regions discourages opening of new units in these regions. The worker sensing shortage of food will be discouraged to move to the industrial areas. Thus continuous availability of food items in industrial areas is a pre-condition for industrial development.

5. Source of funds for the industrial sector

The people in the rural areas deposit their savings in banks, post offices and other financial institutions in the rural areas. Due to certain limitations the rural population is not able to use these savings for investment in agriculture. These rural funds then find their way to urban
industries through banks. In this way rural savings become a source of funds to the industrial sector of the economy. Higher the income of the agricultural sector higher would be their savings and more resources be available for industrial development. Thus the growth of industrial sector is linked with the growth of agricultural sector.

We have discussed how the growth of industrial sector is dependent on the growth of agricultural sector. But this is not a one-way interdependence. It is a two-way interdependence. The growth of agricultural sector is equally dependent on the growth of the industrial sector. Let us now discuss the ways in which the industries help agriculture to grow.

2. **Explain how agricultural sector depends on industrial sector.**

Agriculture is dependent on industries in the following ways:

1. **The industrial sector provides seeds to agriculture**
   Good quality seeds are an essential input in agriculture. Research is going on continuously to develop better quality seeds which have a higher yield, which are resistant to pests and plant diseases and are suited to the local conditions i.e. they are suitable for the type of soil and weather conditions for different areas. What is required for this research? It requires laboratories with sophisticated instruments, airconditioned facilities and many other things. It is evident that the agricultural development depends on industrial sector.

2. **It provides fertilizers**
   Traditionally, Indian farmers have been using manure (made from plants and animal waste) to make the soil fertile. The ingredients of the manure were available from agricultural sector itself. In agricultural production a need was felt to develop some better alternative to manure. The alternative was found in chemical fertilizers. He fertilizers make up the deficiency of nutrients used up in the growing crops. The demand for these fertilizers is met by the chemical industry. The use of fertilizers in agriculture has significantly raised agricultural productivity in India. The agricultural sector owes the rise in productivity to the industrial sector.

3. **Industries produce equipment and instruments needed for irrigation**
   Without water, no crops can be grown. The main source of irrigation in our country is rainfall. 70% of the total cultivated land in India is dependent on the monsoon for irrigation. But the rains are not a reliable source of irrigation due to two reasons. The first reason relates to the quantity of rainfall. The rain is controlled by the nature and not man. Sometimes, there is either no rainfall or inadequate rainfall. This leads to sharp decline in agricultural output. On the other hand sometimes there is excessive watering of crops damaging them. The second reason relates to the timing of the rainfall. It may not rain when irrigation is required. If there is no rain at the right time, the crops may get damaged. Therefore it is extremely necessary to expand alternative sources of irrigation in the country.
4. It provides pesticides

5-10% of our agricultural produce is destroyed by pests and other plant diseases. To save crops from pests and diseases we need various types of pesticides. The research to develop proper pesticides which are not harmful to the plants or human beings is undertaken by industrial sector. The production of pesticides is a gift of industries to the agricultural sector. It had raised agricultural production.

5. It provides modern equipment

Traditionally, the Indian farmers used to use methods of cultivation involving the use of wooden ploughs, hand tools, bullocks and bullock carts etc. This kept the productivity in Indian agriculture very low. The industry now provides alternative mechanical tools and equipment. New developments in the industrial sector have provided modern types of machines to agriculture such as tractors etc. This has reduced the need for manpower in agriculture and on the other hand raised significantly the agricultural productivity.

6. It provides materials for building infrastructure needed for agricultural marketing and storage

It is the industrial sector which supplies necessary materials, equipment and technology for building pucca roads. Durable roads are necessary to enable the farmers to take their produce to the markets in time. Industry also helps build storage and warehousing facilities so that farmers can store their produce till they get a fair market price. Now they do not have to immediately sell off their crops for fear of damage. The storage facility has helped the formers to get a fair price of their produce.

7. It supplies manufactured goods to the population engaged in agricultural sector

Apart from food, people need many other goods such as clothes, houses, transport vehicles, electricity, T.V., fridge, washing machine, etc. All these goods are produced by the industrial sector. The people engaged in agricultural sector also need these goods. The industrial sector fulfils the need for all these commodities of these people.

8. Source of funds to the agricultural sector

The rate of saving of the people engaged in the industrial sector is generally high as compared to those in the agricultural sector. The people in the industrial sector are now habituated to deposit their savings in banks and other financial institutions. At present there are a large number of branches of nationalised banks in the rural sector. These banks give priority in sanction of loans to the agricultural sector. Agricultural sector generally lacks funds due to low rate of saving. The fund collected in the industrial areas can conveniently be used for giving loans in rural areas. In this way industrial sector is a source of funds for the agricultural sector.
Introduction

Population is the resource of labour force. The larger the size of population, the larger will be the labour force. Higher the rate of increase in population, the larger will be the potential labour force. Labour alone cannot produce anything. If other resources required for production are also available in sufficient quantity then a large labour force is a productive asset for a country. If other resources are not available in sufficient quantities then large labour force can become an obstruction to faster economic growth. Why do some countries particularly the developing countries, have fast growth rate of population? How does this fast growth rate of population affect the economic growth of these countries? These are the questions which are discussed in this lesson.

Objectives

After going through this lesson, you will be able to:

- explain the meaning of the rate of growth of population;
- explain how economic growth affects the rate of growth of population;
- explain the effects of high growth rate of population in developing countries on human resources, natural resources and capital formation;

One Mark Questions

1. **What do you mean by population growth rate**

   Increase in the number of people in a country during a period of time is called the growth of population.

   \[
   \text{Population growth rate} = \frac{\text{Population}}{\text{Total Population}} \times 100
   \]
2. **What do you mean by population number**

This number constitutes the size of population of that country at that time. This number, however, is continuously changing through births, death and immigration. Increase in the number of people in a country during a period of time is called the growth of population. This growth is mainly due to the excess of births over deaths as immigration in the present day world is an insignificant contributor to the increase in population in a country.

**Two Marks Questions**

1. **What do you mean by population growth rate**

   The rate of growth of population during a period is measured as the ratio of increase in population during a period to the total population at the beginning of the period. The rate of growth of population primarily depends upon the birth rate (measured as births/total population x 1000). The difference between birth rate and death rate during a year is called the rate of growth of population in that year per 1000. The rate of growth of population can also be expressed in percentage. \[
\frac{\text{Population}}{\text{Total Population}} \times 100
\]

**4 Marks Questions**

1. **What are the Effects on Capital Formation (Man-made Resources)**

   Capital plays a very important role in economic growth. The stock of capital in a country determines its pace of economic growth. In developing countries fast growth rate of population results in rapid increase in the needs for consumption. Requirement of food, water, clothing, housing, transport, education, electricity, medical facilities and almost of all necessities increases at a fast rate even at their low level of consumption. So a large part of resources for investment that the developing economies are able to generate are eaten away by their fast increasing population. In other words the high growth rate of population reduces the supply of these resources for raising the per capita income and quality of life of the people in developing economies. All this has an adverse impact on the growth of these economies. For example, in India the rate of increase in national income since Independence has been higher than the rate of increase in per capita income.

   Thus high growth rate of population adversely affects capital formation in developing economies. More resources are used for meeting the fast increasing consumption needs. This leaves less resources for increasing productive capacity of the economy. This adversely affects the future growth rate of these economies.
Thus economic growth affects growth rate of population and rate of growth of population affects economic growth. The developing economies are in a dilemma. As they grow, their population grows at a faster rate which adversely affects their growth process. Once they are able to check the fast growth rate of population, the economic growth would be much faster and their quality of life much improved.

8 Marks Questions

1. **What are the effects of population growth rate on economic growth of a country.**

Studies of a large number of economies of the world have shown that in the underdeveloped economies the birth rate and death rate both are high. So the gap between birth rate and death rate is low. Hence the rate of growth of population in such economies is slow. In these economies the income levels are low resulting in malnutrition and undernourishment. Medical and sanitation facilities are nearly non-existent. Even safe drinking water is not available for a very large part of the population. The death rate, therefore, tends to be very high in these economies. Birth rate in these economies is also very high largely because of orthodox attitudes towards family and child, lack of literacy and high infant mortality rate. So it can be said that an underdeveloped economy is marked by high birth rate and death rate and slow growth of population.

As economic growth takes place, the income levels start rising leading to improvement in standard of living. Medical and sanitation facilities improve. Some diseases are eradicated. All these have a direct effect on death rate. It starts falling rapidly. During this phase the birth rate also starts declining but at a slower rate. In fact the rate of decline in birth rate is slower than the rate of decline in death rate. The slower decline in birth rate is due to the rigidity in the attitudes towards birth and life and the religious beliefs. Change in these attitudes and beliefs can only be gradual at least initially. As a result of this the difference between birth rate and death rate increase. During this phase i.e. when the economy is developing the rate of growth of population increases and it starts accelerating. For example, rate of growth of population in India started increasing since 1921. It accelerated since 1951.

As economic growth gains momentum, some noticeable changes take place in the economy. There is a further improvement in the level of income, nutritional levels. There are more and improved public health and sanitation facilities. Literacy levels rise. Standard of living improves. Orthodox traditional attitudes give way to scientific attitudes. There is a greater acceptance of small family norm. All these changes affect both the death rate as well as the birth rate. Death rate cannot fall below a certain level as all those who are born must die. During this phase of economic growth the decline in birth rate is faster. As a result of death rate stagnating at a low level and faster decline in birth rate, the gap between birth rate and death rate is again very small. In other words the rate of growth of population is very slow. All the developed countries of the world have low rate of growth of population.
India is passing through the second phase. The birth rate is high and declining slowly. The death rate is declining fast. As a result it is experiencing a high rate of growth of population.

2. How growing population effects the human and natural resources.

As stated earlier developing countries of the world are experiencing high rate of growth of population. In this section we will study the impact of high rate of growth of population on economic growth of these countries.

The effects of high rate of growth of population on economic growth of developing countries can best be analysed by studying its effects on the resources of these countries. The resources of a country can be divided into (1) human resources, (2) natural resources and (3) capital formation i.e. man-made resources.

1. Effects on Human Resources

Population of a country constitutes human resources of that country. Large size of population and its fast growth in developing countries like India provides a large human resource base and a very large increase in it takes place every year. The large human resource is the source of large potential labour force which can be both a source of strength as well as a source of weakness. If fully and efficiently utilised, it can be massive productive asset for the country. If underutilised, it becomes a constraint on the country’s progress. Labour alone cannot produce anything. For production, besides labour other resources are also required such as natural resources and capital. For absorbing the large and fast increasing labour force more and more of other resources are needed.

In developing countries like India, there is already a shortage of capital and even the natural resources are getting scarcer with the fast increasing population. These countries are not able to utilise even their existing labour force as is evident from the large level of unemployment. Furthermore, every year their is a large addition to the labour force due to high growth rate of population. So the number of unemployment also increases and this problem becomes more acute. As stated earlier, if the labour force is not fully utilized, it becomes a liability. It only consumes and does not contribute to production.

The high rate of population in developing economies also creates problems in the process of improving the quality of human resource. The quality of human resource is poor in these economies.
Modern economies are becoming more and more knowledge intensive and capital intensive. So the modern production techniques require highly skilled labour force. In developing economies the literacy level is very low. There is widespread illiteracy. Due to the large size of population, huge resources are needed for removing illiteracy and for skill formations. This problem becomes more serious because of the fast growth rate of population.

Thus, the developing countries due to the scarcity of capital and other resources are not able to fully utilise their labour force and the quality of human resource is poor. The problem becomes more serious because of the fast rate of growth of population. Hence, the large and fast increasing labour force creates problems in the growth of the economy and in the process of improvement in quality of human resource.

2. Effects on Natural Resources

Natural resources comprise land surface, minerals, forests and water etc. We will now examine the effects of high rate of growth of population in developing countries on each one of these important natural resources.

(i) Effects on Agricultural Land:

Total land area of a country is fixed. A large part of the land area of a country is used for agricultural activities. As the population increases at a fast rate, larger and larger area of land is needed for dwelling units, roads, factories etc. So the area of land available for agricultural activities cannot increase or at best it can be increased only marginally by making uncultivable land, cultivable. In any case the land area available for agricultural activities per head is bound to decline. The increasing pressure of labour on land due to high growth rate of population creates many problems.

The increasing pressure on agricultural land results in disguised unemployment. The fast growing population on the one hand and lack of work opportunities outside agriculture in rural areas on the other hand results in more people, than required, working in agriculture. Furthermore, when people shift from rural to urban areas in search of work, it creates many other problems. Increasing urbanization starts swallowing larger and larger area of agricultural land. This happens because more and more land is used for constructing dwelling houses, roads etc. Fast urbanization also creates many other problems such as congestion, slums, insanitation, pollution etc. All these problems adversely affect economic growth of the developing countries.
(ii)  **Effects on Forests**

Forests contribute in a big way to the economic growth of a country. They help in maintaining the ecological balance, besides conservation of soil. They are source of a large variety of raw materials etc. Fast increase in population results in deforestation. Ever increasing demand of agricultural land, fuel wood dwellings etc. results in felling of trees and clearing of forest areas. The process of deforestation as a result of fast growing population causes soil erosion and deprives the economy of the large number of raw materials.

Thus deforestation caused by high growth rate of population adversely affects the economic growth of the developing economies.

(iii)  **Effects on Minerals**

Minerals also play a very important role in the economic growth of a country. The known mineral resources in any economy are limited. They are used as raw materials. Some of them such as coal, oil etc. are important sources of energy. Minerals are a non-renewable resource. A fast growth rate of population and its large size in developing countries results in greater exploitation of this resource. This results in depletion of known mineral resources. And this will obviously affect adversely the future economic growth of the developing economies.
Population of India Structure, Problems and Measures

Introduction

You have studied in the previous lesson that population of a country constitutes its human resource. It is important to know the various characteristics of human resource of a country such as its size, its growth rate, its sex composition, age composition, its level of literacy etc. In this lesson you will study the characteristics of India’s population and various problems that are faced because of these characteristics and the measures that have been taken to overcome these problems.

Objectives

After going through this lesson, you will be able to:

● state the size of India’s population and its growth over the last few decades;
● state the rate of growth of India’s population since 1921;
● explain the structure of India’s population;
● explain the problems caused by high rate of growth of population in India;
● suggest measures to overcome these problems.

Two Marks Questions

1. What do you mean by size of population

Population of a country means the number of people living in that country at a particular point of time. The number of people are actually counted after every ten years. This process of counting is called the census of population. In India the last census was conducted in 1991 and the next census will be conducted in 2001. The census of population in India gives the number of people
as at the sun rise of 1st March. For example the 1991 census gives India’s population as 84.63 cranes. It means that at the sun rise of 1st March, 1991 India’s population was 84.63 crores. The census of population provides information not only about the size of population but also about its various features such as sex composition, age composition, growth rate, level of literacy, density etc.,

2. What do you mean by population growth rate

It is not only the size of India’s population that is large but the growth has also been fast. You will notice that the total increase in population in each subsequent decade has been larger and larger. In the decade 1951-61 the total increase in population was about 7.8 crores which is about one and a half times the population of U.K. In the decade 1971-81 this increase was about 13.5 crores which is two and a half times the population of U.K. The increase of about 10.8 crores during 1961-71 is equal to three fourth of Japan’s population. And the increase during 1981-91 (about 16.3 crores) is greater than the population of Japan.

3. What do you mean by sex ratio

Sex composition means the distribution of population into male and female population. It is generally expressed in the form of a ratio called the sex-ratio. Sex ratio is the number of females per 1000 males. It is calculated by the following formula:

\[
\text{Sex Ratio} = \frac{\text{Total female population}}{\text{Total male population}} \times 1000
\]

4. What do you mean by density of population

Density of population means the average number of people per square kilometer. It is arrived at by dividing the population of a country by its total land area. In order words:

\[
\text{Density of population} = \frac{\text{Total population}}{\text{Total land area}}
\]

The total land area of the country remaining the same, a fast increase in population is bound to increase the density of population.

5. What do you mean by literacy rate

A person who can read and write with understanding in any language is called a literate person. In 1991 census literacy rate is calculated for the population aged 7 years and above. In 1951 the literacy rate was only 16.7 per cent, for male it was 25% and for female it was about 8%. In 1991 the overall literacy rate was 52.2 per cent, 64.1% for male and 39.3% for female. The literacy rate is much higher in urban areas than in rural areas. In 1981 the overall literacy rate was 36.2 per cent, 46.9 per cent for male and 24.8 per cent for female. Though the literacy rate has increased, the total number of illiterates has also increased. The total number of illiterates in India
in 1981 was 30.19 crores and in 1991 this number was 32.4 crores. This is due to the rapid increase in population.

6. What do you mean by Life expectancy

Life expectancy at birth denotes the average number of years a person is expected to live under prevailing mortality conditions. The average life span of a child born is called life expectancy. At the time of Independence life expectancy in India was only 32 years. It increased to 58 years in 1991 and was 61.2 years during 1991-1996. The life expectancy is higher for females than for males. It was 61.8 years for males and 63.5 years for females in 2001.

4 Marks Questions

1. What are the problems of High Population?

India has a very large population and its rate of growth is also fast. As a result every year the addition made to the population is very large. This population growth is undesirable. It obstructs faster economic growth and the economic growth that takes place is not fully reflected in the rising income level. Per capita income has been rising at a rate lower than the rate of increase in national income.

Fast growth rate of population has also adversely affected the saving rate. This has happened because the fast growing number has resulted in larger resources being used for meeting increasing consumption needs like food, clothing, shelter, education, health facilities. It has also aggravated the problem of unemployment and poverty which in turn has created many social and political tension. The existing shortage of infrastructure] facilities such as electricity, transport etc. become more acute. And above all the quality of human life remains poor which is reflected in low literacy rate, low life expectancy, non-availability of drinking water to vast population, poor housing, malnutrition and high infant mortality rate.

One good feature of India’s population is that death rate has declined fast. But the most damaging feature is the slow decline in birth rate. In fact a high and slowly declining birth rate is the root cause of the population explosion. So the population problem can be solved only by reducing the birth rate fast.

However, it is not easy because the factors that influence birth rate are very complex in nature. These factors are social and religious attitudes and beliefs and low level of income and high infant mortality rate.

As was explained in the previous lesson, as economic growth gains momentum it will reduce the birth rate. But such reduction takes a long time whereas the need to reduce birth rate is most immediate. So the vigorous efforts will have to be made to reduce the birth rate.
8 Marks Questions

1. **Explain the various measures to solve the population problem.**

   It is clear that India’s large population base and its high growth rate create serious problems. It is also clear that the only way to reduce the high growth rate is to rapidly reduce the birth rate.

   India is the first developing economy where the Government adopted a population policy in 1951-52 to check the high growth, rate of population. Since then various steps have been taken. Some of the important measures taken by the Government are as follows:

   (i) Motivating the people through persuasion. The most important element in population policy has been persuasion and not coercion. People are persuaded to accept small family norms. This is done by propagating the need and programmes of birth control. Population education has also been included in school curriculum.

   (ii) Family planning and health centres were set up in urban, semi-urban and rural areas. These centres besides educating the people about family planning also provide facilities like immunisation and other health services. These centres also provide various devices for birth control.

   (iii) The age at marriage for male and female has been raised to 21 years and 18 years respectively.

   (iv) Various kinds of methods have been adopted for reducing births. These include condom, loop, sterilization, pills etc.

   (v) In motivating people to practise birth control methods, various types of incentives such as cash, additional increment in salary etc. are provided.

   (vi) Training institutions have been set up to train family planning workers. Various research centres have also been set up.

   (vii) Various steps have been taken to promote female education and provide more employment opportunities to women. Female education and employment of women have a direct bearing on birth rate. It has been observed that educated and employed women have smaller number of children.

   (viii) Involving people, private agencies and other institutions like panchayats in family welfare programmes has been one of the new strategies of family planning.

   The various measures of family planning are implemented by the State Governments though the programmes are sponsored and wholly financed by the Central Government. Due to wide inter-state variations in birth rates what is needed is a separate set of measures for different states or group of states in accordance with their problems.
Note: i) This paper consists of two Parts. Part – A is from core Module and Part – B is from optional Module.
   ii) Attempt all Sections from Part – A and any one group from Part – B.
   iii) Answer to questions carrying 1 mark should not exceed one or two lines each, 2 marks should not normally exceed 5 lines, 4 marks should not normally exceed 10 lines and 8 marks should not normally exceed 15 lines each.
   iv) The sentence limit is not applicable to numerical numbers.

**PART – A**

**SECTION – I**

Answer all the following questions: (6×1=6 Marks)

1. What is producer goods?
2. What is the problem of choice?
3. Explain interpretation of data.
4. What is arithmetic mean formula?
5. What is micro economics? Explain.

**SECTION – II**

Answer the following questions: (5×2=10 Marks)

7. Explain the meaning of economic development.
8. What do you mean by weighted mean?
9. What is Say's law of market?
10. What is price elasticity of demand?
11. Explain the biodiversity.

SECTION – III

Answer any 8 questions: (8×4=32 Marks)

12. Explain wealth definition and its demerits.
13. Distinguish between economic growth and economic development.
14. Explain about demand full inflation.
15. Explain the properties of indifference curves.
16. What are the various determinants of elasticity of demand?
17. What do you mean by internal economics?
18. What is the need of planning?
19. Explain the trends in SGDP of Andhra Pradesh.
20. Write an essay on water pollution.
21. Explain the importance of small scale industries in India.

SECTION – IV

Answer any 4 questions: (4×8=32 Marks)

22. What are the characteristics of Indian Economy?
23. Explain Keynes theory Income and employment.
24. Explain the law of diminishing marginal utility. What are its limitations?
25. What do you mean by price elasticity of demand and explain its types.
26. Explain the law of variable proportions.
27. Write an essay on sustainable development.
28. What are the reasons for low productivity in agricultural sector?
PART – B

Attempt either Group – A or Group – B. (20 Marks)

GROUP – A

29. Explain plan interval. 1
30. Producers goods industries. 1
31. What is degradation of forests ? 2
32. What is intensive cultivation ? 2
33. What do you mean by population growth rate ? 2
34. Describe the relationship between environment and economy. 4
35. Explain the importance of industrial sector in India. 8

GROUP – B

36. Explain about 1991 economic crisis. 1
37. Explain Roadways in A.P. 1
38. What is soil pollution ? 2
39. What do you mean by population growth rate ? 2
40. What is percapita income ? 2
41. What are the various factors on which industrial growth depends ? 4
42. Explain the importance of agricultural sector in Indian economy. 8