

Subject: Economic Analysis

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INTRODUCTION TO ECONOMIC ANALYSIS

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1.1 Learning Objective

The main objective of this lesson is to make the students learn about the basic concepts of economics with reference to modern economics and central economic problems.

1.2 Introduction

It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own.

*Adam Smith, the Wealth of Nations
(1776)*

Look for a moment to consider the contradictory words above, penned in 1776 by Adam Smith, the founder of modern economics. The American Declaration of Independence also marked that same year. It is no coincidence that both ideas appeared at the same time. Just as the American revolutionaries were proclaiming freedom from tyranny, Adam Smith was preaching a revolutionary doctrine emancipating trade and industry from the shackles of a feudal aristocracy.

In the last two centuries, most of the world has experienced an era of unimagined prosperity. In the United States and other high-income countries, most people today can afford to buy far more than the bare necessities of food, clothing and shelter. Superfast personal computers, high-tech home entertainment centres, and fast air transportation to any part of the globe are examples of an amazing range of goods and services that have become part of everyday life. Developing countries have also seen their standards of living rise rapidly in recent years.

But widespread prosperity has not brought economic security. In an average year, 60 million people lose their jobs and almost 3, 00,000 businesses go bankrupt. About 34 percent of households are designated as poor, as the number is almost 50 percent among households headed by females. Many families worry about the catastrophic financial consequence of illness because they have no health insurance. The prosperous society is a fretful society.

For most of human history, people who experienced economic misfortunes lived on the mercy of their families or friends. Starting about a century ago, governments introduced the "welfare state", which provided social insurance and income support to needy people. Gradually, poor people in rich countries got access to minimal levels of income, food, and health care. But rising taxes and growing government spending on health care and public pensions have produced a revolt of the middle class, which is the taxed class. In 1996, the United States removed its guarantee of income support for poor families. Everywhere, countries are rethinking the boundaries between state and market, trying to balance the growing need for providing public services with the increasing shout for cutting taxes and shrinking government.

This is the age of the global marketplace. Today, money, goods, and information cross national borders more readily than ever before. In earlier times, we did business with people down the street or in the next town, and we bought mainly local goods. Today, we ride in the "world car." Look at this world car or at a fast computer. It incorporates materials, labor, capital, and innovations from around the world. The rise of the global marketplace raises new challenges. Who can best adapt to increased foreign competition? Who can quickly adapt to the information age? The stakes are high. To the winners go the profits, while the losers lag behind.

1.3 Why to Study Economics?

As you begin your studies, you are probably wondering. Why study economics? Understanding the role of government and the challenges of the global marketplace are only two reasons why people study economics today. Some people study economics because they hope to make money. Others worry that they will be illiterate if they cannot understand the laws of supply and demand. Many people are interested in learning about how we can improve our environment or why inequality in the distribution of income in the country has raised so sharply in recent years.

All these reasons and many more, make good sense. Still, we have come to realize, there is one overriding reason for learning the basic concepts of economics: All your life - from cradle to grave and beyond - you will run up against the vicious truths of economics. As a voter, you will make decisions on issues - on the government deficit, on taxes, on free trade, on inflation and unemployment - that cannot be understood until you have mastered the basics of economics.

Choosing your life's occupation is the most important economic decision you will make. Your future depends not only on your own abilities but also on how economic forces beyond your control affect your earnings. Also, economics may help you invest the nest egg you save from your earnings. Of course, studying economics cannot make you a genius. But without economics the dice of life are loaded against you.

There is no need to overstress the point. We hope you will find that, in addition to being useful, economics is a fascinating field in its own right. Generations of students, often to their surprise, have discovered how thought-provoking economics can be.

1.3.1 Basic Themes of Economics

What, then, is economics? Over the last 250 years the study of economics has expanded to include a vast range of topics. What are the major definitions of this growing subject? The important ones are that:

- Economics studies how the prices of labor, capital, and land are set in the economy, and how these prices are used to allocate resources.
- Economics explores the behaviour of the financial markets, and analyzes how they allocate capital to the rest of the economy.
- Economics examines the distribution of income, and suggests ways that the poor can be helped without harming the performance of the economy.

- Economics looks at the impact of government spending, taxes and budget deficits on growth.
- Economics studies the swings in unemployment and production that make up the business cycle, and develops government policies for improving economic growth.
- Economics examines the patterns of trade among nations, and analyzes the impact of trade barriers.
- Economics looks at growth in developing countries, and proposes ways to encourage the efficient use of resources.

This list is a good one, yet you could extend it many times over. But if we boil down all these definitions, we find one common theme:

Economics is the study of how societies use scarce resources to produce valuable commodities and distribute them among different people. Behind this definition are two key ideas in economics: those goods are scarce and that society must use its resources efficiently. Indeed, economics is an important subject because of the fact of scarcity and the desire for efficiency.

Take **scarcity** first. If infinite quantities of every good could be produced or if human desires were fully satisfied, what would be the consequences? People would not worry about stretching out their limited incomes, because they could have everything they wanted; businesses would not need to fret over the cost of labour or health care; governments would not need to struggle over taxes or spending, because nobody would care. Moreover, since all of us could have as much as we pleased, no one would be concerned about the distribution of incomes among different people or classes.

In such an Eden of affluence, there would be no **economic goods**, that is, goods that are scarce or limited in supply. All goods would be free, like sand in the desert or seawater at the beach. Prices and markets would be irrelevant. Indeed, in such case, economics would no longer be a useful subject.

But no society has reached a utopia of limitless possibilities. Goods are limited, while wants seem limitless. Even after two centuries of rapid economic growth, production in the World is simply not high enough to meet everyone's consumption desires. Our global output would have to be many times larger before the average World could live at the level of the average doctor or lawyer. And in some countries, particularly in Africa and Asia, hundreds of millions of people suffer from hunger and material deprivation.

Given unlimited wants, it is important that an economics makes the best use of its limited resources. That brings us to the critical notion of **efficiency**. Efficiency denotes the most effective use of a society's resources in satisfying people's wants and needs. More specifically, the economy is producing efficiently when it cannot increase the economic welfare of anyone without making someone else worse off.

The essence of economics is to acknowledge the reality of scarcity and then figure out how to organize society in a way that produces the most efficient use of resources. That is where economics makes its unique contribution.

1.3.2 Microeconomics and Macroeconomics

Adam Smith is usually considered the founder of the **microeconomics**, the branch of economics, which today is concerned, with the behaviour of individual entities as markets, firms, and households. In *The Wealth of Nations*, Smith considered how individual prices are set, studied the determination of prices of land, labor, and capital, and inquired into the strengths and weaknesses of the market mechanism. Most important, he identified the remarkable efficiency properties of markets and saw that economic benefit comes from the self-interested actions of individuals. All these are still important issues today, and while the study of microeconomics has surely advanced greatly since Smith's day, he is still cited by politicians and economists alike.

The other major branch of our subject is **macroeconomics**, which is concerned with the overall performance of the economy. Macroeconomics did not even exist in its modern form until 1935, when John Maynard Keynes published his revolutionary book *General Theory of Employment, Interest and Money*. At the time, England and the United States were still stuck in the Great Depression of the 1930s, and over one-quarter of the American labor force was unemployed. In his new theory Keynes developed an analysis of what causes unemployment and economic downturns, how investment and consumption are determined, how central banks manage money and interest rates, and why some nations thrive while others stagnate. Keynes also argues that government had an important role in smoothing out the ups and downs of business cycles. Although macroeconomics has progressed far since his first insights, the issues addressed by Keynes still define the study of macroeconomics today.

The two branches - microeconomics and macroeconomics - covers to form modern economics. At one time the boundary between the two areas was quite distinct; more recently, the two sub-disciplines have merged as economists have applied the tools of microeconomics to such topics as unemployment and inflation.

1.3.3 The Logic of Economics

Economic life is an enormously complicated hive of activity, with people buying, selling, bargaining, investing, persuading, and threatening. The ultimate purpose of economic science and of this text is to understand this complex undertaking. How do economists go about their task?

Economists use the *scientific approach* to understand economic life. This involves observing economic affairs and drawing upon statistics and the historical record. For complex phenomena like the impact of budget deficits or the causes of inflation, historical research has provided a rich mine of insights. Often, economics relies upon analyses and theories. Theoretical approaches allow economists to make broad

generalization, such as those concerning the advantages of international trade and specialization or the disadvantages of tariffs and quotas.

A final approach is the use of statistical analyses. Economists have developed a specialized technique known as econometrics, which applies the tools of statistics to economic problems. Using econometrics, economists can sift through mountains of data to extract simple relationships. For example, in recent years people have argued about the impact of a higher minimum wage on employment. From dozens of studies, economists have concluded that it is likely that raising the minimum wage will reduce employment of low-wage workers. This knowledge is essential to policymakers who are struggling with the question of how high to set the minimum wage.

Budding economists must also be alert to common fallacies in economic reasoning. Because economic relationships are often complex, involving many different variables, it is easy to become confused about the exact reason behind events or the impact of policies on the economy. The following are some of the common fallacies encountered in economic reasoning:

- **The post hoc fallacy.** The first fallacy involves the inference of causality. The post hoc fallacy occurs when we assume that, because one event occurred before other events, the first events caused the second event. An example of this syndrome occurred in the Great Depression of the 1930s in the United States. Some people had observed that periods of business expansions were preceded or accompanied by rising prices. From this, they concluded that the appropriate remedy for depression was to raise wages and prices. This idea led to a host of legislation and regulations to prop up wages and prices in an inefficient manner. Did these measures promote economic recovery? Almost surely not. Indeed, they probably slowed recovery, which did not occur until total spending began to rise as the government increased military spending in preparation for World War II.

- **Failure to hold other things constant.** A second pitfall is failure to hold other things constant when thinking about an issue. For example, we might want to know whether raising tax rates will rise or lower tax revenues. Some people have put forth the seductive argument that we can eat our cake and have it too. They argue that cutting tax rates will at the same time raise government revenues and lower the budget deficit. They point to the Kennedy-Johnson tax cuts of 1964, which lowered tax rates sharply and were followed by an increase in government revenues in 1965. Ergo, they argue, lower tax rates produce higher revenues.

What is wrong with this reasoning? This argument overlooks the fact that the economy grew from 1964 to 1965. Because people's incomes grew during that period, government revenues also grew, even though tax rates were lower. Careful studies indicate that revenues would have been even higher in 1965 had tax rates not been lowered in 1964. Hence, this analysis fails to hold other things (namely, total incomes) constant.

Remember to hold other things constant when you are analyzing the impact of a variable on the economic system.

- **The fallacy of composition.** Sometimes we assume that what holds true for part of a system also holds true for the whole. In economics, however, we often find that the whole is different from the sum of the parts. When you assume that what is true for the part is also true for the whole, you are committing the fallacy of composition.

Here are some true statements that might surprise you if you ignore the fallacy of composition (1) if one farmer has a bumper crop, she has a higher income; if all farmers produce a record crop, and farm incomes will fall. (2) If one person receives a great deal more money, that person will be better off; if everyone receives a great deal more money, the society is likely to be worse off. (3) If a high tariff is

put on the product of a particular industry, the producers in that industry are likely to get profit; if high tariffs are put on all industries, most producers and consumers will be worse off. (4) When teachers grade on a curve, grades are a "zero-sum game": if one student performs well, he will raise his grade; if all students perform well, the average grade is unchanged.

These examples contain no tricks or magic. Rather, they are the results of systems of interacting individuals. When individuals interact, often the behaviour of the aggregate looks very different from the behaviour of individual people.

We state these fallacies only briefly in this lesson. Later, as we introduce the tools of economics, we will reinforce this discussion and provide examples of how inattention to the logic of economics can lead you to false and sometimes costly errors. When you reach the end of this subject, you can look back to see why each of these paradoxical examples is true.

1.3.4 What Can Economics Do?

Since the time of Adam Smith, economics has grown from a tiny acorn into a mighty oak. Under its spreading branches we find explanations of the gains from international trade, advice on how to reduce unemployment and inflation, formulas for investing your retirement funds, and even proposals for selling the rights to pollute. Throughout the world, economists are laboring to collect data and improve our understanding of economic trends.

You might well ask, what is the purpose of this army of economists measuring, analyzing, and calculating? The ultimate goal of economic science is to improve the living conditions of people in their everyday lives. Increasing the gross domestic product is not just a numbers game. Higher incomes mean good food, warm houses, and hot water. They mean safe drinking water and inoculations against the perennial plagues of humanity.

They mean even more. Higher incomes allow governments to build schools so that young people can learn to read and develop the skills necessary to operate complex technologies. As incomes rise further, nations can afford deep scientific inquiries into biology and discover yet other vaccines against yet other diseases. With the resources freed up by economic growth, talented artists have the opportunity to write poetry and compose music, while others have the leisure time to read, to listen, and to perform. Although there is no single pattern of economic development, and the evolution of culture will differ around the world, freedom from hunger, disease, and the elements is a universal human aspiration.

But centuries of human history also show that warm hearts alone will not feed the hungry or heal the sick. Determining the best route to economic progress requires cool heads, ones that objectively weigh the costs and benefits of different approaches, trying as hard as humanly possible to keep the analysis free from the taint of wishful thinking. Sometimes, economic progress will require shutting down an outmoded factory. Sometimes, as when the formerly socialist countries adopted market principles, things get worse before they get better. Choices are particularly difficult in the field of health care, where limited resources literally involve life and death.

You may have heard the saying, "From each according to his ability, to each according to his need." Governments have learned that no society can long operate solely on this utopian principle. To maintain a healthy economy, governments must preserve incentives for people to work and to save. Societies can shelter for a while those who become unemployed, but if social insurance becomes too generous, people come to depend upon the government. If they begin to believe that the government owes them a living, this may dull the sharp edge of enterprise. Just because government programs derive from lofty purposes does not mean that they should be pursued without care and efficiency.

Society must find the right balance between the discipline of the market and the generosity of the welfare state. By using cool heads to inform our warm hearts, economic science can do its part in ensuring a prosperous and just society.

1.4 Major Problems of an Economy

Every human society-whether it is an advanced industrial nation, a centrally planned economy, or an isolated tribal nation-must confront and resolve three fundamental economic problems. Every society must have a way of determining what commodities are produced, how these goods are made, and for whom they are produced.

Indeed, these three fundamental questions of economic organization-what, how, and for whom-are as crucial today as they were at the dawn of human civilization. Let's look more closely at them:

- **What commodities are produced and in what quantities?** A society must determine how much of each of the many possible goods and services it will make, and when they will be produced. Will we produce pizzas or shirts today? A few high-quality shirts or many cheap shirts? Will we use scarce resources to produce many consumption goods (like pizzas)? Or will we produce fewer consumption goods and more investment goods (like pizza-making machines), which will boost production and consumption tomorrow.
- **How are goods produced?** A society must determine who will do the production, with what resources, and what production techniques they will use. Who farms and who teaches? Is electricity generated from oil, from coal, or from the sun? With much air pollution or with little?
- **For whom are goods products?** Who gets to eat the fruit of economic activity? Or, to put it formally, how is the national product

divided among different households? Are many people poor and a few rich? Do high incomes go to managers or athletes or workers or landlords? Will society provide minimal consumption to the poor, or must they work if they are to survive?

In thinking about economic problems, we must distinguish questions of fact from questions of fairness. Positive economics describes the facts of an economy, while normative economics value judgments. **Positive economics** deals with questions such as: Why do doctors earn more than janitors? Does free trade raise or lower wages for most Americans? What is the economic impact of raising taxes? Although these are difficult questions to answer, they can all be resolved by reference to analysis and empirical evidence. That puts them in the realm of positive economics. **Normative economics** involves ethical precepts and norms of fairness. Should poor people be required to work if they are to get government assistance? Should unemployment be raised to ensure that price inflation does not become too rapid? Should the United States penalize China because it is pirating U.S. books and CDs? There is no right or wrong answers to these questions because they involve ethics and values rather than facts. They can be resolved only by political debate and decisions, not by economic analysis alone.

1.4.1 Alternative Economic Systems

What are the different ways that a society can answer the questions of what, how, and for whom? Different societies are organized through alternative economic systems, and economics studies the various mechanisms that a society can use to allocate its scarce resources.

We generally distinguish two fundamentally different ways of organizing an economy. At one extreme, government makes most economic decisions, with those

on top of the hierarchy giving economic commands to those further down the ladder. At the other extreme, decisions are made in markets, where individuals or enterprises voluntarily agree to exchange goods and services, usually through payments of money. Let's briefly examine each of these two forms of economic organization.

In the most democratic countries, most economic questions are solved by the market. Hence their economic systems are called market economies. A market economy is one in which individuals and private firms make the major decisions about production and consumption. A system of prices, of markets, of profits and losses, of incentives and rewards determines what, how, and for whom. Firms produce the commodities that yield the highest profits (the what) by the techniques of production that are least costly (the how). Consumption is determined by individuals' decisions about how to spend the wages and property incomes generated by their labor and property ownership (the for whom). The extreme case of a market economy, in which the government keeps its hands off economic decisions, is called a **laissez-faire** economy.

By contrast, a **command economy** is one in which the government makes all-important decisions about production and distribution. In a command economy, such as the one which operated in the Soviet Union during most of this century, the government owns most of the means of production (land and capital); it also owns and directs the operations of enterprises in most industries; it is the employer of most workers and tells them how to do their jobs; and it decides how the output of the society is to be divided among different goods and services. In short, in a command economy, the government answers the major economic questions through its ownership of resources and its power to enforce decisions.

No contemporary society falls completely into either of these polar categories. Rather, all societies are **mixed economies**, with elements of market and command.

There has never been a 100 percent market economy (although nineteenth-century England came close).

Today most decisions in the economic front are made in the marketplace. But the government plays an important role in overseeing the functioning of the market; governments pass laws that regulate economic life, produce educational and police services, and control pollution. Most societies today operate mixed economies.

1.4.2 Economic Inputs and Outputs

Each economy has a stock of limited resources - labor, technical knowledge, factories and tools, land, energy. In deciding what and how things should be produced, the economy is in reality deciding how to allocate its resources among the thousands of different possible commodities and services. How much land will go into growing wheat? Or into housing the population? How many factories will produce computers? How many will make pizzas? How many children will grow up to play professional sports or to be professional economists or to program computers?

Faced with the undeniable fact that goods are scarce relative to wants, an economy must decide how to cope with limited resources. It must choose among different potential bundles of goods (the what), select from different techniques of production (the how), and decide in the end that will consume the goods (the for whom).

To answer these three questions, every society must make choices about the economy's inputs and outputs. **Inputs** are commodities or services that are used to produce goods and services. An economy uses its existing technology to combine inputs to produce outputs. **Outputs** are the various useful goods or services that result from the production process and are either consumed or employed in further production. Consider the "production" of pizza. We say that the eggs, flour, heat, pizza oven, and chef's skilled labor are the inputs. The tasty pizza is the output. In

education, the inputs are the time of the faculty, the laboratories and classrooms, the textbooks, and so on, while the outputs are educated and informed citizens.

Another term for inputs is factors of production. These can be classified into three broad categories: land, labor and capital.

- **Land** - or, more generally, natural resources - represents the gift of nature to our productive processes. It consists of the land used for farming or for underpinning houses, factories, and roads; the energy resources that fuel our cars and heat our homes; and the no energy resources like copper and iron ore and sand. In today's congested world, we must broaden the scope of natural resources to include our environmental resources, such as clean air and drinkable water.
- **Labor** consists of the human time spent in production- working in automobile factories, tilling the land, teaching school, or baking pizzas. Thousands of occupations and tasks, at all skill levels, are performed by labor. It is at once the most familiar and the most crucial input for an advanced industrial economy.
- **Capital** resources form the durable goods of an economy, produced in order to produce yet other goods. Capital goods include machines, roads, computers, hammers, trucks, steel mills, automobiles, washing machines, and buildings. As we will later see, the accumulation of specialized capital goods is essential to the task of economic development.

Restating the three economic problems in terms of inputs and outputs, a society must decide (1) what outputs to produce, and in what quantity; (2) how to produce them - that is, by what techniques inputs should be combined to produce the desired outputs; and (3) for whom the outputs should be produced and distributed.

Societies cannot have everything they want. The resources and the technology available to them are limited. Take defense spending as an example.

TABLE 1.1. Limitation of Scarce Resources Implies the Guns-Butter Tradeoff

Possibilities	Butter (millions of rupees)	Guns (thousands)
A	0	15
B	1	14
C	2	12
D	3	9
E	4	5
F	5	0

Scarce inputs and technology imply that the production of guns and butter is limited. As we go from A to B.... to F, we transferring labor, machines, and land from the gun industry to butter and can thereby increase butter production.

Countries are always being forced to decide how much of their limited resources go to their military and how much goes into other activities (such as new factories or education). Some countries, like Japan, allocate about 1 percent of their national output to their military. The United States spends 5 percent of its national output on defense, while a fortress economy like North Korea spends up to 20 percent of its national output on the military. The more output that goes for defense, the less there is available for consumption and investment.

Let us dramatize this choice by considering an economy, which produces only two economic goods, guns and butter. The guns, of course, represent military spending, and the butter stands for civilian spending. Suppose that our economy decides to throw all its energy into producing the civilian good, butter. There is a maximum amount of butter depends on the quantity and quality of the economy's resources and

the productive efficiency with which they are used. Suppose 5 million rupees of butter is the maximum amount that can be produced with the existing technology and resources.

At the other extreme, imagine that all resources are instead devoted to the production of guns. Again, because of resource limitations, the economy can produce only a limited quantity of guns. For this example, assume that the economy can produce 15,000 guns of a certain kind if no butter is produced.

These are two extreme possibilities. In between are many others. If we are willing to give up some butter, we can have some guns. If we are willing to give up still more butter, we can have still more guns.

A schedule of possibilities is given in Table 1.1, Combination F shows the extreme where all butter and no guns are produced, while A depicts the opposite extreme where all resources go into guns. In between at E, D, C and B increasing amounts of butter are given up in return for more guns.

How, you might well ask, can a nation turn butter into guns? Butter is transformed into guns not physically but by the alchemy of diverting the economy's resources from one use to the other.

- **Opportunity Costs** - Life is full of choices. Because resources are scarce, we must always consider how to spend our limited incomes or time. When you decide whether to study economics, buy a car, or go to college, in each case you must consider how much the decision will cost in terms of forgone opportunities. The cost of the forgone alternative is the opportunity cost of the decision.

Consider the real-world example of the cost of opening a gold mine near Yellowstone National Park. The developer argues that the mine will have but a small cost because the fees for Yellowstone will hardly be affected. But an economist would answer that the dollar receipts are too narrow a measure of cost. We should ask whether the unique and

precious qualities of Yellowstone might be degraded if a gold mine were to operate, with the accompanying noise, water and air pollution, and degradation of amenity value for visitors. While the dollar cost might be small, the opportunity cost in lost wilderness values might be large indeed.

In a world of scarcity, choosing one thing means giving up something else. The **opportunity cost** of a decision is the value of the good or service forgone.

- **Efficiency-** All of our explanations up to now have implicitly assumed that the economy is producing efficiently that is, it is on, rather than inside, the production possibility frontier. Remember that efficiency means that the economy's resources are being used as effectively as possible to satisfy people's needs and desires. One important aspect of overall economic efficiency is productive efficiency. Productive efficiency occurs when an economy cannot produce more of one good without producing less of another good; this implies that the economy is standing on its production-possibilities.

1.4.3 Economic Analysis

Economic analysis is used in many situations. When British Petroleum sets the price for its Alaskan crude oil, it uses an estimated demand model, both for gasoline consumers and also for the refineries to which BP sells. The demand for oil by refineries is governed by a complex economic model used by the refineries and BP estimates the demand by refineries by estimating the economic model used by refineries. Economic analysis was used by experts in the antitrust suit brought by the U.S. Department of Justice, both to understand Microsoft's incentive to foreclose (eliminate from the market) rival Netscape and consumer behavior in the face of alleged foreclosure. Stock market analysts use economic models to forecast the

profits of companies in order to predict the price of their stocks. When the government forecasts the budget deficit or considers a change in environmental regulations, it uses a variety of economic models.

Economic analysis is used for two main purposes. The first is a scientific understanding of how allocations of goods and services – scarce resources – are actually determined. This is a *positive* analysis, analogous to the study of electromagnetism or molecular biology, and involves only the attempt to understand the world around us. The development of this positive theory, however, suggests other uses for economics. Economic analysis suggests how distinct changes in laws, rules and other government interventions in markets will affect people, and in some cases, one can draw a conclusion that a rule change is, on balance, socially beneficial. Such analyses combine positive analysis – predicting the effects of changes in rules – with value judgments, and are known as *normative* analyses. For example, a gasoline tax used to build highways harms gasoline buyers (who pay higher prices), but helps drivers (who face fewer potholes and less congestion). Since drivers and gasoline buyers are generally the same people, a normative analysis may suggest that everyone will benefit. This type of outcome, where everyone is made better off by a change, is relatively uncontroversial.

In contrast, *cost-benefit analysis* weighs the gains and losses to different individuals and suggests carrying out changes that provide greater benefits than harm. For example, a property tax used to build a local park creates a benefit to those who use the park, but harms those who own property (although, by increasing property values, even non-users obtain some benefits). Since some of the taxpayers won't use the park, it won't be the case that everyone benefits on balance. Cost-benefit analysis weighs the costs against the benefits. In the case of the park, the costs are readily monetized (turned into dollars), because the costs to the tax-payers are just the amount of the tax. In contrast, the benefits are much more challenging to estimate. Conceptually, the benefits are the amount the park users would be willing

to pay to use the park if the park charged admission. However, if the park doesn't charge admission, we would have to estimate willingness-to-pay. In principle, the park provides greater benefits than costs if the benefits to the users exceed the losses to the taxpayers. However, the park also involves transfers from one group to another.

Welfare analysis provides another approach to evaluating government intervention into markets. Welfare analysis posits social preferences and goals, like helping the poor. Generally a welfare analysis involves performing a cost-benefit analysis taking account not just of the overall gains and losses, but also weighting those gains and losses by their effects on other social goals. For example, a property tax used to subsidize the opera might provide more value than costs, but the bulk of property taxes are paid by the lower and middle income people, while the majority of opera-goers are rich. Thus, the opera subsidy represents a transfer from relatively low income people to richer people, which is generally not consistent with societal goals of equalization. In contrast, elimination of sales taxes on basic food items like milk and bread generally has a relatively greater benefit to poor, who spend a much larger percentage of their income on food, than to the rich. Thus, such schemes may be considered desirable not so much for their overall effects but for their redistribution effects.

Economics is helpful not just in providing methods for determining the overall effects of taxes and programs, but also the *incidence* of these taxes and programs, that is, who pays, and who benefits. What economics can't do, however, is say that ought to benefit. That is a matter for society at large to decide.

1.5 Check Your Progress

Answer the following fill up on the basis of your knowledge regarding this chapter:

- 1- Managerial Economics as a subject gained popularity first in _____.
- 2- Which subject studies the behaviour of the firm in theory and practice_____.
- 3- Any activity aimed at earning or spending money is called_____.

4- When the subject Managerial Economics gained popularity_____.

5- _____is known as father of economics.

1.6 Summary

Economics is the study of how societies choose to use scarce productive resources that have alternative uses, to produce commodities of various kinds, and to distribute them among different groups. We study economics to understand not only the world we live in but also the many potential worlds that reformers are constantly proposing to us. Goods are scarce because people desire much more than the economy can produce. Economic goods are scarce, not free, and society must choose among the limited goods that can be produced with its available resources. Microeconomics is concerned with the behavior of individual entities such as markets, firms, and households. Macroeconomics views the performance of the economy as a whole. Through all economics, beware of the fallacy of composition and the post hoc fallacy, and remember to keep other things constant.

Every society must answer three fundamental questions: what, how and for whom? What kinds and quantities are produced among the wide range of all possible goods and services? How are resources used in producing these goods? Whom are the goods produced (that is, what is the distribution of income and consumption among different individuals and classes)? Societies answer these questions in different ways. The most important forms of economic organization today are command and market. The command economy is directed by centralized government control; a market economy is guided by an informal system of prices and profits in which most decisions are made by private individuals and firms. All societies have different combinations of command market; all societies are mixed economies.

Productive efficiency occurs when production of one good cannot be increased without curtailing production of another good. Production-possibilities illustrate many basic economic processes: how economic growth pushes out the frontier, how a nation chooses relatively less food and other necessities as it develops, how a

country chooses between private goods and public goods, and how societies choose between consumption goods and capital goods that enhance future consumption.

Economic reasoning is rather easy to satirize. One might want to know, for instance, what the effect of a policy change – a government program to educate unemployed workers, an increase in military spending, or an enhanced environmental regulation – will be on people and their ability to purchase the goods and services they desire. Unfortunately, a single change may have multiple effects. As an absurd and tortured example, government production of helium for (allegedly) military purposes reduces the cost of children’s birthday balloons, causing substitution away from party hats and hired clowns. The reduction in alternatives for clowns reduces clowns’ wages and thus reduces the costs of running a circus. This cost reduction increases the number of circuses, thereby forcing zoos to lower admission fees to compete with circuses. Thus, were the government to stop subsidizing the manufacture of helium, the admission fee of zoos would likely rise, even though zoos use no helium. This example is superficially reasonable, although the effects are so miniscule as to be irrelevant.

To make any sense at all of the effects of a change in economic conditions, it is helpful to divide up the effect into pieces. Thus, we will often look at the effects of a change “other things equal,” that is, assuming nothing else changed. This isolates the effect of the change. In some cases, however, a single change can lead to multiple effects; even so, we will still focus on each effect individually. A gobbledygook way of saying “other things equal” is to use Latin and say “*ceteris paribus*.” Part of your job as a student is to learn economic jargon, and that is an example. Fortunately, there isn’t too much jargon. We will make a number of assumptions that you may not find very easy to believe. Not all of the assumptions are required for the analysis, and instead merely simplify the analysis. Some, however, are required but deserve an explanation. There is a frequent assumption that the people we will talk about seem exceedingly selfish relative to most people we know. We model the choices

that people make, assuming that they make the choice that is best for them. Such people – the people in the models as opposed to real people – are known occasionally as “homo economicus.” Real people are indubitably more altruistic than homo economicus, because they couldn’t be less: homo economicus is entirely selfish. (The technical term is acting in one’s *selfinterest*.)

1.7 Keywords

Economics- It is the study of how societies use scarce resources to produce valuable commodities and distribute them among different people.

Microeconomics- It the branch of economics, which today is concerned, with the behaviour of individual entities as markets, firms, and households.

Macroeconomics- It is a major branch of our subject i.e. Economics and it is concerned with the overall performance of the economy.

Laissez-faire Economy- The extreme case of a market economy, in which the government keeps its hands off economic decisions, is called a **laissez-faire** economy.

Command Economy- It is economy in which the government makes all-important decisions about production and distribution.

1.8 Self-Assessment Test

1. Define economics. Discuss the significance of economics in modern times.
2. “Scarcity and efficiency go hand to hand in a society”. Discuss the statement in the light of the twin themes of economics.
3. Discuss and differentiate between the microeconomics and macroeconomics. Which economics is more useful to the nation?
4. *Explain the term economic system. Discuss the alternative economic systems in different countries of the World. “Economics may be defined*

as the study of the allocation of scarce resources among competing ends.” Examine the statement.

5. *Discuss and illustrate the different tools of economic analysis that are essentials in decision making process.*
6. *“The objective of economic analysis is not merely to discover the truth but also to assist in the solution of concrete problems.” Comment.*
7. Explain and illustrate the input and output analysis in economics. Elaborate how various problems are solved through this analysis.
8. “ The use of Internet has been increasing in the study of economics but the necessary precautions are more important”. Discuss.

1.9 Answer to Check Your Progress

1. USA.
2. Micro Economics.
3. Economic activity.
4. 1951.
5. Adam Smith.

1.10 References/Suggested Readings

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Lesson: 02

FUNDAMENTAL ECONOMIC CONCEPTS

Structure

- 2.1 Learning Objectives
- 2.2 Introduction
- 2.3 Fundamental Concepts
- 2.4 Check Your Progress
- 2.5 Summary
- 2.6 Keywords
- 2.7 Self-Assessment Test
- 2.8 Answers to Check Your Progress
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2.1 Learning Objectives:

On learning this lesson, the students will be able to understand the fundamental economic concepts and their relevance in economic analysis.

2.2 Introduction

The discipline now called economics originated as "political economy." Its first great exponent was Adam Smith (The Wealth of Nations, 1776). Unlike the earlier speculations of philosophers like Aristotle, or even the French "physiocrats" the form of logic, and the nature of the appeal to evidence, placed Smith and his followers within the framework of science. The pattern of fragmentation and specialization common to the twentieth century split off political science from

economics, although in public policy analysis the term political economy still applies.

Economics has two main divisions: 1) Macroeconomics, the economics of large units (nations and larger), concentrates on issues of aggregate price level changes (inflation) and unemployment. 2) Microeconomics, the economics of small units—individuals, firms (producing units), and the markets for particular goods. The second is seen as the more fundamental; since theories and phenomena in (1) are considered to be depend on how things work in (2).

Economics is harder, in some ways, to learn and to use than the "physical" sciences like physics, chemistry, or even biology. It is much harder to use techniques such as controlled experiments in this discipline (though some use is made of such experiments). Economists are very dependent on statistical measurements and inferences. However, some aspects of this discipline, like all other sciences, cannot really be tested, but are fundamental assumptions about the nature of reality, in this case a set of assumptions about social reality. The nature and importance of some of these assumptions will become clear in the material presented below.

Smith and his followers are usually termed the classical school. In the mid to late 19th century, some of their methods and conclusions were challenged by Karl Marx, though he kept, in revised form, much of their analysis (especially that of David Ricardo). One of the assumptions Marx criticized and discarded was the assumption that society was really just the sum of the individuals who make it up. He considered that this assumption concealed the way societies were formed out of social classes.

The neoclassical school we will be using in this course arose, in part, as a reaction to Marx's challenge, a way to salvage the fundamentals of the classical school's basic assumptions and to avoid some of Marx's conclusions. [This required the discarding of a feature common to Smith, Ricardo, and Marx—the "labor theory of value." That theory will not be used in this course.] The neoclassical school maintained the assumption that society could be analyzed by looking at the individuals who make it

up. They disavowed the central role of classes; indeed they ignored the entire concept of class.

This assumption, the centrality of the individual, was the most fundamental assumption of the classical school (excluding Marx) and now it is equally fundamental for the neoclassical school. It implies that to understand economic reality it is necessary to begin with a model of individual behavior. [Note that to Marx the equally fundamental assumption is that one must begin with the behavior and relationships of classes. There is no role whatever for discussions of group behavior in neoclassical analysis, and the term class might just as well not exist.]

In any situation, the first thing a neoclassical economist should consider is: what is the optimum (best possible) decision that an individual in this situation could make? In this context the "best" means best for the individual human being making the decision. This is often called the assumption of "homo economicus" [which is Latin for economic man], a sort of cartoon version of real people. This does not necessarily exclude concerns an individual may have for family, country, etc., but such concerns are ignored when doing economic analysis, unless there is some very specific reason to include them.

The neoclassical school doesn't just consider the individual as the best place to begin an analysis, it also trusts the individual. That is, the individual is considered to be the best judge of his or her own best interests. From this it follows that anything which interposes anyone else's judgment (government for example) is usually a bad thing. As a result the institution that economists of the neoclassical variety tend to rely on most is the market. Markets are a kind of institution in which all that matters are individual choices; people interact with others only to the extent that they want to interact. Markets foster individuality and impersonality. They foster (as will be shown later) efficiency in production and consumption of goods and services. However, markets have no place for friendship or compassion, and those things will play very little role in the remainder of this course.

A common neoclassical definition of the domain of the discipline of economics is that it examines "the allocation of scarce resources to meet unlimited goals." This definition is more relevant to microeconomics (the focus of this course) than macroeconomics. This definition points to another key assumption in this approach to the discipline. That is, that the assumption that goals (i.e., human desires) are potentially infinite. This means that with finite resources it is never possible for people to have all they want. Without that assumption, the approach employed in the rest of this course is meaningless. With this assumption, the material in the next section is the basis for all the analysis done in this field.

The goal of the individual is presumed to be to get the best possible outcome for him or her self, but the word "possible" is central to the problems this course addresses. Neoclassical economics virtually never deals with situations where individuals can get all that they want without running into some kind of limit. Almost always the individual cannot get more of one thing he or she desires without giving up something else which is also desired. The general term used for this is "opportunity cost."

For you to get another sandwich, you might have to give up having another beer. No matter how large your income, it is not so large that you can have all you could want of both (and all the rest of the goods you desire). Similarly, to invest funds in one place means those funds are not available to invest someplace else. There are never enough funds available to anyone to allow them to get involved in all the potentially profitable opportunities in the world.

Opportunity cost is the truest measure of the cost of any choice made. Money amounts are just a way of summarizing what else could have been done. In making any decision, to make the best choice a person's attention should always be on how this decision ranks relative to the alternatives that could be chosen.

Another term, originally used in the United States, is TANSTAAFL, which stands for "ThereAren't No Such Thing as a Free Lunch." The reference is to an old

American business practice: eating and drinking establishments would offer a "free lunch" to those who bought drinks (usually beer). The "free" food was usually very salty meats, peanuts, pickles-all foods that made people very thirsty, so they would buy more beer. The price of the "free food" was not zero; it was hidden in the price of the beer. The lesson is that when something is called free, it is never really free; there is always a price, even if you can't see it. One job for economists is to find the price-what had to be given up-and ask if the price was too high.

These days, as you will see in some of the later material, the description of what people want, the "best," the opportunity costs, and the constraint, are presented in mathematical form whenever possible. This allows greater precision in describing the problem of optimizing-finding the best solution-when faced with limits, and in determining the response of people to changes in their circumstances.

In neoclassical analysis it is usually assumed that, if you can determine what the best response is, people will choose that one. People are assumed to be good at making decisions in their own best interests. If, in a given case, you think a bad decision was made, this style of analysis suggests that you had better look again. It is possible that the person who made the decision knew things about the situation that you do not know. It is not impossible to find people making errors, and to analyze their errors, it is just more like the last thing to consider, not the first.

Mathematical formulations of the foregoing assumptions, structured to describe specific situations, allow the use of statistics to estimate the quantitative relationships between variables involved in making any decision. Such formulations also allow statistical predictions of what a change in one or more variables will do to individual decisions, and ultimately to predictions of market results. Such procedures are vital to the practical use of economics by decision makers in business and elsewhere.

2.3 Fundamental Concepts of Economics

Many other industrialized countries has increased considerably particularly since the Great Depression of the 1930s. Central banks took control of the monetary system; labor unions, supported by government legislation gained in influence; regulations about worker safety, antidiscrimination and anti-trust (against big businesses) multiplied; social programs, such as social security, unemployment compensation, and subsidies to farmers were deemed necessary; new deal types of government spending (Tennessee Valley Authority) to artificially create jobs became commonplace; and to fund the direct government expenses and the exponentially growing number of government employees, taxes to individuals and businesses skyrocketed. Before we delve into the question as to whether the increased role of the government in the United States and other industrialized countries has been beneficial, let's take a look at some fundamental concepts about the economy and the way it works.

1. Economics

What is economics about? Many people relate it to anything having to do with money and how to make as much of it as possible. Others claim that it deals with making choices and facing tradeoffs. Still others associate it with government fiscal and monetary policies and how they can best help a country's economic health. The real purpose of economics research is its ability to explain how we can most optimally achieve the highest standard of living possible. A good definition therefore is: economics is the study of how we can best increase a country's wealth with the resources that we have available to us. Wealth in this definition includes tangible (cars, houses, etc) as well as intangible (more leisure time, cleaner air, etc.) products. As you may know, there is quite some disagreement over how a country should go about achieving the optimum amount of wealth. Some economics advocate a great amount of government involvement, price controls, active monetary

policy, etc. Others believe that government involvement should be minimal and limited to tasks related to defending individual rights, defense, police and fire protection, etc. And many believe that a combination of moderate government involvement and private initiative is ideal in achieving the highest standard of living. There are also various opinions about the role of profits, consumer spending, saving, capital formation, unions, etc. in our economy. Should we tax profits to more equally distribute the wealth in our country? Should we encourage spending (and discourage saving) to stimulate economic growth? Do unions raise real wages? We will touch on this and other important economic issues in this workbook.

2. Economic Analysis

Economic analysis is used in many situations. When British Petroleum sets the price for its Alaskan crude oil, it uses an estimated demand model, both for gasoline consumers and also for the refineries to which BP sells. The demand for oil by refineries is governed by a complex economic model used by the refineries and BP estimates the demand by refineries by estimating the economic model used by refineries. Economic analysis was used by experts in the antitrust suit brought by the U.S. Department of Justice; both to understand Microsoft's incentive to foreclose (eliminate from the market) rival Netscape and consumer behavior in the face of alleged foreclosure. Stock market analysts use economic models to forecast the profits of companies in order to predict the price of their stocks. When the government forecasts the budget deficit or considers a change in environmental regulations, it uses a variety of economic models.

Economic analysis is used for two main purposes. The first is a scientific understanding of how allocations of goods and services – scarce resources – are actually determined. This is a *positive* analysis, analogous to the study of electromagnetism or molecular biology, and involves only the attempt to understand the world around us. The development of this positive theory, however, suggests

other uses for economics. Economic analysis suggests how distinct changes in laws, rules and other government interventions in markets will affect people, and in some cases, one can draw a conclusion that a rule change is, on balance, socially beneficial. Such analyses combine positive analysis – predicting the effects of changes in rules – with value judgments, and are known as *normative* analyses. For example, a gasoline tax used to build highways harms gasoline buyers (who pay higher prices), but helps drivers (who face fewer potholes and less congestion). Since drivers and gasoline buyers are generally the same people, a normative analysis may suggest that everyone will benefit. This type of outcome, where everyone is made better off by a change, is relatively uncontroversial.

3. Cost-benefit Analysis

In contrast, *cost-benefit analysis* weighs the gains and losses to different individuals and suggests carrying out changes that provide greater benefits than harm. For example, a property tax used to build a local park creates a benefit to those who use the park, but harms those who own property (although, by increasing property values, even non-users obtain some benefits). Since some of the taxpayers won't use the park, it won't be the case that everyone benefits on balance. Cost-benefit analysis weighs the costs against the benefits. In the case of the park, the costs are readily monetized (turned into dollars), because the costs to the tax-payers are just the amount of the tax. In contrast, the benefits are much more challenging to estimate. Conceptually, the benefits are the amount the park users would be willing to pay to use the park if the park charged admission. However, if the park doesn't charge admission, we would have to estimate willingness-to-pay. In principle, the park provides greater benefits than costs if the benefits to the users exceed the losses to the taxpayers. However, the park also involves transfers from one group to another.

4. Welfare Analysis

Welfare analysis provides another approach to evaluating government intervention into markets. Welfare analysis posits social preferences and goals, like helping the poor. Generally a welfare analysis involves performing a cost-benefit analysis taking account not just of the overall gains and losses, but also weighting those gains and losses by their effects on other social goals. For example, a property tax used to subsidize the opera might provide more value than costs, but the bulk of property taxes are paid by the lower and middle income people, while the majority of opera-goers are rich. Thus, the opera subsidy represents a transfer from relatively low income people to richer people, which is generally not consistent with societal goals of equalization. In contrast, elimination of sales taxes on basic food items like milk and bread generally has a relatively greater benefit to poor, who spend a much larger percentage of their income on food, than to the rich. Thus, such schemes may be considered desirable not so much for their overall effects but for their redistribution effects.

5. Opportunity Cost

Economists use the idea of cost in a slightly quirky way that makes sense once you think about it, and we use the term *opportunity cost* to remind you occasionally of our idiosyncratic notion of cost. For an economist, the cost of something is not just the cash payment, but all of the value given up in the process of acquiring the thing. For example, the cost of a university education involves tuition, and text book purchases, and also the wages that would have been earned during the time at university, but were not. Indeed, the value of the time spent in acquiring the education – how much enjoyment was lost – is part of the cost of education. However, some “costs” are not opportunity costs. Room and board would not generally be a cost because, after all, you are going to be living and eating whether you are in university or not. Room and board are part of the cost of an education

only insofar as they are more expensive than they would be otherwise. Similarly, the expenditures on things you would have otherwise done – hang-gliding lessons, a trip to Europe – represent savings. However, the value of these activities has been lost while you are busy reading this lesson.

The concept of opportunity cost can be summarized by a definition: *The opportunity cost is the value of the best foregone alternative.* This definition captures the idea that the cost of something is not just its monetary cost but also the value of what you didn't get. The opportunity cost of spending \$17 on a CD is what you would have done with the \$17 instead, and perhaps the value of the time spent shopping. The opportunity cost of a puppy includes not just the purchase price of the puppy, but also the food, veterinary bills, carpet cleaning, and the value of the time spent dealing with the puppy. A puppy is a good example, because often the purchase price is a negligible portion of the total cost of ownership. Yet people acquire puppies all the time, in spite of their high cost of ownership. Why? The economic view of the world is that people acquire puppies because the value they expect to get exceeds the opportunity cost. That is, they acquire a puppy when the value of a puppy is higher than the value of what is foregone by the acquisition of a puppy.

Even though opportunity costs include lots of non-monetary costs, we will often monetize opportunity costs, translating the costs into dollar terms for comparison purposes. Monetizing opportunity costs is clearly valuable, because it gives a means of comparison. What is the opportunity cost of 30 days in jail? It used to be that judge's occasionally sentenced convicted defendants to "thirty days or thirty dollars," letting the defendant choose the sentence. Conceptually, we can use the same idea to find out the value of 30 days in jail. Suppose you would choose to pay a fine of \$750 to avoid the thirty days in jail, but wouldn't pay \$1,000 and instead would choose time in the slammer. Then the value of the thirty day sentence is somewhere between \$750 and \$1000. In principle, there exists a price where at that

price you pay the fine, and at a penny more you go to jail. That price – at which you are just indifferent to the choice – is the monetized or dollar cost of the jail sentence. The same idea as choosing the jail sentence or the fine justifies monetizing opportunity costs in other contexts. For example, a gamble has a *certainty equivalent*, which is the amount of money that makes one indifferent to choosing the gamble versus the certain amount. Indeed, companies buy and sell risk, and much of the field of *risk management* involves buying or selling risky items to reduce overall risk. In the process, risk is valued, and riskier stocks and assets must sell for a lower price (or, equivalently, earn a higher average return). This differential is known as a *risk premium*, and it represents a monetization of the risk portion of a risky gamble.

6. Ceteris Paribus

To make any sense at all of the effects of a change in economic conditions, it is helpful to divide up the effect into pieces. Thus, we will often look at the effects of a change “other things equal,” that is, assuming nothing else changed. This isolates the effect of the change. In some cases, however, a single change can lead to multiple effects; even so, we will still focus on each effect individually. A gobbledygook way of saying “other things equal” is to use Latin and say “*ceteris paribus*.” Part of your job as a student is to learn economic jargon, and that is an example. Fortunately, there isn’t too much jargon. We will make a number of assumptions that you may not find very easy to believe. Not all of the assumptions are required for the analysis, and instead merely simplify the analysis. Some, however, are required but deserve an explanation. There is a frequent assumption that the people we will talk about seem exceedingly selfish relative to most people we know. We model the choices that people make, assuming that they make the choice that is best for them. Such people – the people in the models as opposed to real people – are known occasionally as “*homo economicus*.” Real people are indubitably more altruistic

than homo economicus, because they couldn't be less: homo economicus is entirely selfish. (The technical term is acting in one's *self-interest*.)

That doesn't necessarily invalidate the conclusions drawn from the theory. However, people often make decisions as families or households rather than individuals, and it may be sensible to consider the household as the "consumer." That households are fairly selfish is more plausible perhaps than individuals being selfish. Economics is pretty much silent on *why* consumers want things. You may want to make a lot of money so that you can build a hospital or endow a library, which would be altruistic things to do. Such motives are broadly consistent with self-interested behavior. Corporations are often required to serve their shareholders by maximizing the share value, inducing self-interested behavior on the part of the corporation. Even if corporations had no legal responsibility to act in the financial interest of their shareholders, capital markets may force them to act in the self-interest of the shareholders in order to raise capital. That is, people choosing investments that generate a high return will tend to force corporations to seek a high return. There are many good, and some not-so-good, consequences of people acting in their own self-interest, which may be another reason to focus on self-interested behavior.

Thus, while there are limits to the applicability of the theory of self-interested behavior, it is a reasonable methodology for attempting a science of human behavior. Self-interested behavior will often be described as "maximizing behavior," where consumers maximize the value they obtain from their purchases, and firms maximize their profits. One objection to the economic methodology is that people rarely carry out the calculations necessary to literally maximize anything. However, that is not a sensible objection to the methodology. People don't carry out the physics calculations to throw a baseball or thread a needle, either, and yet they accomplish these tasks. Economists often consider that people act "as if" they maximize an objective, even though no calculations are carried out.

The way economics is performed is by a proliferation of mathematical models, and this proliferation is reflected in this book. Economists reason with models. Models help by removing extraneous details from a problem or issue, letting one analyze what remains more readily. In some cases the models are relatively simple, like supply and demand. In other cases, the models are relatively complex. In all cases, the models are the simplest model that lets us understand the question or phenomenon at hand. The purpose of the model is to illuminate connections between ideas. A typical implication of a model is “when A increases, B falls.” This “comparative static” prediction lets us see how A affects B , and why, at least in the context of the model. The real world is always much more complex than the models we use to understand the world. That doesn’t make the model useless, indeed, exactly the opposite. By stripping out extraneous detail, the model represents a lens to isolate and understand aspects of the real world.

7. Supply And Demand

Supply and demand are the most fundamental tools of economic analysis. Most applications of economic reasoning involve supply and demand in one form or another. When prices for home heating oil rise in the winter, usually the reason is that the weather is colder than normal and as a result, demand is higher than usual. Similarly, a break in an oil pipeline creates a short-lived gasoline shortage, as occurred in the Midwest in the year 2000, which is a reduction in supply. The price of DRAM, or dynamic random access memory, used in personal computers falls when new manufacturing facilities begin production, increasing the supply of memory.

Eating a French fry makes most people a little bit happier, and we are willing to give up something of value – a small amount of money, a little bit of time – to eat one. What we are willing to give up measures the value – our personal value – of the French fry. That value, expressed in dollars, is the *willingness to pay* for French

fries. That is, if you are willing to give up three cents for a single French fry, your willingness to pay is three cents. If you pay a penny for the French fry, you've obtained a net of two cents in value. Those two cents – the difference between your willingness to pay and the amount you do pay – is known as *consumer surplus*. Consumer surplus is the value to a consumer of consumption of a good, minus the price paid.

8. Market Demand

Individuals with their own supply or demand trade in a market, which is where prices are determined. Markets can be specific or virtual locations – the farmer's market, the New York Stock Exchange, eBay – or may be an informal or more amorphous market, such as the market for restaurant meals in Billings, Montana or the market for roof repair in Schenectady, New York.

Individual demand gives the quantity purchased for each price. Analogously, the *market demand* gives the quantity purchased by all the market participants – the sum of the individual demands – for each price. This is sometimes called a “horizontal sum” because the summation is over the quantities for each price.

9. Equilibrium

Economists use the term *equilibrium* in the same way as the word is used in physics, to represent a steady state in which opposing forces are balanced, so that the current state of the system tends to persist. In the context of supply and demand, equilibrium refers to a condition where the pressure for higher prices is exactly balanced by a pressure for lower prices, and thus that the current state of exchange between buyers and sellers can be expected to persist.

10. Surplus and Shortage

When the price is such that the quantity supplied of a good or service exceeds the quantity demanded, some sellers are unable to sell because fewer units are purchased than are offered. This condition is called a *surplus*. The sellers who fail to sell have an incentive to offer their good at a slightly lower price – a penny less – in order to succeed in selling. Such price cuts put downward pressure on prices, and prices tend to fall. The fall in prices generally reduces the quantity supplied and increases the quantity demanded, eliminating the surplus. That is, a surplus encourages price cutting, which reduces the surplus, a process that ends only when the quantity supplied equals the quantity demanded.

Similarly, when the price is low enough that the quantity demanded exceeds the quantity supplied, a *shortage* exists. In this case, some buyers fail to purchase, and these buyers have an incentive to accept a slightly higher price in order to be able to trade. Sellers are obviously happy to get the higher price as well, which tends to put upward pressure on prices, and prices rise. The increase in price tends to reduce the quantity demanded and increase the quantity supplied, thereby eliminating the shortage. Again, the process stops when the quantity supplied equals the quantity demanded.

The equilibrium of supply and demand balances the quantity demanded and the quantity supplied, so that there is no excess of either. Would it be desirable, from a social perspective, to force more trade, or to restrain trade below this level?

11. Production Possibilities

Production possibilities frontiers provide the basis for a rudimentary theory of international trade. To understand the theory, it is first necessary to consider that there are fixed and mobile factors. *Factors of production* are jargon for inputs to the production process. Labor is generally considered a fixed factor, because most countries don't have borders wide open to immigration, although of course some

labor moves across international borders. Temperature, weather, and land are also fixed – Canada is a high-cost citrus grower because of its weather.

There are other endowments that could be exported, but are expensive to export because of transportation costs, including water and coal. Hydropower – electricity generated from the movement of water – is cheap and abundant in the Pacific Northwest, and as a result, a lot of aluminum is smelted there, because aluminum smelting requires lots of electricity. Electricity can be transported, but only with losses (higher costs), which gives other regions a disadvantage in the smelting of aluminum. Capital is generally considered a mobile factor, because plants can be built anywhere, although investment is easier in some environments than in others. For example, reliable electricity and other inputs are necessary most factories. Moreover, the presence of a functioning legal system and the enforcement of contracts, and the absence of bribery, is a comparative advantage of some nations, because enforcement of contracts increases the return on investment by increasing the probability the return isn't taken by others.

12. International Trade

The basic model of international trade was first described by David Ricardo (1772-1823), and suggests that nations, responding to price incentives, will specialize in the production of goods in which they have a comparative advantage, and purchase the goods in which they have a comparative disadvantage. He described England as having a comparative advantage of manufacturing cloth, and Portugal for producing wine, and thus gains from trade from the specialization.

The Ricardian theory suggests that the United States, Canada, Australia and Argentina should export agricultural goods, especially grains that require a large land area for the value generated (they do). It suggests that complex technical goods should be produced in developed nations (they are) and that simpler products and natural resources exported by the lesser developed nations (they are). It also suggests

that there should be more trade between developed and underdeveloped nations than between developed and other developed nations. The theory falters on this prediction – the vast majority of trade is between developed nations. There is no consensus for the reasons for this, and politics plays a role – the North American Free Trade Act vastly increased the volume of trade between the United States and Mexico, for example, suggesting that trade barriers may account for some of the lack of trade between the developed and the underdeveloped world. Trade barriers don't account for the volume of trade between similar nations, which the theory suggests should be unnecessary. Developed nations sell each other mustard and tires and cell phones, exchanging distinct varieties of goods they all produce.

It is fair to say that if factor price equalization works fully in practice, it works very, very slowly. Differences in taxes, tariffs and other distortions make it a challenge to test the theory across nations. On the other hand, within the United States, where we have full factor mobility and product mobility, we still have different factor prices – electricity is cheaper in the Pacific Northwest. Nevertheless, nations with a relative abundance of capital and skilled labor export goods that use these intensively, nations with a relative abundance of land export land intensive goods like food, nations with a relative abundance of natural resources export these resources, and nations with an abundance of low-skilled labor export goods that make intensive use of this labor. The reduction of trade barriers between such nation's works like Ann and Bob's joint production of party platters: by specializing in the goods in which they have a comparative advantage, there is more for all.

13. Business Cycle

An important aspect of the business cycle is that many economic variables move together, or *covary*. Some economic variables vary less with the business cycle than others. Investment varies very strongly with the business cycle, while overall employment varies weakly. Interest rates, inflation, stock prices, unemployment and

many other variables also vary systematically over the business cycle. Some economic variables are much more variable than others. For example, investment, durable goods purchases, and utilization of production capacity vary more dramatically over the business cycle than consumption and employment

14. Nominal and Real Values

When we refer to nominal values, such as nominal prices, earnings, wages or nominal interest rates, we refer to the dollar value of the prices, earnings, wages, or the numerical value of the interest rates. A person earning \$10 per hour in today's dollars is said to be earning a nominal wage of \$10. Real values are always values in comparison, or relative, to other related economic variables. Thus a person earning a nominal wage of \$10 in 1996 may only be earning a real wage of \$5 relative to today's doubled prices since, say, 1986. Applying the concept to interest rates, a 12% nominal interest rate is only a 2% real interest rate if prices are rising by 10%.

15. Positive and Normative Economics

Positive economic statements are facts or relationships which can be proven or disproven. A normative economic statement is someone's opinion or value judgment about an economic issue. Such a statement can never be proven. *Au contraire* (as the French would say), a normative statement is one which people commonly argue about. Note that a positive statement does not have to be a true statement; the statement could be disproven. It would be a false positive statement. Also keep in mind that predictions, such as "The Orioles should win the World Series this year," or "The 'skins will be in the Super Bowl again this season," are not considered normative statements, but predictions or hopes (or wishful thinking...) unrelated to facts or value judgments.

16. Cause and Effect

It is tempting to conclude that if one event occurs after another, that the first occurring event caused the second event. After winning its first three games while you were out with an injury, you conclude that it was your fault that your baseball team lost its fourth game as you regained your position in the starting rotation. Of course, your presence could have something to do with it, but you can not necessarily conclude this. Other variables may have played a role: the weather, the umpire, the opponent, your other teammates' performance that day, etc.

Similarly, in economics, people sometimes conclude that if one event follows another, the other must have caused the one. The period following World War II has seen a rising standard of living in industrialized countries around the world. This period has also been accompanied by much greater government involvement in these countries. Can we conclude that greater government involvement causes higher standards of living?

2.4 Check Your Progress

On the basis of your knowledge answer the following fill in the blanks:

- 1- _____ *refers to the integration of economics theory with business practices.*
- 2- _____ *is defined as the study of aggregate economy studied as a whole.*
- 3- _____ *is the discipline that studies the use of statistical tools to estimate economic models.*
- 4- *The last stage in the five step decision process described in the text is to_____.*
- 5- *The economic term for the costs associated with negotiating and enforcing the contract is _____.*

2.5 Summary

Economics is integration of different theories, concepts and statistical tools. These concepts are described in detail so that a complete understanding of economics can be gained. The real purpose of economics research is its ability to explain how we can most optimally achieve the highest standard of living possible. Economic

analysis is used for two main purposes. The first is a scientific understanding of how allocations of goods and services – scarce resources – are actually determined. This is a *positive* analysis and involves only the attempt to understand the world around us. In the other cases, one can draw a conclusion that a rule change is, on balance, socially beneficial. Such analyses combine positive analysis – predicting the effects of changes in rules – with value judgments, and are known as *normative* analyses. Now, the economic analysis can be done because we had adequate knowledge regarding the concepts such as demand, supply, market, opportunity cost, nominal and real values, cause and effect, etc.

2.6 Keywords

Cost-benefit analysis- It weighs the gains and losses to different individuals and suggests carrying out changes that provides greater benefits than harm.

Equilibrium- It refers to a condition where the pressure for higher prices is exactly balanced by a pressure for lower prices, and thus that the current state of exchange between buyers and sellers can be expected to persist.

Surplus- When the price is such that the quantity supplied of a good or service exceeds the quantity demanded, some sellers are unable to sell because fewer units are purchased than are offered. This condition is called a *surplus*.

Shortage- When the price is low enough that the quantity demanded exceeds the quantity supplied, a *shortage* exists.

2.7 Self-Assessment Test

1. *“Economics may be defined as the study of the allocation of scarce resources among competing ends.” Examine the statement.*
2. *Discuss and illustrate the different concepts of economics that are essentials in decision making process.*
3. *“The objective of economic analysis is not merely to discover the truth but also to assist in the solution of concrete problems.” Comment.*

2.8 Answer to Check Your Progress

1. Managerial Economic.
2. Macro-Economic.
3. Econometrics.
4. Implement the decision.
5. Transaction cost.

2.9 References/Suggested Readings

1. Modern Microeconomics by A. Koutsoyiannis. ELBS, The Macmillan Press Ltd., London.
2. Micro-Economic Theory by M. L. Jhingan. Vrinda Publications (P) Ltd., Delhi.
3. Managerial Economics by D.N. Dwivedi. Vikas Publishing House., New Delhi.
4. Managerial Economics and Business Strategy by Michael P. Beye. IRWIN., Chicago.
5. Economics: Principles, Problems and Policies by C. R. McConnell and S. L. Brue. McGraw Hill., New York.
6. Economic Analysis by K.P.M. Sundharam and E. N. Sundharam. Sultan Chand and Sons., New Delhi.
7. Managerial Economics by R. L. Varshney and K. L. Maheshwari. Sultan Chand and Sons., New Delhi.

Course:	Economic Analysis	Author:	Anil Kumar
Course Code:	MC-104	Vetter:	Dr. Karam Pal
Lesson:	03		
LAW OF DEMAND			

Structure

- 3.1 Learning Objectives
- 3.2 Introduction
- 3.3 Demands for a Commodity
 - 3.3.1 Determinants of Individual Demand
 - 3.3.2 Demand Function
 - 3.3.3 The Law of Demand
 - 3.3.4 The Market Demand for a Commodity
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3.1 Learning Objective

The overall objective of this lesson is to give you an understanding of the Law of Demand; there by enabling the students to understand the factors and forces that determine the demand.

3.2 INTRODUCTION

Business firms may have different objectives – profit maximisation, sales maximisation, output maximisation, security profits, satisfaction maximisation, utility maximisation, growth maximization or satisfying. But the basic business activity of all firms is same – *they all produce and sell goods and services that are in “demand”*. Demand is the basis of all productive activities, rightly termed as *“mother of production”*. It is, therefore, necessary for business managers to have clear understanding of ...

- What are the sources of demand?
- What are the determinants of demand?
- How do buyers decide the quantity of a product to be purchased?
- How do buyers respond to the change in a product price; their income; prices of other goods or services; and change in other determinants of demand?
- How can total or market demand for a product be assessed or forecast?

In a free market economy it is the price-mechanism that settles its fundamental problems of *what, how and for whom*. The price of any commodity in the market is determined by the general interaction of the forces of demand and supply. In this lesson, we will deal with the concepts of demand. Before proceeding further, we may define the term 'commodity' and 'market'.

A **commodity** is any goods produced for sale in the market. By this definition, food produced in the home kitchen for consumption of the family is not a commodity. But the same food prepared by a hotel for its customers' consumption is a commodity.

Market in Economics is more than a geographical area or a 'mandi' where goods are bought and sold. It means all the areas in which buyers and sellers are in contact with each other for the purchase and sale of the commodity. Thus, a commodity may have a local market, a regional market, a national market or even an international market.

3.3 DEMAND FOR A COMMODITY

In any market, there are a vast number of individual purchasers of a commodity. The basic unit of consumption being the individual household, "how much of a commodity would an individual household be willing to buy?" - is the demand for the commodity. We may define

The demand for a commodity of the individual household is the quantity of the commodity that he is willing to buy in the market in a given period of time at a given price.

Thus, a want with three attributes – '*desire to buy*', '*willingness to pay*' and '*ability to pay*' – becomes effective demand. Demand for a commodity has always a reference to '*a price*', '*a period of time*' and '*a place*'. For this reason, "demand for apples in 5" carries no meaning for a business decision.

3.3.1 DETERMINANTS OF INDIVIDUAL DEMAND

Knowledge of different factors and forces that determine the demand for a commodity and the nature of relationship between the demand and its determinants are very helpful in analyzing and estimating demand. The demand for a commodity of the individual household depends upon a number of factors - some are quantifiable while some are not quantifiable. These factors are:

- a. Price of the commodity
- b. The money income of the individual household
- c. The tastes and preferences of the individual household
- d. The prices of other commodities

3.3.2 DEMAND FUNCTION

A function is a symbolic statement of relationship between the dependent and the independent variables, *i.e.*

$$\text{Dependent Variable} = f(\text{Independent Variables})$$

Thus, the relationship of quantity demanded of a commodity to the factors that determine it may be expressed in the form of a function that is called **demand function**.

So Demand = $f(\text{Determinants of the Demand})$

Or $Qd_x = f(P_x, P_1, \dots, P_n, I, T)$

Where Qd_x is the individual household's demand for commodity X,

P_x is the price of the commodity X,

P_1, \dots, P_n are the prices of all other commodities (other than X),

I is the income of the household, and

T stands for tastes and preferences of the members of the household.

This lesson is concerned with the relationship between quantity demanded of a commodity and its price, while all the other determinants of demand are assumed to remain unchanged. In real life they do change. Before we discuss the relationship between the price of a commodity and the quantity demanded of it, let us first have some rudimentary idea of how the other variables affect demand for a commodity.

1. Income of the Household

Demands for goods of different nature have different kinds of relationship with income of different categories of consumers (see Figure 5-1).

- a. In case of normal goods, a rise in income is generally associated with increase in their demand, and a fall in income with a decrease in their demand. In other words, both income and demand for commodities move in the same direction.

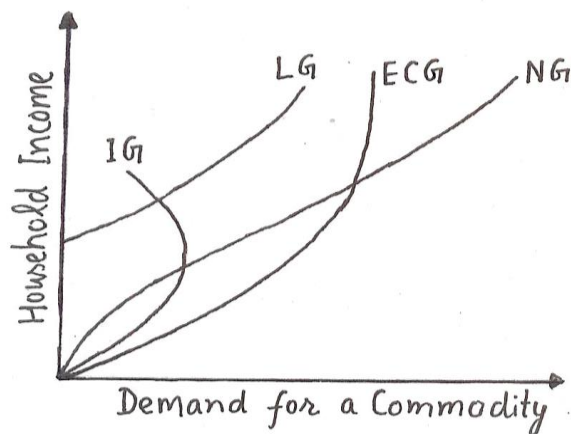


Figure 3.1 Household Income and Demand for a Commodity

- b.* In case of essential consumer goods, an increase in income may have no effect on their demand. For example, in case of salt, even with a rise in income, the demand for salt is likely to remain unaffected.
- c.* In case of inferior goods, a rise in income may actually lead to a decrease in their demand. For example, the household may be consuming toned milk. A rise in income may induce it to consume whole milk and its demand for toned milk may go down.
- d.* In case of luxury and prestige goods, their demand starts after a particular level of income and may have positive relationship with income after that level.

2. Prices of Other Commodities

The relationship between the demand for a commodity and prices of other commodities can be one of the following types:

- a.* The relationship may be the positive one. In other words, a fall (rise) in the price of other commodities reduces (increases) the household demand for a particular commodity. This is the case of substitute goods. If tea and coffee are substitutes, the individual household's demand for tea, among other things, depend upon the price of tea. A fall in the price of coffee would divert demand from tea to coffee and a rise in the price of coffee would divert demand from coffee to tea and increase the demand for tea (see Figure 5-2a).
- b.* The relationship may be the inverse one. In other words, a fall (rise) in the price of other commodities increases (reduces) the household demand for a particular commodity. This is the case of complementary goods. If bread and butter go together, a fall in the price of butter may expand its demand and increase the demand of bread (see Figure 5-2b).

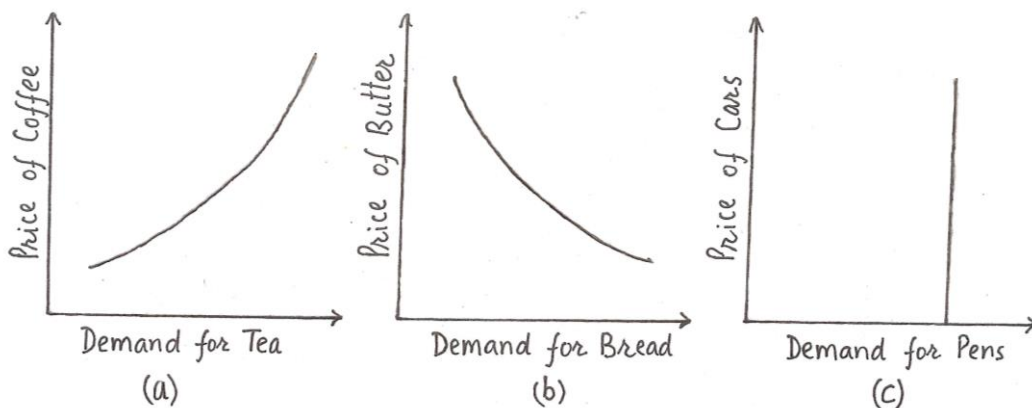


Figure 3.2 Prices of Other Commodities and Demand for a Commodity

- c. There may be no relationship. This is the case of unrelated goods. A fall or rise in the price of cars may leave the demand for ball pens unaffected (see Figure 5-2c).

3. Taste or Preferences of the Household

Tastes and preferences of individual households influence their demand for a commodity. Tastes and preferences generally depends on the changing life-style, fashion, social customs, religious value, habit, the general level of the living of the society, age etc. If tastes and preferences change in response to these factors, or as a result of advertisement, or are simply the desire to imitate neighbors, demand for commodities may change. Households may reduce or give up consumption of some goods and add new ones in their consumption pattern. For example, advertisement may induce households to change the preference for a particular brand of soap.

3.3.3 THE LAW OF DEMAND

When all factors affecting the demand for a commodity, other than its price, are assumed to remain unchanged, the demand for a commodity is the function of its price.

$$Qd_x = f(P_x) \quad I^\circ, P_1^\circ, \dots, P_n^\circ, T^\circ$$

The relationship between demand and price may be expressed in the form of the Law of Demand in the following words:

The quantity demanded of a commodity varies inversely with its price, other determinants of demand remaining unchanged.

The inverse relationship between quantity demanded and price may be of

- a. Linear form: $Qd_x = a - bP_x$ or (see Figure 5-3a).
- b. Non-linear or Curvilinear form: The most common form of a non-linear demand function is $Qd_x = a P_x^{-b}$ (see Figure 5-3b).

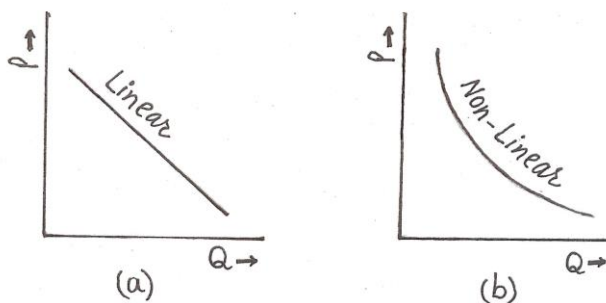


Figure 3.3 Demand Curves: (a) Linear (b) Non-linear or Curvilinear

HOUSEHOLD DEMAND SCHEDULE AND DEMAND CURVE

An individual household's demand refers to the quantities of a commodity demanded by him at various prices, other things remaining unchanged. An individual household's demand for a commodity is shown on the demand schedule and on the demand curve. A demand schedule is a list of prices and corresponding quantities demanded and its graphic representation is a demand curve.

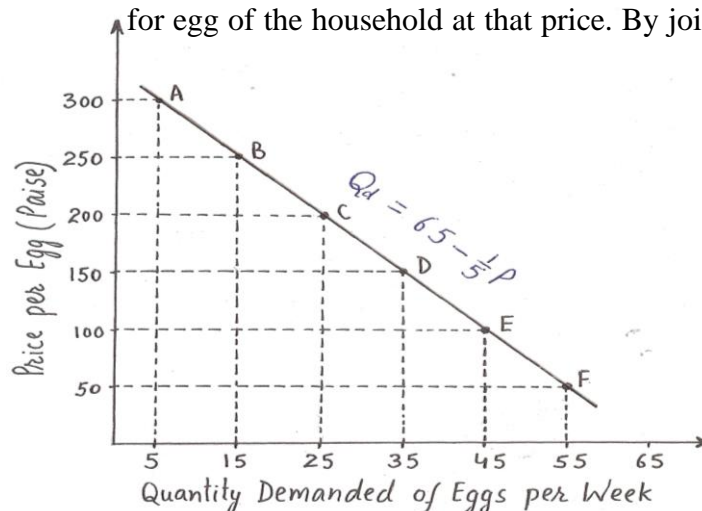
Let us illustrate the law of demand by drawing a hypothetical household demand function $Qd_e = 65 - \frac{1}{5}P_e$ for eggs. The demand schedule is shown in Table 5-1. In the first column are given alternate prices per egg and in the second column against each price is shown quantity demanded of eggs, during, say a week.

Price per Egg (Paise)	Quantity Demanded of Eggs
300	5
250	15
200	25
150	35
100	45
50	55

Table 3.1 Individual Household Demand Schedule of Eggs

The demand schedule represented on a graph gives the demand curve for eggs of the household. On the Y-axis is shown the independent variable, price per egg and on the X-axis is given the dependent variable, the quantity of eggs demanded at each price.

Each point A, B, C, D, E, F represents a pair of values; price of an egg and the demand for egg of the household at that price. By joining these points,



we get the demand curve AF for eggs of the household, for the given period.

Figure 3.4 Individual Household Demand Curve for Eggs

The demand curve depicts the relationship between the price of the commodity and an estimate of the quantity demanded of it for the given period at any point of time. The demand curve slopes downward from left to right. A demand curve sloping downward from left to right is also called a negatively sloped demand curve because the rate of change in Q in response to change in P is denoted by negative value *i.e.* $\frac{dQ}{dP}$ is negative.

Why the Demand Curve Slopes Downward?

It is a matter of empirical observation that households behave in this fashion for most of the commodities. They buy more of the goods at lower prices than at higher prices. But the question is why do they behave in this fashion? An explanation of this may be found in the theories of consumer behaviour: the **Marginal Utility Theory** of Professor **Marshall**, the **Indifference Curves Approach** of Professor **Hicks**, and the theory of **Revealed Preferences** of Professor **Samualson**. The reason for the negative slope of demand curve can be found in *income* and *substitution effects* of the price change:

Income Effect: When the price of commodity falls, less has to be spend on the purchase of the same quantity of the commodity. This has the effect of increasing the purchasing power of the given money. This is the *income effect* of a fall in the price of the commodity. With this increase in real income, the household buys more of the commodity in question. The effects operate in reverse when the price of the commodity rises.

Substitution Effect: When the price of a commodity falls, it becomes cheaper relative to other commodities. This leads to substitution of other commodities (which are now relatively more expensive). This is called the *substitution effect* and the demand for the cheaper commodity rises in

consequence. When the price of the commodity rises, this effect operates in reverse.

Thus, Income effect and substitution effect together explain the behaviour of individual household in the form of law of demand.

Giffen Paradox: The Positively Sloped Demand Curve

If the commodity in question is an inferior good, the increase in real income resulting from the reduction in its price will lead the consumer to purchase less, not more, of the commodity. Thus, the income effect will be negative while the substitution effect continues to be positive to lead the consumer to purchase more of the commodity when its price falls. For most of the inferior goods, the positive substitution effect will more than offset the negative income effect so that the demand curve is negatively sloped.

However, in the very rare case when the consumer spends so much on the inferior commodity that the strong negative income effect overwhelms the positive substitution effect the quantity demanded of the commodity will fall when its price falls and rise when its price rises. In other words, the demand curve in this case will be positively sloped. The commodity in question is then called a *Giffen* good, after the nineteenth century English economist **Robert Giffen**, who first discussed it. This is what is called *Giffen Paradox* that makes the demand curve to have a positive slope.

3.3.4. THE MARKET DEMAND FOR THE COMMODITY

So far we have considered only the demand of the individual household. What about the market demand for a commodity? The market demand may be defined as the estimates of quantity demanded of the commodity per time period at various alternate prices, by all the individual households in the market.

Geometrically, the market demand curve is obtained by a horizontal summation of the individual household demand curves in the market.

This will become clear from the following hypothetical example. Let us say, there are three households in the market for eggs. The demand functions of the households are:

$$\text{Household H}_1 : Qd_e = 40 - \frac{1}{10}P_e$$

$$\text{Household H}_2 : Qd_e = 65 - \frac{1}{5}P_e$$

$$\text{Household H}_3 : Qd_e = 50 - \frac{1}{10}P_e$$

The demand for eggs at different prices of these three households is given in the schedule (Table 5-2). By adding the quantity demanded by each household against the given price, we get the market demand for eggs per unit of time, a week in our example.

By plotting quantities demanded by households against alternate prices, we get the demand curves for eggs of the three households, in the market, marked H₁, H₂ and H₃. By summing up quantities demanded by the three households against each price along the horizontal (OX) axis, we get the market demand curve for eggs. This is done in Figure 5-5.

Price per Egg (Paise)	Quantity Demanded of Eggs			
	Household H ₁	Household H ₂	Household H ₃	Market Demand
300	10	5	20	35
250	15	15	25	55
200	20	25	30	75
150	25	35	35	95
100	30	45	40	115
50	35	55	45	135

Table 5-2 Demand Schedules of Eggs

At each price demand by each household is added up to obtain the market demand for eggs per week. Thus, geometrically, the market demand curve for a commodity is obtained by a horizontal summation of the demand curves of the households comprising the market.

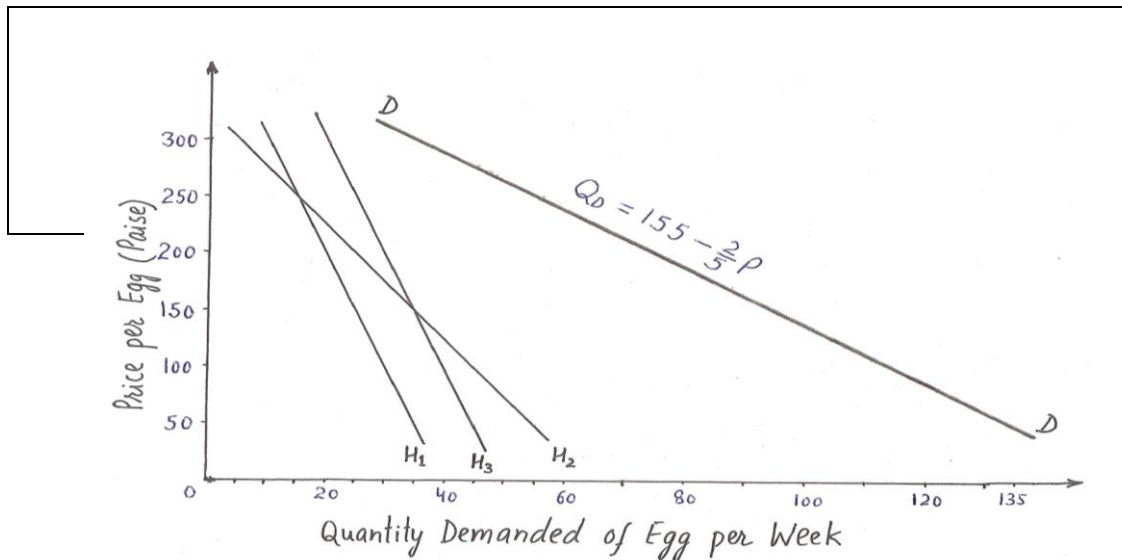


Figure 5-5 Market Demand Curve for Eggs

The market demand curve for a commodity shows the various quantities of the commodity demanded in the market per time period at various alternative prices of the commodity while holding every other factor constant. Just as an individual's demand curve, the market demand curve for a commodity is negatively sloped; indicating that price and quantity demanded is inversely related.

The various factors held constant in drawing the market demand curve for a commodity are:

- The number of the households in the markets
- Households' income
- The price of other commodities
- The tastes and preferences of the households
- Consumers' expectations about future price and supply position

Thus the general market demand function for commodity X is

$$QD_x = f(P_x, N, I, P_1, \dots, P_n, T, E_p, s)$$

The market demand function for eggs is

$$QD_e = 155 - \frac{2}{5}P_e$$

3.4 CHANGES IN DEMAND

Demand does not remain constant. It changes in response to change in any, some or all of its determinants. Whenever demand changes, there is either.

- a. A movement along the demand curve, or
- b. A shift of the entire demand curve

We use different expressions for the two types of changes in demand.

(a) Movement along the Demand Curve

A demand curve relates quantity demanded of a commodity to its prices. At higher prices less of the commodity is demanded, and at lower prices more of the commodity is demanded. As we move from higher prices to lower prices, we move down the demand curve, and as we move from lower prices to higher prices, we move up the demand curve. In other words, a change in the price of the commodity means a movement along the demand curve.

In Figure 5-6, a rise in price from P to P_1 and a fall in price from P to P_2 bring about changes in quantity demanded from PA to P_1B and P_2C . The movement from point A to B or C is a movement along the demand curve, DD .

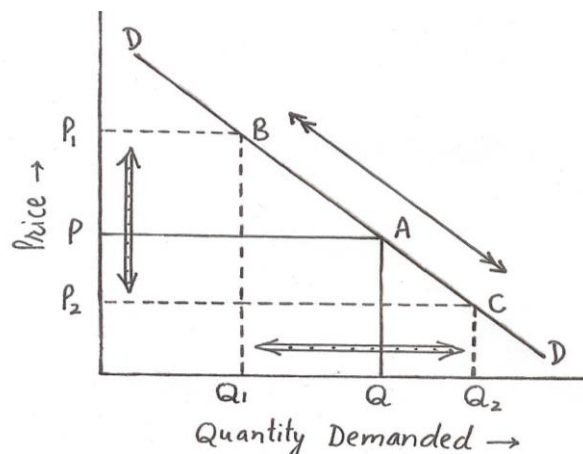


Figure 3.6 Movements along the Demand Curve

For these changes in demand due to change in price alone, we use the expressions *expansion* and *contraction* of demand to denote movement along the demand curve.

Thus

Expansion of demand means a rise in demand that result from a decrease in price (movement down the demand curve).

Contraction of demand means a fall in demand that results from an increase in price (movement up the demand curve).

(b) Shift of the Demand Curve

But when the demand for a commodity changes not on account of a change in its price but due to changes in the other determinants of demand – income of the household, their tastes and preferences and prices of close substitutes – the demand curve may shift in accordance with the direction of the change.

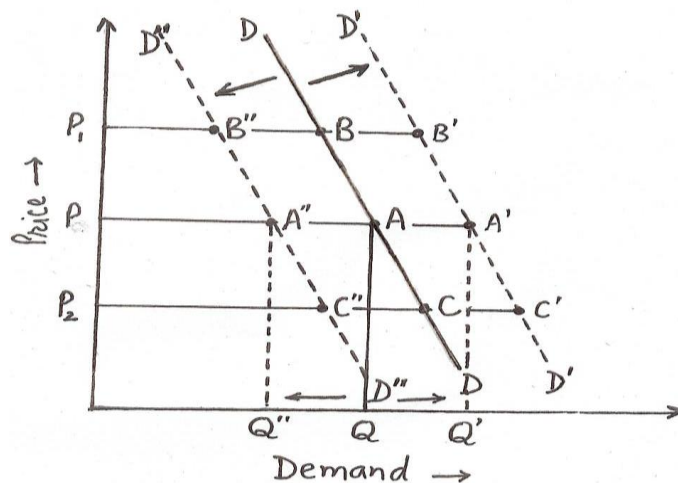


Figure 3.7 Shift of the Demand Curve

In Figure 3.7, at the same price P, the quantity demanded increases to point A' when the demand curve has shifted rightwards and the quantity demanded decreases to point A'' when the demand curve has shifted leftwards. Due to changes in demand brought about by factors other than price, the demand curve DD has shifted to the right to D'D' or to the left to D''D''.

For these changes in demand due to change in determinants other than price, we use the expressions *increase* and *decrease* of demand to denote the shift of demand curve. Thus

Increase in demand means a rightward shift of the demand curve – the demand for the commodity at the same price has increased.

Decrease in demand means a leftward shift of the demand curve – the demand for the commodity at the same price has decreased.

Figure 3.8 shows the change in demand for a commodity from initial demand Q_1 to final demand Q_3 . Here Q_1Q_2 is the expansion of demand (due to decrease in price from P_1 to P_2) and Q_2Q_3 is the increase in demand due to rightward shift of the demand curve because of, say, household income increase.

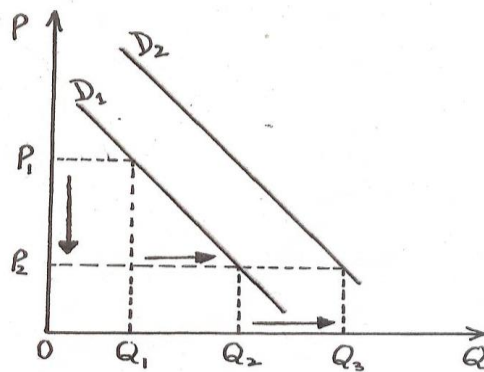


Fig. 3.8 Movements along the Demand Curve & Shift of the Demand Curve

3.5 CHECK YOUR PROGRESS

- 1- Normally a demand curve will have the shape_____.
- 2- Law of demand shows relation between_____.
- 3- The movement along a demand curve is due to_____.
- 4- Price and demand are positively correlated in case of_____.
- 5- Demand is a function of_____.

3.6 SUMMARY

The demand for a commodity of the individual household is the quantity of the commodity that he is willing to buy in the market in a given period of time at a given price. Knowledge of different factors and forces that determine the demand for a commodity and the nature of relationship between the demand and its determinants are very helpful in analyzing and estimating demand. It is a matter of empirical observation that households behave in this fashion for most of the commodities. They buy more of the goods at lower prices than at higher prices. Society follow the rule of law of demand because increase in prices leads to decrease in demand and decrease in prices leads to increase in demand. It the human nature to follow the inverse relationship of price and demand but still, this rule is not followed sometimes due to various factors affecting demand. Similarly, there are various other factors which are responsible for the movement of demand curve.

3.7 KEYWORDS

Demand - The demand for a commodity of the individual household is the quantity of the commodity that he is willing to buy in the market in a given period of time at a given price.

Demand Function - The relationship of quantity demanded of a commodity to the factors that determine it may be expressed in the form of a function that is called *demand function*.

Demand Curve - The demand curve depicts the relationship between the price of the commodity and an estimate of the quantity demanded of it for the given period at any point of time.

Law of Demand - The quantity demanded of a commodity varies inversely with its price, other determinants of demand remaining unchanged, is known as Law of Demand.

Increase in Demand - Increase in demand means a rightward shift of the demand curve – the demand for the commodity at the same price has increased.

3.8 SELF- ASSESSMENT TEST

1. What is demand? Discuss briefly the various determinants of demand.
2. State and illustrate the law of Demand, giving its assumptions and importance.
3. What are the factors on which the market demand for a commodity depends? In which category would you place the following from the categories affecting market demand for a commodity?
 - a) Liking for tea as against coffee?
 - b) A decline in birth rate.
 - c) Grant of dearness allowance to the employees
 - d) A tax of Rs 3/- per kg on tea.
4. *Why does the demand curve slopes downward to the right? Under what circumstances a demand curve slopes upward to the right?*
5. Distinguish between:
 - (a) Expansion in demand and Increase in demand
 - (b) Contraction in demand and Decrease in demandShow this diagrammatically.
6. Answer the following in one or two sentences:
 - (a) When does a consumer buy more of a commodity at a given price?
 - (b) When does a consumer buy less of a commodity at a given price?
 - (c) When is the demand for a commodity said to be completely inelastic?
 - (d) Why the demand for coffee does increases when the price of tea increases?
 - (e) Why the demand for ink does increases when the price of pen falls?
7. The demand function of a commodity X is given by $Q_x = 12 - 2 P_x$. Find out the individual demand schedule and the demand curve.
8. Write short notes on:
 - (b) Demand function

- (c) Demand schedule and demand curve
- (d) Income and substitution effects of price change
- (e) Giffen Paradox

3.9 ANSWER TO CHECK PROGRESS

1. Downward sloping
2. Price and Quantity of a commodity.
3. Change in the price of a commodity.
4. Giffen goods.
5. Price

3.10 REFERENCES/SUGGESTED READINGS

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Lesson:	04		
DEMAND ELASTICITY			

Structure

- 4.1 Learning Objective
- 4.2 Introduction
- 4.3 Types of Elasticity Demand
 - 4.3.1 Price Elasticity of Demand
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4.1 LEARNING OBJECTIVE:

The overall objective of this lesson is to provide the students an understanding of the different elasticity of demand, thereby enabling them to appreciate the need and use of elasticity of demand for managerial decision-making.

4.2 INTRODUCTION

Demand is a function of its determinants. It changes in response to any change in any of its determinants. However, knowing alone the nature of relationship between

demand and its determinants is not sufficient. What is more important is to know the extent of relationship or how responsive the demand is to the changes in its determinants. The concept of elasticity of demand is extremely useful in this reference. It plays an important role in business decision-making. For example 'raising the price' of the product will prove beneficial or not depends on:

- a. The price elasticity of demand for the product and
- b. The price elasticity of demand for its substitutes.

Therefore, it is obvious that the understanding of different elasticities of demand is the basic prerequisite whenever a business manager is considering "price change" for his or her product. In general terms, the elasticity of demand is a measure of the responsiveness or sensitiveness of demand for a commodity to the change in its determinants. There are as many elasticities of the demand as its determinants. The most important of these elasticities are (a) the price elasticity, (b) the income elasticity, and (c) the cross elasticity of demand. In this lesson after discussing these elasticities of demand in detail, we will understand their use in managerial decision-making.

4.3 TYPES OF ELASTICITY DEMAND

There are as many elasticity of the demand as its determinants. The most important type of elasticity is (a) the price elasticity, (b) the income elasticity, and (c) the cross elasticity of demand. These are explained as under:

4.3.1 PRICE ELASTICITY OF DEMAND

Consider the two demand curves A and B, given in the Figure 4.1. Curve A represents the demand for goods in market A. Curve B represent the demand for the same goods in market B. At price P_1 , the demand in market A is OQ_A ; while in market B, it is OQ_B . When the price falls from P_1 to P_2 , the demand in market A expands from OQ_A to $OQ_{A'}$ that is, by $Q_AQ_{A'}$. In case of market B, the same fall in

price leads to an expansion of demand by $Q_B Q_{B'}$. The expansion in demand in market B is greater than in market A. We describe this situation roughly by saying that the price elasticity of demand for the goods in market B is greater than that in market A.

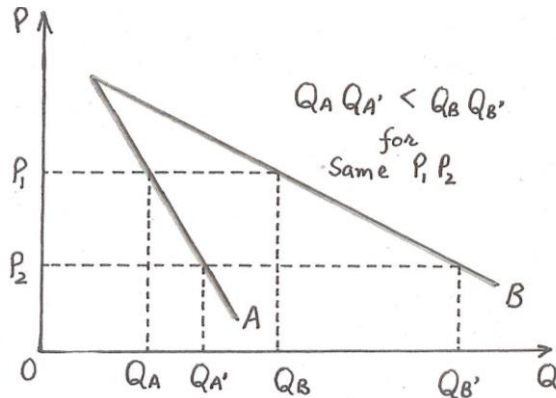


Figure 4.1 Demand Curves With different Price Elasticities

Therefore, price elasticity of demand is the measure of the degree of responsiveness of the demand for the commodity to the changes in its own price. *It measures the percentage change in the quantity demanded as a result of one percent change in its price, holding constant all other variables in the demand function.* That is:

$$\begin{aligned}
 e_p &= \frac{\% \Delta Q}{\% \Delta P} && \text{ceteris paribus} \\
 &= \frac{\frac{\Delta Q}{Q} \times 100}{\frac{\Delta P}{P} \times 100} \\
 &= \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q} && \dots\dots\dots (6-1)
 \end{aligned}$$

Where P and Q are initial price and quantity demanded respectively. ΔP and ΔQ refer, respectively, to the change in price and change in quantity.

$\Delta Q/\Delta P$ is negative, making the price elasticity always negative. This is because of inverse relationship between P and Q implied by the Law of Demand. However, we

generally omit the negative sign when writing the formula of the elasticity. We can measure the price elasticity of demand.

- On a point on demand curve, and call it *point price elasticity of demand*
- Between two points on a demand curve, and call it *arc price elasticity of demand*

Point Price Elasticity of Demand

When the changes in price are very small, we use *the point elasticity* of demand as a measure of the responsiveness of demand. Thus *point elasticity of demand is defined as the proportionate change in the quantity demanded resulting from a very small proportionate change in price.*

If we consider very small changes in P and Q , then $\Delta P \approx \partial P$ and $\Delta Q \approx \partial Q$

That is
$$e_p = \frac{\partial Q}{\partial P} \cdot \frac{P}{Q} \dots\dots\dots(4.2)$$

If the demand curve is linear

$$Q = a - bP$$

Then $\frac{\partial Q}{\partial P} = b$, so we have

$$e_p = b \cdot \frac{P}{Q} \dots\dots\dots(4.3)$$

Here b is the reciprocal of the slope of the demand curve.

Eq.(4.2) and *Eq.(4.3)* imply that the point price elasticity changes at the various points of the linear demand curve. This is because of the change in P/Q along the demand curve.

Example 4.1

Consider the demand function for a commodity X

$$Q = 300-50P \text{ ceteris peribus}$$

Calculate the price elasticity at the price of Rs2.

Solution: At $P = 2$, we have

$$Q = 300 - 50(2) = 200$$

So price elasticity at $P = 2$,

$$e_p = b \cdot \frac{P}{Q} = 50 \cdot \frac{2}{200} = \frac{1}{2}$$

It means, at price $P = 2$; a 1 percent change in price results in 0.5 percent opposite change in quantity demanded, *ceteris paribus*.

Graphic Measure of Point Price Elasticity of Demand

We can obtain a graphic measure of the point price elasticity of demand by manipulating Eq.(4.3).

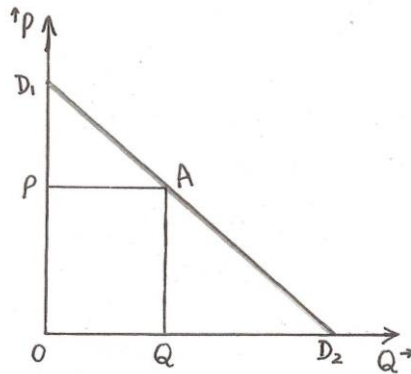


Figure 4.2 Point Price Elasticity

We have

$$e_p = b \cdot \frac{P}{Q}, \text{ From Figure 4.2, we see that } b = \frac{QD_2}{AQ}, P = OP \text{ and } Q = OQ$$

$$\text{So } e_p = \frac{QD_2}{AQ} \cdot \frac{OP}{OQ} = \frac{QD_2}{OQ} \quad [\text{as } AQ = OP]$$

$$= \frac{PA \cdot \frac{AD_2}{D_1A}}{OQ} \quad [\text{as } \triangle D_1PA \text{ and } \triangle AQD_2 \text{ are similar, so } \frac{QD_2}{PA} = \frac{AD_2}{D_1A} \text{ or}$$

$$QD_2 = PA \cdot \frac{AD_2}{D_1A}] = \frac{AD_2}{D_1A} \quad [\text{as } PA = OQ]$$

$$= \frac{\text{Lower Segment of the Demand Curve}}{\text{Upper Segment of the Demand Curve}} \dots\dots\dots(4.4)$$

So we can obtain the point price elasticity of demand graphically by the ratio of the segments of the demand curve to the right and to the left of the particular point. We can also have another form of graphic measure of point price elasticity of demand.

We have

$$e_p = \frac{AD_2}{D_1A} = \frac{AQ}{D_1P} \quad [\text{as } \triangle AQD_2 \text{ and } \triangle D_1PA \text{ are similar, so } \frac{AD_2}{D_1A} = \frac{AQ}{D_1P}]$$

$$= \frac{OP}{OD_1 - OP} \quad [\text{as } AQ = OP \text{ and } D_1P = OD_1 - OP] = \frac{P}{P_0 - P} \quad \dots\dots\dots(4.5)$$

In other words, the point price elasticity of demand can also be obtained geometrically by dividing the price of the commodity (P) at the particular point by $P_0 - P$, where P_0 is the price at which the quantity demanded is zero (*i.e.* the price at which the demand curve crosses the vertical axis).

Point Price elasticity on a Curvilinear Demand Curve

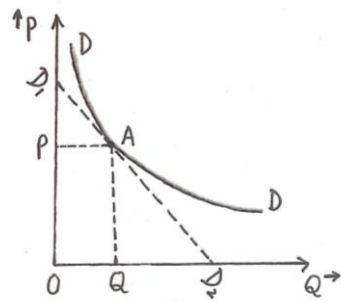


Figure 4.3 Point Price Elasticity on a Curvilinear Demand Curve

For a curvilinear (non-linear) demand curve, we draw a tangent to the demand curve at the point at which we want to measure the elasticity and then proceed as if we were dealing with a linear demand curve.

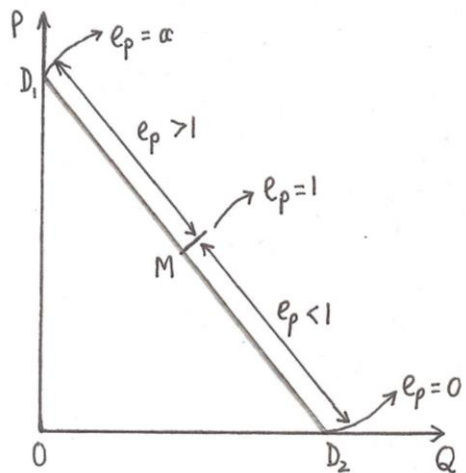


Figure 4.4 Point Price Elasticity

From the graphical measurement of the point price elasticity of demand, it is obvious that at mid-point of the linear demand curve $e_p = 1$ (point M in Figure 4.4). At any point to the right of M, $e_p < 1$; and at any point to the left of M, $e_p > 1$. At point D₁ the $e_p = \alpha$, while at point D₂ the $e_p = 0$.

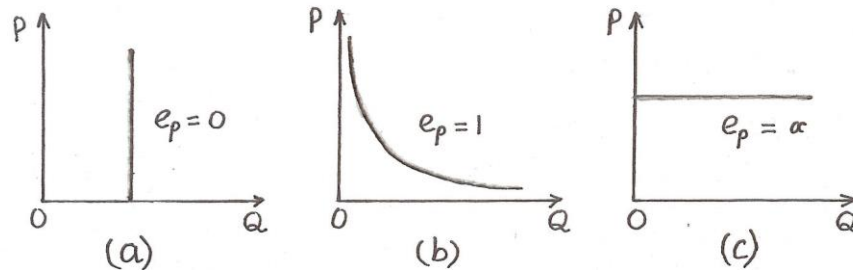


Figure 4.5 Demand Curves With different Price Elasticities

Thus, the range of values of the elasticity is

$$0 \leq e_p \leq \alpha$$

- If $e_p = 0$, the demand is perfectly inelastic (Figure 4.5a).
- If $e_p = 1$, the demand has unitary elasticity (Figure 4.5b).
- If $e_p = \alpha$, the demand is perfectly elastic (Figure 4.5c).
- If $0 < e_p < 1$, we say that the demand is inelastic.
- If $1 < e_p < \alpha$, we say that the demand is elastic.

Arc Price Elasticity of Demand

When the changes in price are not small, we use the *arc elasticity* of demand as a measure of the responsiveness of demand. Arc elasticity measures the elasticity of demand between two points on the demand curve. However, if we use the Eq.(4.1)

i.e. $e_p = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$, we will get different results depending on whether the price rose or

fell. This is because of the different values of the initial price (P) and initial quantity (Q) for the rise and fall of the price. Therefore, we use the average of the two prices

and the average of the two quantities in the calculations and use the following formula for the arc price elasticity of demand:

$$e_p = \frac{\Delta Q}{\Delta P} \cdot \frac{\frac{P_1 + P_2}{2}}{\frac{Q_1 + Q_2}{2}} \quad \text{ceteris paribus}$$

$$= \frac{Q_2 - Q_1}{P_2 - P_1} \cdot \frac{P_1 + P_2}{Q_1 + Q_2} \quad \dots\dots\dots(4.6)$$

Where the subscripts 1 and 2 refer to the original and to the new values, respectively, of price and quantity.

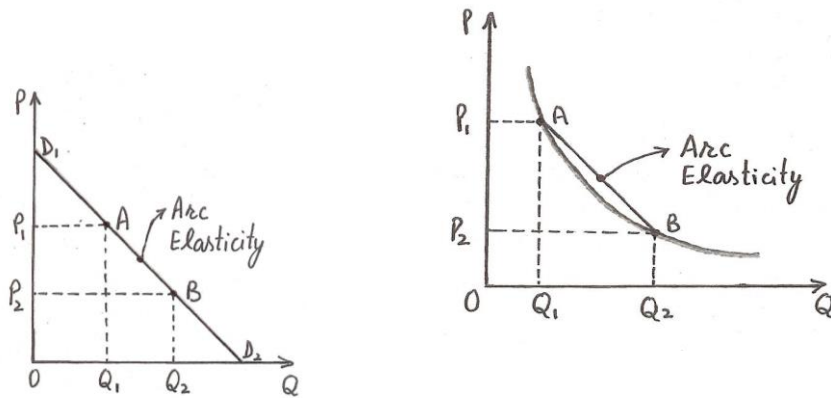


Figure 4.6 Arc Elasticity

Example 4.2

Consider the demand schedule for men's Levi's jeans in a store:

Price	1000	950	900	850	800	750	700
Quantity Demanded	50	60	68	78	90	105	125

Calculate the price elasticity between an original price of Rs950 and new price of Rs850.

Solution: We have

Original values of price and quantity demanded: $P_1 = 950, Q_1 = 60$

New values of price and quantity demanded: $P_2 = 850, Q_2 = 78$

So
$$e_p = \frac{Q_2 - Q_1}{P_2 - P_1} \cdot \frac{P_1 + P_2}{Q_1 + Q_2} = \frac{78 - 60}{850 - 950} \cdot \frac{850 + 950}{78 + 60} = -\frac{18}{100} \cdot \frac{1800}{138}$$

$$= -2.34$$

This means that in the price range (850-950), a 1 percent change in price results, on the average, in a 2.34 percent opposite change in the demand for Levi's jeans.

With the help of price elasticity of demand, we can compute a price that would have to be charged to achieve a particular level of sales. Consider Example 6-3

Example 4.3

Nike sells 10500 pairs (at price Rs2500) of a particular brand of football shoes before a price cut by its major competitor Adidas. After this the sales declined to 8500 pairs. From its past experience Nike has estimated the $e_p = -2$ in this price-quantity range. What price should Nike charge to maintain the sales level of 10500 pairs?

Solution: We have, $P_1 = 2500$ $Q_1 = 8500$ $Q_2 = 10500$ $e_p = -2$

We can find P_2 from the relation
$$e_p = \frac{Q_2 - Q_1}{P_2 - P_1} \cdot \frac{P_2 + P_1}{Q_2 + Q_1}$$

$$i.e. \quad -2 = \frac{10500 - 8500}{P_2 - 2500} \cdot \frac{P_2 + 2500}{10500 + 8500}$$

By solving for P_2 we get, $P_2 = 2250$

So Nike should reduce the price to Rs2250, to maintain the sales level of 10500 pairs. The arc elasticity is a measure of the average elasticity, that is, the elasticity at the mid point of the chord that connects the two points (A and B) on the demand curve defined by the initial and new price levels (Figure 6-6). It should be clear that the measure of the arc elasticity is an approximation of the true elasticity of the section AB of the demand curve, which is used when we know only the two points A and B from the demand curve, but not the intermediate ones.

Price Elasticity, Total Revenue and Marginal Revenue

The price elasticity of demand bears an important relationship with the total revenue and marginal revenue. Total revenue (TR) is equal to price (P) times quantity (Q),

while marginal revenue (MR) is the change in total revenue per unit change in output or sales (quantity demanded) that is

$$TR = P \cdot Q$$

$$MR = \frac{d(TR)}{dQ} = \frac{d(PQ)}{dQ} = P + Q \frac{dP}{dQ} = P \left(1 + \frac{dP}{dQ} \cdot \frac{Q}{P} \right)$$

Now $\frac{dP}{dQ} \cdot \frac{Q}{P} = -\frac{1}{e_p}$

So $MR = P \left(1 - \frac{1}{e_p} \right)$ (4.7)

From the relationship between e_p and MR in Eq (4.7), it is clear that

➤ When $e_p > 1$, $MR > 0$

In other words, when demand is elastic, total revenue increases with a decline in price and decreases with a rise in price. This is because when demand is elastic, a price change leads to a proportionately larger opposite change in quantity demanded that results an increase in total revenue when price declines and a decrease in total revenue when price rises.

➤ When $e_p = 1$, $MR = 0$

That is, when demand is unitary elastic, the total revenue remains unchanged with a decline or rise in price. The reason for this is that when demand is unitary elastic, a change in price leads to an equal proportionate opposite change in quantity demanded thereby leaving the total revenue unchanged.

➤ When $e_p < 1$, $MR < 0$

That is, if demand is inelastic, a change in price leads to a smaller proportionate opposite change in quantity demanded. This results a decrease in the total revenue when price declines and an increase when price rises.

Chart 4.1 e_p , MR and TR

$e_p > 1$	$MR > 0$	$P \uparrow \approx TR \downarrow$
-----------	----------	------------------------------------

		$P \downarrow \approx TR \uparrow$
$e_p = 1$	$MR = 0$	$P \uparrow \approx TR \rightarrow$ $P \downarrow \approx TR \rightarrow$
$e_p < 1$	$MR < 1$	$P \uparrow \approx TR \uparrow$ $P \downarrow \approx TR \downarrow$

A linear-demand curve is elastic above the midpoint, unitary elastic at the midpoint, and inelastic below the midpoint. So a reduction in price leads to an increase in TR (MR is positive) down to the midpoint of the demand curve (where TR is maximum and MR is zero) and to a decline thereafter (MR is negative). We can summarize the above discussion in Chart 4.1.

Example 4.4

Consider the demand function of a commodity X

$$Q = 300 - 50P \quad \text{ceteris paribus}$$

- Analyze the relationship between price, quantity demanded, marginal revenue, total revenue and price elasticity of demand.
- At present the firm is charging a price of Rs4 for the commodity X. Is it beneficial for the firm to raise the price?

Solution: The relationship between price (P), quantity demanded (Q), marginal revenue (MR), total revenue (TR) and price elasticity of demand (e_p) is shown in Table 4.1 and Figure 4.7.

Table 4.1 **The Relationship between P , Q , MR , TR and e_p**

P	Q	$e_p = \frac{d(TR)}{dQ}$	$TR = PQ$	$MR = 6 - \frac{Q}{25}$
6	0	∞	0	--
5	50	5	250	4
4	100	2	400	2
3	150	1	450	0

2	200	1/2	400	-2
1	250	1/5	250	-4
0	300	0	0	-6

We have, $Q = 300 - 50P$; So, $P = 6 - \frac{Q}{50}$

Now $TR = PQ = 6Q - \frac{Q^2}{50}$, $MR = \frac{d(TR)}{dQ} = 6 - \frac{Q}{25}$

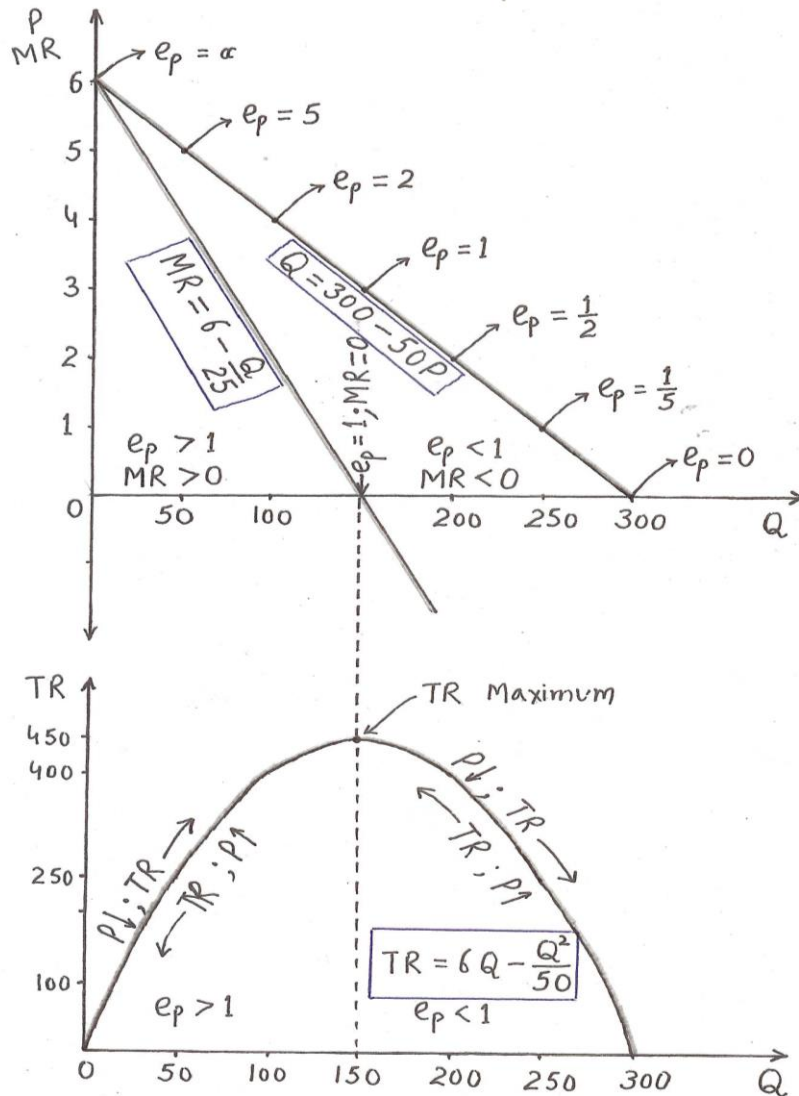


Figure 4.7 The Relationship between P , Q , MR , TR and e_p

As long as demand is price elastic (*i.e.* up to $Q = 150$), a price reduction (increase) increases (reduces) total revenue (TR), and marginal revenue (MR) is positive, At $Q = 150$, demand is unitary price elastic, TR is maximum, and $MR = 0$. When demand is price inelastic (*i.e.* for $Q > 150$) a price reduction (increase) reduces (increases) TR , and MR is negative.

(b) At $P = 4$, $e_p > 1$ *i.e.* $MR > 0$. So it is not beneficial for the firm to raise the price as it will result in a fall in total revenue (TR). In fact, a reduction up to $P = 3$ is beneficial for the firm to increase its total revenue.

Factors Affecting the Price Elasticity of Demand

The basic determinants of the price elasticity of demand for a commodity are:

- ✓ Availability and closeness of substitutes; demand for a commodity is more elastic if there are close substitutes for it.
- ✓ Nature of the commodity; in general the demand for necessities is less elastic, for comforts are moderately elastic and for luxuries is more elastic. Demand for prestige goods is price inelastic. Also the demand for durables is more price elastic than that for non-durables.
- ✓ Time frame of analysis; demand is more elastic in the long run than in short run.
- ✓ Variety of uses of the commodity; the more the possible uses of a commodity the greater its price elasticity will be.
- ✓ The proportion of income spent; in general the demand for commodities which entail a large proportion of the income of the consumer is more elastic than that of commodities with a small proportion of income.
- ✓ Level of prices; the demand for commodities is elastic when price level is high and is less elastic when price level is low.

4.3.2 CROSS PRICE ELASTICITY OF DEMAND

The demand for a commodity also depends on the price of other commodities, and changes in response to any change in the price of other commodities. The cross price elasticity of demand measures the responsiveness of the demand for commodity X to a change in the price of commodity Y. Thus, *cross-price elasticity of demand is the ratio of the percentage change in the demand for commodity X to the percentage change in the price of commodity Y, assuming all other factors influencing demand remain unchanged*

i.e.

$$e_{xy} = \frac{\% \Delta Q_x}{\% \Delta P_y} \quad ceteris\ peribus$$

$$= \frac{\frac{\Delta Q_x}{Q_x} \times 100}{\frac{\Delta P_y}{P_y} \times 100}$$

$$= \frac{\Delta Q_x}{\Delta P_y} \cdot \frac{P_y}{Q_x} \quad \dots\dots\dots (4.8)$$

Point Cross-Price Elasticity of Demand

Point cross-price elasticity of demand for commodity X provides a measure of the responsiveness at a specific point P_y over the demand function. It is measured as:

$$e_{xy} = \frac{\partial Q_x}{\partial P_y} \cdot \frac{P_y}{Q_x} \quad ceteris\ peribus$$

.....(6-9)

Example 4.5

Consider the demand function of a commodity X

$$Q_x = 300 - 50P_x - 25 P_y$$

Calculate the cross-price elasticity at $P_y = 2$ when $P_x = 3$ remains constant.

Solution: At $P_y = 2$ and $P_x = 3$, we have

$$Q_x = 300 - 50(3) - 25(2)$$

$$= 200$$

Also $\frac{\partial Q_x}{\partial P_y} = 25$ when P_x remains constant.

So the cross-price elasticity at $P_y = 2$

$$\begin{aligned} e_{xy} &= \frac{\partial Q_x}{\partial P_y} \cdot \frac{P_y}{Q_x} \\ &= 25 \cdot \frac{2}{200} \\ &= 1/4 \end{aligned}$$

Thus from the price $P_y = 2$ of commodity Y, we can expect demand for commodity X to change (in the same direction) by 0.25% for each 1% change in the price of commodity Y, *ceteris peribus*.

Are Cross-Price Elasticity of Demand

Arc cross-price elasticity of demand for commodity X is a technique for computing cross-price elasticity between two price levels of commodity Y. It is measured as:

$$\begin{aligned} e_{xy} &= \frac{\Delta Q_x}{\Delta P_y} \cdot \frac{\frac{P_y^2 + P_y^1}{2}}{\frac{Q_x^2 + Q_x^1}{2}} \\ &= \frac{Q_x^2 - Q_x^1}{P_y^2 - P_y^1} \cdot \frac{P_y^2 + P_y^1}{Q_x^2 + Q_x^1} \quad \text{ceteris peribus} \quad \dots\dots\dots(4.10) \end{aligned}$$

Example 4.6

The quantity demanded for coffee increases from 500 to 600 units as a result of an increase in the price of tea from Rs80 to Rs90 per Kg. Find the cross-price elasticity of demand for coffee over this price change of tea.

Solution: We have

$$\begin{aligned} Q_c^1 &= 500 & Q_c^2 &= 600 \\ P_t^1 &= 80 & P_t^2 &= 90 \end{aligned}$$

$$\begin{aligned}
\text{So, } e_{ct} &= \frac{Q_c^2 - Q_c^1}{P_t^2 - P_t^1} \cdot \frac{P_t^2 + P_t^1}{Q_c^2 + Q_c^1} \\
&= \frac{600 - 500}{90 - 80} \cdot \frac{90 + 80}{600 + 500} \\
&= 1.64
\end{aligned}$$

This means that a 1 percent change in price of tea in the price range (80-90); results, on the average, in a 1.64 percent same change in the demand for coffee.

Interpreting Cross Price Elasticity of Demand

The cross price elasticity of demand for a commodity X, tells us about the nature of other commodities. If the cross price elasticity between X and Y

- $e_{xy} > 0$; X and Y are substitutes and higher the value of e_{xy} , the closer the substitutes (high degree of substitutability).
- $e_{xy} < 0$; X and Y are complements and higher the value of e_{xy} , the closer the compliments (high degree of complementarity).
- $e_{xy} = 0$; X and Y are unrelated commodities.

The cross-price elasticity of demand is a very important concept in managerial decision-making. Firms often use this concept to measure the effect of changing price of a product they sell on the demand of other related products that the firm also sells.

4.3.3 INCOME ELASTICITY OF DEMAND

The level of consumer's income is also a very important determinant of demand. We can measure the responsiveness of the demand for a commodity to a change in consumers' income by the income elasticity of demand. *It is measured as the ratio of the percentage change in demand for the commodity to the percentage change in consumers' income, assuming that all the other factors influencing demand remain unchanged.*

So

$$\begin{aligned}
 e_i &= \frac{\% \Delta Q}{\% \Delta I} && \text{ceteris paribus} \\
 &= \frac{\frac{\Delta Q}{Q} \times 100}{\frac{\Delta I}{I} \times 100} \\
 &= \frac{\Delta Q}{\Delta I} \cdot \frac{I}{Q} && \dots\dots\dots (4.11)
 \end{aligned}$$

Point Income Elasticity of Demand

Point income elasticity provides a measure of the responsiveness of demand for a commodity at a specific income level over the demand function. It is measured as:

$$e_i = \frac{\partial Q}{\partial I} \cdot \frac{I}{Q} \quad \text{ceteris paribus} \quad \dots\dots\dots(4.12)$$

Example 4.7

Consider the demand function of a commodity X

$$Q_x = 15000 - 2500P_x - 2.50 I$$

Calculate the income elasticity at the income level $I = 6000$ when $P_x = 8$ remains constant.

Solution: At $I = 6000$ and $P_x = 8$, we have

$$\begin{aligned}
 Q_x &= 15000 - 2500(8) - 2.50(6000) \\
 &= 10000
 \end{aligned}$$

Also $\frac{\partial Q}{\partial I} = 2.50$ when P_x remains constant.

So the income elasticity at $I = 6000$

$$\begin{aligned}
 e_i &= \frac{\partial Q}{\partial I} \cdot \frac{I}{Q} \\
 &= 2.50 \cdot \frac{6000}{10000} \\
 &= 1.50
 \end{aligned}$$

Thus from the income level of Rs 6000, we can expect demand for commodity X to change (in the same direction) by 1.50% for each 1% change in the consumers' income, *ceteris peribus*.

Are Income Elasticity of Demand

Arc income elasticity of demand for a commodity is a technique for computing income elasticity between two income levels of the consumers. It is measured as:

$$e_i = \frac{\Delta Q}{\Delta I} \cdot \frac{\frac{I_2 + I_1}{2}}{\frac{Q_2 + Q_1}{2}}$$

$$= \frac{Q_2 - Q_1}{I_2 - I_1} \cdot \frac{I_2 + I_1}{Q_2 + Q_1} \quad \text{ceteris peribus} \quad \dots\dots\dots(4.13)$$

Example 4.8

Assume that an increase in the disposable income in Haryana from Rs1.00 billion to Rs1.10 billion is associated with an increase in car sales in the state from 6000 to 7000 units. Calculate the income elasticity of demand for cars over this change of income.

Solution: We have

$$Q_1 = 6000 \qquad Q_2 = 7000$$

$$I_1 = 1.00 \qquad I_2 = 1.10$$

$$\text{So } e_i = \frac{Q_2 - Q_1}{I_2 - I_1} \cdot \frac{I_2 + I_1}{Q_2 + Q_1}$$

$$= \frac{7000 - 6000}{1.10 - 1.00} \cdot \frac{1.10 + 1.00}{7000 + 6000}$$

$$= 1.615$$

This means that a 1 percent change in the disposable income in the range (1.00-1.10); will result, on an average, in a 1.615 percent same change in the sales for cars.

Interpreting Income Elasticity of Demand

The income elasticity of demand tells about the nature of the commodity.

- $e_i > 0$ for most normal or income superior goods.
- $e_i < 0$ for inferior goods.
- $0 < e_i < 1$ (*i.e.* low income elasticity) for necessities (or perceived as necessities).
- $e_i > 1$ (*i.e.* high income elasticity) for luxuries and prestige items.

The income elasticity of demand is of a great significance in production planning and management in the long-run. It is use in forecasting the change in demand for the commodity that a firm sells under different economic conditions.

Other Demand Elasticity Measures

Price, cross and income elasticities are the most important application of the elasticity concept of demand analysis. Two other important elasticities of demand are:

Advertisement Elasticity of Sales: It measures the responsiveness of sales to the changes in advertisement expenditure and is very helpful in determining the optimum level of advertisement expenditure.

Elasticity of Price Expectations: During the period of Price fluctuations, consumers' price expectations play a much more important role in determining demand than any other factor. The concept of elasticity of price expectation is extremely useful for demand analysis during the period of price fluctuations.

4.4 ELASTICITY IN MANAGERIAL DECISION MAKING

Out of various factors that affect demand, some are well under the control of the firm, while others are not. A firm can usually set the prices of the commodity it sells and decide on the level of its expenditures on advertising, product quality and customer service. However, it has no control over the level and growth of consumers' income, consumers' price expectations, competitors' policies regarding price, expenditures on advertisement, product quality and customer service. The

analysis of all these factors and reliable estimates of their quantitative effect on sales are essential for the firm to determine the optimal operational policies, and plans for its growth, and for responding most effectively to competitors' policies. To make these points clear, consider the instances.

1. If the demand for the product is price inelastic, the firm would not want to lower its price since that would reduce its total revenue, increase its total costs and this give it lower profits.
2. If the elasticity of the firm's sales *w.r.t.* advertisement expenditure is positive and higher than for its expenditures on product quality and customer service, then the firms would find more beneficial to concentrate its sales efforts on advertising rather than on product quality and customer service.
3. If the income elasticity is very low for the form's product, management knows that the firm will not benefit much from rising income or may find it beneficial to improve product quality and customer service.
4. If the firm has estimated that the cross-price elasticity of demand for its product *w.r.t.* the price of a competitor's product is very high, it will be quick to respond to a competitor's price reduction.

Thus, the firm should first identify all the important variables that affect the demand for the product it sells. Then it should get reliable estimates of their quantitative effect and obtain the demand function. The firm can use this information to estimate the elasticity of demand for the product it sells *w.r.t.* each of the variable in demand function. These are essential for optimal managerial decisions in the short run and in planning for growth in the long run.

Example 4.9

Casio India Co. Pvt. Ltd. is planning to increase the price of its watch by 10% and its advertisement expenditure by 8% in the coming year. The company also expects personal disposable income to rise by 4% and Titan (its major competitor) watch's

price to rise by 7%. From the past experience the company knows the various demand elasticities.

$$e_p = -2.0 \quad e_i = 1.8 \quad e_{ct} = 0.8 \quad e_a = 1.3$$

The current sale of the company is 2,000,000 watches. What is the forecasted sale of the next year?

Solution: Given the demand elasticities, we can find the changes in sales.

$$\% \Delta Q = e_p \% \Delta P \quad \text{The effect of price change}$$

$$\% \Delta Q = e_i \% \Delta I \quad \text{The effect of income change}$$

$$\% \Delta Q = e_{ct} \% \Delta P_t \quad \text{The effect of price change of Titan watch}$$

$$\% \Delta Q = e_a \% \Delta A \quad \text{The effect of change in advertisement expenditure}$$

So we have the forecasted sale for the next year

$$\begin{aligned} Q_2 &= Q_1 + Q_1(e_p \% \Delta P) + Q_1(e_i \% \Delta I) + Q_1(e_{ct} \% \Delta P_t) + Q_1(e_a \% \Delta A) \\ &= Q_1 \left[1 + (-2) \frac{10}{100} + (1.8) \frac{4}{100} + (0.8) \frac{7}{100} + (1.3) \frac{8}{100} \right] \\ &= Q_1 [1 - 0.200 + 0.072 + 0.056 + 0.104] \\ &= Q_1 [1.032] \\ &= 2,000,000 \times 1.032 \\ &= 2,064,000 \end{aligned}$$

So the decline in quantity demanded associated with price increase is offset by the positive impact of the projected changes in other variables.

The firm can also use the information about the projected changes in other variables, for deciding the price change that will maintain its current sale of 2,000,000 watches.

The firm will maintain its current sale when

$$\begin{aligned} e_p \% \Delta P + e_i \% \Delta I + e_{ct} \% \Delta P_t + e_a \% \Delta A &= 0 \\ e_p \frac{\Delta P}{100} + 0.072 + 0.056 + 0.104 &= 0 \end{aligned}$$

$$-2 \cdot \frac{\Delta P}{50} = -0.2320$$

$$\Delta P = 11.6$$

So even by increasing the price by 11.6% the firm can maintain its current level of sales.

4.5 CHECK YOUR PROGRESS

Answer the following questions on the basis of your knowledge regarding this chapter:

1. Other things equal, if a good has more substitutes, its price elasticity of demand is_____.
2. If quantity demanded is completely unresponsive to changes in price, demand is_____.
3. Price of a product falls by 10% and its demand rises by 30%. The elasticity of demand is_____.
4. When demand is perfectly inelastic, an increase in price will result in_____.
5. If price and total revenue move in the same direction, then demand is_____.

4.6 SUMMMARY

Demand changes in response to any change in any of its determinants. However, knowing alone the nature of relationship between demand and its determinants is not sufficient. What is more important is to know the extent of relationship or how responsive the demand is to the changes in its determinants. The concept of elasticity of demand is extremely useful in this reference. It plays an important role in business decision-making. Therefore, it is obvious that the understanding of different elasticity of demand is the basic prerequisite whenever a business manager is considering “price change” for his or her product. In general terms, the elasticity of demand is a measure of the responsiveness or sensitiveness of demand for a commodity to the change in its determinants. A firm can usually set the prices of the commodity it sells and decide on the level of its expenditures on advertising, product quality and customer service. However, it has no control over the level and growth

of consumers' income, consumers' price expectations, competitors' policies regarding price, expenditures on advertisement, product quality and customer service. The analysis of all these factors and reliable estimates of their quantitative effect on sales are essential for the firm to determine the optimal operational policies, and plans for its growth, and for responding most effectively to competitors' policies.

4.7 KEYWORDS

Elasticity of Demand- The elasticity of demand is a measure of the responsiveness or sensitiveness of demand for a commodity to the change in its determinants.

Cross Price Elasticity of Demand- It is the ratio of the percentage change in the demand for commodity X to the percentage change in the price of commodity Y, assuming all other factors influencing demand remain unchanged.

Point Income Elasticity of Demand- It provides a measure of the responsiveness of demand for a commodity at a specific income level over the demand function.

Arc income elasticity - It is a technique for computing income elasticity between two income levels of the consumers.

Income Elasticity of Demand- It is measured as the ratio of the percentage change in demand for the commodity to the percentage change in consumers' income, assuming that all the other factors influencing demand remain unchanged.

4.8 SELF- ASSESSMENT TEST

1. Define the concept of elasticity of demand. Discuss its significance in theory of demand.
2. "The concept elasticity is a versatile tool of economic analysis." Discuss the validity of this statement with appropriate examples.
3. What do you understand by price elasticity of demand? How is it measured?
4. Discuss briefly the factors on which price elasticity of demand for a commodity depends.

5. What do you understand by point and arc price elasticities of demand?
How are these measured?
6. A list of goods is given below. Will their demand be less elastic, moderately elastic, highly elastic or completely inelastic? Give brief reasons in support of your answer.
 - (a) demand for petrol (b) demand for needles
 - (c) demand for textbooks (d) demand for seasonal vegetables
 - (e) demand for salt (f) demand for milk
 - (g) demand for cars (h) demand for Hutch cellular services
7. Discuss the relationship between price, quantity demanded, marginal revenue, total revenue and price elasticity of demand.
8. What do you understand by cross-price elasticity of demand? How is it measured?
9. What do you understand by point and arc cross-price elasticities of demand?
How are these measured?
10. What do you understand by income elasticity of demand? How is it measured?
11. What do you understand by point and arc income elasticities of demand?
How are these measured?
12. Write short notes on:
 - (a) Point elasticity
 - (b) Arc elasticity
 - (c) Advertisement elasticity of sales
 - (b) Elasticity of price expectations

4.9 ANSWER TO CHECK YOUR PROGRESS

1. Larger.
2. Perfectly inelastic.
3. 3
4. An increase in total revenue.
5. Inelastic.

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COURSE: ECONOMIC ANALYSIS

COURSE CODE: MC-104
LESSON: 05

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CONSUMER BEHAVIOUR: CARDINAL ANALYSIS

STRUCTURE:

- 5.1 Learning Objective
- 5.2 Introduction
- 5.3 Meaning of Utility
 - 5.3.1 The Law of Diminishing Marginal Utility
 - 5.3.2 Cardinal and Ordinal Concepts of Utility
- 5.4 Analysis of Consumer Behavior: Cardinal Utility Approach
- 5.5 Check You Progress
- 5.6 Summary
- 5.7 Keywords
- 5.8 Self-Assessment Test
- 5.9 Answers to Check Your Progress
- 5.10 References/Suggested Readings

5.1 LEARNING OBJECTIVE

After going through this lesson the students should be able to explain the meaning of utility and cardinal concept of utility with reference to consumer behavior.

5.2 INTRODUCTION

Generally, we know that our needs are unlimited and we require or demand for the products/commodities to satisfy the needs. Because of the products are of “bundle of utilities”. In other words, the consumers demand a commodity because they derive or expect to derive utility from that commodity. The expected utility from a commodity is the basis of demand for it.

5.3 MEANING OF UTILITY

Even though, the term ‘utility’ is very commonly used term. But, it has a specific meaning and use in the analysis of consumer demand or consumer behaviour in terms of cardinal analysis. The concept of utility can be looked upon from two angles: the commodity angle and the consumers’ angle. At the first sight, utility is the want- satisfying property of a commodity. And the other, utility is the psychological feeling of satisfaction; pleasure, happiness or well being which a consumer derives from the consumption, possession or the use of a commodity. There is a disparity between these two concepts, which must be kept in mind. The concept of a want-satisfying property of a commodity is ‘absolute’ in the sense that this property is inbuilt in the commodity irrespective of whether one needs it or not. For example, a pen has its own utility of writing irrespective of whether a person is literate or illiterate. Another important feature of the ‘absolute’ concept of utility is that it is ‘ethical neutral’ because a commodity may satisfy socially immoral needs, e.g. alcohol. In contrary, from the consumer’s point of view, utility is supposed as a post-consumption phenomenon as one derives satisfaction from a commodity only when one consumes or uses it.

Utility in terms of satisfaction is a subjective or relative concept because (i) a commodity need not be useful for all, e. g. cigarettes do not have any utility for non-smokers, and meat has no utility for pure vegetarians; (ii) utility of a commodity varies from person to person and from time to time; and (iii) a commodity need not have the same utility for the same consumer at different points of times, at different

levels of consumption and at different moods of a consumer. In consumer analysis, only the 'subjective' concept of utility is used.

TOTAL UTILITY

Assuming that utility is measurable and additive, total utility may be defined as the sum of the utilities derived by a consumer from the various units of goods and services he consumes. Suppose a consumer consumes four units of a commodity, X, at a time and derives utility as u_1, u_2, u_3 and u_4 . His total utility from commodity X (TU_x) can be measured as follows.

$$TU_x = u_1 + u_2 + u_3 + u_4$$

If a consumer consumes n number of commodities, his total utility, TU_n , will be the sum of total utilities derived from each commodity. For example, if the consumed goods are X, Y and Z and their total respective utilities are U_x, U_y , and U_z , then

$$TU_n = U_x + U_y + U_z$$

MARGINAL UTILITY

Marginal utility is another most important concept used in economic analysis. Marginal utility may be defined as the utility derived from the marginal unit consumed. It may also be defined as the addition to the total utility resulting from the consumption of one additional unit. Marginal Utility (MU) thus refers to the change in the Total Utility (i.e., ΔTU) obtained from the consumption of an additional unit of a commodity. It may be expressed as

$$MU = \frac{\Delta TU}{\Delta Q}$$

Where TU = total utility, and ΔQ = change in quantity consumed by one unit.

Another way of expressing marginal utility (MU), when the number of units consumed is n , can be as follows:

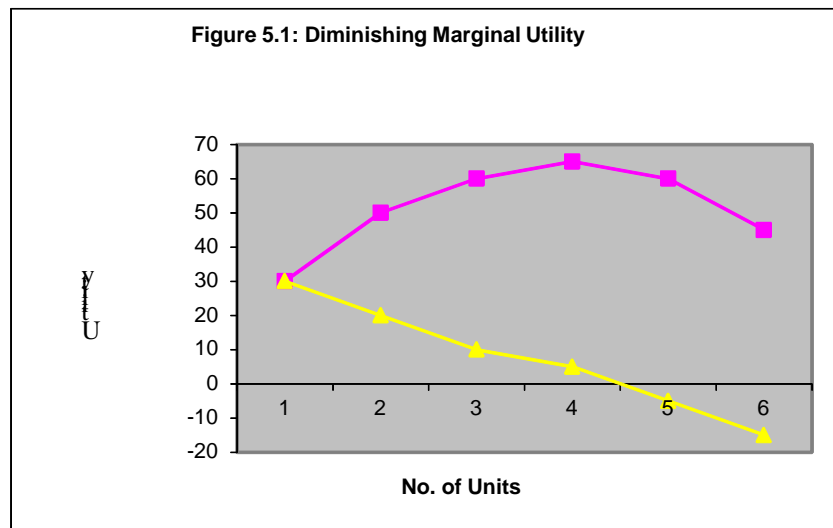
$$MU \text{ of } n\text{th unit} = TU_n - TU_{n-1}$$

5.3.1 THE LAW OF DIMINISHING MARGINAL UTILITY

The law of diminishing marginal utility is one of the fundamental laws of economics. It states, as the quantity consumed of a commodity increases, the utility derived from each successive unit decreases, remaining the same consumption of all other commodities. In simple words, when a person consumes more and more units of a commodity per unit of time, e.g., ice cream, keeping the consumption of all other commodities constant, the utility which he derives from the successive units of consumption goes on diminishing. This law applies to all kinds of consumer goods—durable and non-durable sooner or later. Let us assume that utility is measurable in quantitative terms and illustrate the law of diminishing marginal utility. The law of diminishing marginal utility is illustrated numerically in Table 5.1 and graphically in Figure 5.1.

Table 5.1: Total and Marginal Utility Schedules

No. of units	Total Utility	Marginal Utility
1	30	30
2	50	20
3	60	10
4	65	5
5	60	-5
6	45	-15



As shown in Table 8.1, with the increase in the number of units consumed per unit of time, the TU increases but at a diminishing rate. The diminishing MU is shown in the last column. Fig. 8.1 illustrates graphically the law of diminishing MU. The rate of increase in TU as the result of increase in the number of units consumed is shown by the MU curve in Fig. 8.1. The downward sloping MU curve shows that marginal utility goes on decreasing as consumption increases: After four units consumption, the TU reaches its maximum level, the point of saturation, and MU becomes zero. Beyond this, MU becomes negative and TV begins to decline. The downward sloping MV curve illustrates the law of diminishing marginal utility.

WHY DOES THE MU DECREASE?

The utility gained from a unit of a commodity depends on the intensity of the desire for it. When a person consumes successive units of a commodity, his need is satisfied by degrees in the process of consumption and the intensity of his need goes on decreasing: Therefore, the utility obtained from each successive unit goes on decreasing.

Assumptions: The law of diminishing marginal utility holds only under certain conditions. These conditions are referred to as the assumptions of the law. The assumptions of the law of diminishing marginal utility are: (i) the unit of the consumer good must be a standard one, *e.g.*, a cup of tea, a bottle of cold drink, a pair of shoes or trousers, etc. If the units are excessively small or large the law may not hold; (ii) the consumer's taste or preference must remain the same during the period of consumption; (iii) there must be continuity in consumption. Where a break in continuity is necessary, the time interval between the consumption of two units must be appropriately short; and (iv) the mental condition of the consumer must remain normal during the period of consumption.

Given these conditions, the law of diminishing marginal utility holds universally. In some cases, *e.g.*, accumulation of money, collection of hobby items like stamps, old coins, rare paintings and books, melodious songs, etc. the marginal utility may initially increase rather than decrease. But eventually it does decrease. As a matter of fact, the law of marginal utility generally operates universally.

5.3.2 CARDINAL AND ORDINAL CONCEPTS OF UTILITY

Utility is a psychological phenomenon. It is a feeling of satisfaction, pleasure or happiness. Measurability of utility has, however, been a controversial issue. The classical economists like Jeremy Bentham, Leon Walrus, Carl Menger, etc. and neo-classical economist, notably Alfred Marshall-believed that utility is cardinally or quantitatively measurable like height, weight, length, temperature and air pressure. This belief resulted in the Cardinal Utility concept. The modern economists, most notably J.R. Hicks and R.G.D. Allen, however, hold the view that utility is not quantitatively measurable-it is not measurable in absolute terms. Utility can be expressed only ordinally, relatively or in terms of less than or more than. It is, therefore, possible to list the goods and services in order of their preferences or desirability. This is known as the ordinal concept of utility.

CARDINAL UTILITY

The concept of cardinal utility implies that utility can be assigned a cardinal number like 1, 2, 3, etc. The Neo-classical economists built up the theory of consumption on the assumption that utility is cardinally measurable. They used a term “util” meaning 'units of utility'. In their economic analysis, they assumed (i) that one 'util' equals one unit of money, and (ii) that utility of money remains constant. It has, however, been realised over time that absolute or cardinal measurement of utility is not possible. Difficulties in measuring utility have proved to be impossible. Neither economists nor scientists have succeeded in devising a technique or an instrument for measuring the feeling of satisfaction, i. e., utility. Nor could an appropriate measure of unit be devised. Numerous factors affect the state of consumer's mood, which are impossible to determine and quantify. Utility is therefore immeasurable in cardinal terms.

APPROACHES TO CONSUMER DEMAND ANALYSIS

There are two approaches to the analysis of consumer behaviour.

- (i) **Cardinal Utility Approach:** attributed to Alfred Marshall and his followers, is also called the Neo-classical Approach.
- (ii) **Ordinal Utility Approach:** pioneered by J.R. Hicks, a Nobel laureate and R.G.D. Allen, is also called the Indifference Curve Analysis.

The two approaches are not in conflict with one another. In fact, they represent two levels of superiority in the analysis of consumer behaviour. Both the approaches are important for managerial decisions depending on the level of superiority required. It is important to note in this regard that in spite of tremendous developments in consumption theory based on ordinal utility, the classical demand theory based on cardinal utility has retained its appeal and applicability to the analysis of market behaviour. Besides, the study of classical demand theory serves as a foundation for understanding the advanced theories of consumer behaviour. The study of classical

theory of demand is of particular importance and contributes a great deal in managerial decisions.

In the following sections, we will discuss the theory of consumer behaviour based on the cardinal utility approach. Consumption theory based on the ordinal utility approach is discussed in the subsequent chapter.

5.4 ANALYSIS OF CONSUMER BEHAVIOUR: CARDINAL UTILITY APPROACH

The central theme of the consumption theory is the utility maximizing behaviour of the consumer. The fundamental postulate of the consumption theory is that all the consumers: individuals and households aim at utility maximisation and all their decisions and actions as consumers are directed towards utility maximization. The cardinal utility approach to consumer analysis makes the following assumptions.

- (i) **Consumer is rational:** It is assumed that the consumer is a rational being in the sense that he satisfies his wants in the order of their preference. That is, he or she buys that commodity first which yields the highest utility and that last which gives the least utility.
- (ii) **Limited income:** The consumer has a limited income to spend on the goods and services he or she chooses to consume. Limitedness of income, along with utility maximization objective makes the choice between goods inevitable.
- (iii) **Maximization of satisfaction:** Every rational consumer intends to maximize his/her satisfaction from his/her given money income.
- (iv) **Utility is cardinally measurable:** The cardinalists have assumed that utility is cardinally measurable and that utility of one unit of a commodity equals the money which a consumer is ready to pay for it or $1 \text{ util} = 1 \text{ unit of money}$.
- (v) **Diminishing marginal utility:** It is assumed that the utility gained from the successive units of a commodity consumed decreases as a consumer consumes larger quantity of the commodity.

(vi) **Constant marginal utility of money:** The cardinal utility approach assumes that marginal utility of money remains constant whatever the level of a consumer's income. This assumption is necessary to keep the scale of measuring rod of utility fixed. It is important to recall in this regard that cardinalists used money as a measure of utility.

(vii) **Utility is additive:** Cardinalists assumed not only that utility is cardinally measurable but also that utility derived from various goods and services consumed by a consumer can be added together to obtain the total utility. In other words, the consumer has a utility function, which may be expressed as:
 $U = f(X_1, X_2, X_3, X_n)$, where X_1, X_2, X_3, X_n denote the total quantities of the various goods consumed.

Given the utility function, total utility obtained from n items can be expressed as

$$U_n = U_1(X_1) + U_2(X_2) + U_3(X_3) + \dots + U_n(X_n)$$

It is this utility function, which the consumer aims to maximize.

CONSUMER'S EQUILIBRIUM

Conceptually, a consumer is said to have reached his equilibrium position when he has maximized the level of his satisfaction, given his resources and other conditions. Technically, a utility-maximizing consumer reaches his equilibrium position when allocation of his expenditure is such that the last penny spent on each commodity yields the same utility. How does a consumer reach this position? We know from assumptions 2 and 5, that the consumer has limited income and that the utility, which he derives from various commodities, is subject to diminishing returns. We also know that the MU schedules of various commodities may not be the same. Some commodities yield a higher marginal utility and some lower for the same number of units consumed. In some cases, MU decreases more rapidly than in case of others for the same number of units consumed. A rational and utility-maximising consumer consumes commodities in the order of their utilities. He first picks up the

commodity, which yields the highest utility followed by the commodity yielding the second highest utility and so on. He switches his expenditure from one commodity to the other in accordance with their marginal utilities. He continues to switch his expenditure from one commodity to another till he reaches a stage where MU 'Of each commodity is the same per unit of expenditure. This is the state of consumer's equilibrium.

(i) Consumer's Equilibrium: One-Commodity Model:

Let us first illustrate consumer's equilibrium in a simple one-commodity model. Suppose that a consumer with certain money income consumes only one commodity, X. Since both his money income and commodity X have utility) for him, he can either spend his income on commodity X or retain it in the form of asset. If the marginal utility of commodity X, (MU_x), is greater than marginal utility of money (MU_m) as an asset, a utility-maximizing consumer will exchange his money income for the commodity. By assumption, MU_x is subject to diminishing returns (assumption 5), whereas marginal utility of money (MU_m) as an asset remains constant (assumption 6). Therefore, the consumer will exchange his money income on commodity X so long as $MU_x > P_x(MU_m)$, P_x being the price of commodity X and $MU_m = 1$ (constant). The utility maximizing consumer reaches his equilibrium, i.e., the level of maximum satisfaction, where

$$MU_x = P_x(MU_m)$$

Alternatively, the consumer reaches equilibrium point where,

$$\frac{MU_x}{P_x(MU_m)} = 1$$

Consumer's equilibrium in a single commodity model is graphically illustrated in Figure 5.2 as follows.

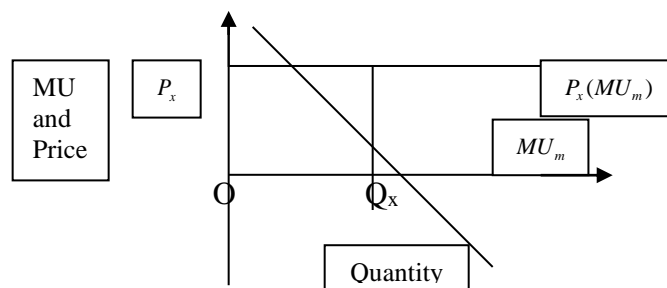


Figure 5.2: Consumer's Equilibrium

The horizontal line $P_x(MU_m)$ shows the constant utility of money weighted by the price of commodity X (i.e. P_x) and MU_x curve represents the diminishing marginal utility of commodity X. The $P_x(MU_m)$ line and MU_x curve intersect each other at point E. Point E indicates that at quantity OQ_x consumed, $MU_x = P_x(MU_m)$. Therefore, the consumer is in equilibrium at point E. At any point beyond E, $MU_x > P_x(MU_m)$. Therefore, if the consumer exchanges his money for commodity X, he will increase his total satisfaction because his gain in terms of MU_x is greater than his loss in terms of MU_m . This condition exists till he reaches point E. And, at Quantity any point below E, $MU_x < P_x(MU_m)$. Therefore, if he consumes more than OQ_x , he loses more utility than he gains. He is therefore a net loser. The consumer can, therefore, increase his satisfaction by reducing his consumption. This means that at any point other than E, consumer's total satisfaction is less than maximum satisfaction. Therefore, point E is the point of equilibrium.

(ii) Consumer's Equilibrium with Multiple-Commodity Model or The Law of Equi-Marginal Utility:

In real life, however, a consumer consumes multiple numbers of goods and services. So the question arises: How does a consumer consuming multiple goods reach his equilibrium? The law of equi-marginal utility explains the consumer's equilibrium in a multi-commodity model. This law states that a consumer consumes various goods in such quantities that the MU derived per unit of expenditure on each good is the same. In other words, a rational consumer spends his income on various goods he consumes in such a manner that each rupee spent on each good yields the same MU. Let us now explain

consumer's equilibrium in a multi-commodity model. Here, we will consider only a two-commodity case. Suppose that a consumer consumes only two commodities, X and Y, their prices being P_x and P_y , respectively. Following the equilibrium rule of the single commodity case, the consumer will distribute his income between commodities X and Y, so that

$$MU_x = P_x(MU_m) \quad \text{and} \quad MU_y = P_y(MU_m)$$

Given these conditions, the consumer is in equilibrium where

$$\frac{MU_x}{P_x(MU_m)} = I = \frac{MU_y}{P_y(MU_m)} \dots\dots\dots(8.1)$$

Since, according to assumption (6), MU of each unit of money (or each rupee) is constant at I, Equation (5.1) can be rewritten as

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} \dots\dots\dots(5.2)$$

$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y} \dots\dots\dots(5.3)$$

Equation (5.2) leads to the conclusion that the consumer reaches his equilibrium when the marginal utility derived from each rupee spent on the two commodities X and Y is the same. The two-commodity case can be used to generalize the rule for consumer's equilibrium for a consumer consuming a, large number of goods and services with a given income and at different prices. Supposing, a consumer consumes A to Z goods and services, his equilibrium condition may be expressed as

$$\frac{MU_A}{P_A} = \frac{MU_B}{P_B} = \dots\dots = \frac{MU_Z}{P_Z} = MU_m \dots\dots\dots(5.4)$$

Equation (5.4) gives the Law of Equi-marginal Utility.

It is important to note that, in order to achieve his equilibrium, what a utility maximizing consumer intends to equalize is not the marginal utility of each

commodity he consumes, but the marginal utility per unit of his money expenditure on various goods and services.

5.6 CHECK YOUR PROGRESS

1. A commodity that the consumer prefers less to more of is referred to as a 'bad'.(T/F)
2. If the total utility obtained from consuming a given good is maximised then marginal utility will be approaching zero. (T/F)
3. Transitivity of choice implies that if the consumer prefers one good to another they should never change that preference. (T/F)
4. The characteristics approach to consumer demand sees utility as being derived from the characteristics inherent within the good. (T/F)
5. Total utility at zero level of consumption is zero. (T/F)

5.7 SUMMARY

An individual demand the commodities due to their utility and utility is the want-satisfying property of a commodity. In addition, it is the psychological feeling of satisfaction; pleasure, happiness or well being which a consumer derives from the consumption, possession or the use of a commodity. Further, the demand for goods in terms of quantity is based upon their MU. If the marketers increase MU in terms of reuse of the product, reduction in price, change in the design of the product etc.; than they may create the demand for the same commodities.

5.8 SELF-ASSESSMENT TEST

1. *What do you mean by utility and the concept of cardinal utility?*
2. *Define the law of diminishing marginal utility.*
3. *What is the meaning of consumer equilibrium with reference to cardinal approach?*

4. Define the marginal rate of substitution. What is the law behind the diminishing marginal rate of substitution?
5. Define the concepts of TU and MU and distinguish them.

5.9 ANSWER TO CHECK YOUR PROGRESS

1. True
2. False
3. False
4. True
5. True

5.10 REFERENCES/SUGGESTED READINGS

1. Boulding, K.E., *Economics Analysis: Microeconomics*, Vol. I, 4th ed., New York, Harper And Row, 1966,
2. Baumal, W.L., *Economic Theory and Operations Analysis*, 4th ed., New Delhi, Prentice Hall Of India, 1985,
3. Dwivedi, D.N., *Managerial Economics Theory*, Vikas Publishing House, New Delhi, 2002
4. Koutsoyanis, A., *Modern Microeconomics*, Macmillon, 1979,
5. Marshall, A., *Principles Of Economics*, 8th Edn., London, Macmillan & Co., 1920

COURSE: ECONOMIC ANALYSIS

COURSE CODE: MC-104
LESSON: 06

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CONSUMER BEHAVIOUR: ORDINAL ANALYSIS

STRUCTURE:

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 - 6.3.1 Meaning of Indifference Curve
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6.1 LEARNING OBJECTIVE

After going through this lesson the students should be able to explain the meaning of ordinal utility, indifference curve and ordinal concept of utility with reference to consumer behaviour.

6.2 INTRODUCTION

The modern economists have discarded the concept of cardinal utility and have instead employed the concept of ordinal utility for analysing consumer behaviour. The concept of ordinal utility is based on the fact that it may not be possible for consumers to express the utility of a commodity in absolute terms, but it is always possible for a consumer to tell introspectively whether a commodity is more or less or equally useful as compared to another. For example, a consumer may not be able to tell that an ice-cream gives 5 utils and a chocolate gives 10 utils. But he or she can always tell whether chocolate gives more or less utility than ice-cream. This assumption forms the basis of the ordinal theory of consumer behaviour. While neo-classical economists maintained that cardinal measurement of utility is practically possible and is meaningful in consumer analysis, modern economists maintain that utility being a psychological phenomenon is inherently immeasurable, theoretically or conceptually and quantitatively as well. They also maintain that the concept of ordinal utility is a practical concept and it meets the conceptual requirement of analysing the consumer behaviour in the absence of any cardinal measures of utility.

6.3 ORDINAL UTILITY APPROACH

Unlike Marshall, the modern economists-Hicks in particular-have used the ordinal utility concept to analyse consumer's behaviour. This is called ordinal utility approach. Hicks has used a different tool of analysis called "indifference curve" to analyse consumer behaviour.

ASSUMPTIONS OF ORDINAL UTILITY THEORY

- (i) **Rationality of consumer:** The consumer is assumed to be a rational being. Rationality means that a consumer aims at maximizing his total satisfaction given his income and prices of the goods and services that he consumes and his decisions are consistent with this objective.
- (ii) **Ordinal Utility:** Indifference curve analysis assumes that utility is only ordinally expressible. That is, the consumer is only able to tell the order of his preference for different basket of goods.
- (iii) **Transitivity and consistency of choice:** Consumer's choices are assumed to be transitive. Transitivity of choice means that if a consumer prefers A to B and B to C, he must prefer A to C. Or, if he treats A=B and B=C, he must treat A=C. Consistency of choice means that if he prefers A to B in one period, he will not prefer B to A in another period or even treat them as equal.
- (iv) **No saturation:** It is also assumed that the consumer is never over-supplied with goods in question. That is, he has not reached the point of saturation in case of any commodity. Therefore, a consumer always prefers a larger quantity of all the goods.
- (v) **Diminishing marginal rate of substitution:** The marginal rate of substitution is the rate at which a consumer is willing to substitute one commodity (X) for another (Y) so that his total satisfaction remains the same. This rate is given as D_Y/D_X . The ordinal utility

approach assumes that D_Y/D_X goes on decreasing when a consumer continues to substitute X for Y.

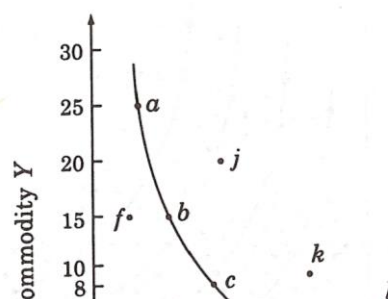
6.3.1 MEANING AND NATURE OF INDIFFERENCE CURVE

An indifference curve may be defined as the locus of points. Each point represents a different combination of two substitute goods, which yield the same utility or level of satisfaction to the consumer. Therefore, he/she is indifferent between any two combinations of goods when it comes to making a choice between them. Such a situation arises because he/she consumes a large number of goods and services and often finds that one commodity can be substituted for another. It gives him/her an opportunity to substitute one commodity for another, if need arises and to make various combinations of two substitutable goods which give him/her the same level of satisfaction. If a consumer faced with such combinations, he/she would be indifferent between the combinations. When such combinations are plotted graphically, the resulting curve is called indifference curve. An indifference curve is also called Isoutility curve or Equal utility curve. For example, let us suppose that a consumer makes five combinations a, b, c, d and e of two substitute commodities, X and Y, as presented in Table 6.1. All these combinations yield the same level of satisfaction.

TABLE 6.1: INDIFFERENCE SCHEDULE OF COMMODITIES X AND Y

Combination	Units of Commodity Y	Units of Commodity X	Total Utility
a	25	3	U
b	15	6	U
c	8	9	U
d	4	17	U
e	2	30	U

Table 6.1 is an indifference schedule—a schedule of various combinations of two goods, between which a consumer is indifferent. The last column of the table shows



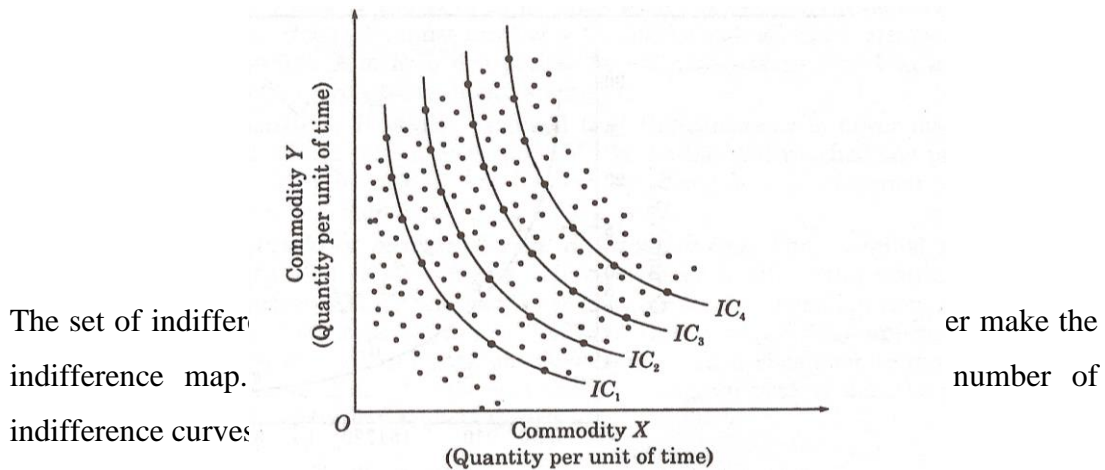
an undefined utility (U) derived from each combination of X and Y. The combinations a, b, c, d and e given in Table 6.1 are plotted and joined by a smooth curve (as shown in Figure 6.1).

Figure 6.1: Indifference Curve

The resulting curve is known as an indifference curve. On this curve, one can locate many other points showing different combinations of X and Y which yield the same level of satisfaction. Therefore, the consumer is indifferent between the combinations, which may be located on the indifferent curve.

Indifference Map: The combinations of the two commodities, X and Y, given in the indifference schedule or those indicated by the indifference curve are by no means the only combinations of the two commodities. The consumer may make many other combinations with less of one or both of the goods—each combination yielding the same level of satisfaction but less than the level of satisfaction indicated by the indifference curve (IC) in Figure 6.1. As such, an indifference curve below the one given in Figure 6.1 can be drawn, say, through points f, g and h. Similarly, the consumer may make many other combination with more of one or both the goods; each combination yielding the same satisfaction but greater than the satisfaction indicated by IC. Thus, another indifference curve can be drawn above IC, say, through points j, k and l. This exercise may be repeated as many times as one wants, each time generating a new indifference curve. In fact; the space between

X and Y-axes is known as the 'indifference plane' or 'commodity space'. This plane is full of finite points and each point on the plane indicates a different combination of goods X and Y. Intuitively, it is always possible to locate any two or more points indicating different combinations of goods X and Y yielding the same satisfaction. It is thus possible to draw a number of indifference curves without intersecting or touching the other, as shown in Figure 6.2.



The set of indifference curves make the indifference map.

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THE MARGINAL RATE OF SUBSTITUTION (MRS)

Substituting one good for another forms an indifference curve. The MRS is the rate at which one commodity can be substituted for another, the level of satisfaction remaining the same. The MRS between two commodities X and Y, may be defined as the quantity of X which is required to replace one unit of Y (or quantity of Y required to replace one unit of X), in the combination of the two goods so that the total utility remains the same. This implies that the utility of X (or Y) given up is equal to the utility of additional units of Y (or X). The MRS is expressed as D_Y/D_X , moving down the curve. The Diminishing MRS The basic postulate of ordinal utility theory is that $MRS_{Y,X}$ (or $MRS_{X,Y}$) decreases. It means that the quantity of a commodity that a consumer is willing to sacrifice for an additional unit of another goes on decreasing when he goes on substituting one commodity for another. The diminishing $MRS_{X,Y}$ obtained from combinations of X and Y given in Table 6.1 are

presented in Table 6.2.

Table 6.2: The Diminishing MRS between Commodities X and Y

Indifference Points	Combinations Y + X	Change in Y (-ΔY)	Change in X (ΔX)	MRS _{y,x} (ΔY/ΔX)
a	25 + 3	-	-	-
b	15 + 6	-10	3	- 3.3
c	8 + 9	-7	3	- 2.3
d	4 + 17	-4	9	- 0.4
e	2 + 30	-2	13	- 0.2

As Table 6.2 shows, when the consumer moves from point *a* to *b* on his indifference curve (Figure 6.1) he/she gives up 10 units of commodity Y and gets only 3 units of commodity X, so that

$$MRS_{y,x} = \frac{\Delta Y}{\Delta X} = \frac{-10}{3} = -3.3$$

As he moves down from point *b* to *c*, he loses 7 units of Y and gains 3 units of X, giving

$$MRS_{y,x} = \frac{\Delta Y}{\Delta X} = \frac{-7}{3} = -2.3$$

The $MRS_{y,x}$ goes on decreasing as the consumer moves further down along the indifference curve, from point *c* through *d* and *e*. The diminishing marginal rate of substitution causes the indifference curves to be convex to the origin.

WHY DOES MRS DIMINISH?

The MRS decreases along the IC curve because, in most cases, no two goods are perfect substitutes for one another. In case any two goods are perfect substitutes, the indifference curve will be a straight line with a negative slope and constant MRS. Since goods are not perfect substitutes, the subjective value attached to the additional quantity (i.e., subjective MU) of a commodity decreases fast in relation to

the other commodity whose total quantity is decreasing. Therefore, when the quantity of one commodity (X) increases and that of the other (Y) decreases, the subjective MU of Y increases and that of X decreases. Therefore, the consumer becomes increasingly unwilling to sacrifice more units of Y for one unit of X. But, if he is required to sacrifice additional units of Y, he will demand increasing units of X to maintain the level of his satisfaction. As a result, the MRS decreases.

Furthermore, when combination of two goods at a point on indifference curve is such that it includes a large quantity of one commodity (Y) and a small quantity of the other commodity (X), then consumer's capacity to sacrifice Y is greater than to sacrifice X. Therefore, he can sacrifice a larger quantity of Y in favour of a smaller quantity of X. For example, at combination a (see the indifference schedule; Table 6.1), the total stock of Y is 25 units and that of X is 5 units. That is why the consumer is willing to sacrifice 10 units of Y for 3 unit of X (Table 6.2). This is an observed behavioural rule that the consumer's willingness and capacity to sacrifice a commodity is greater when its stock is greater and it is lower when the stock of a commodity is smaller. These are the reasons why MRS between the two substitute goods decreases all along the indifference curve.

PROPERTIES OF INDIFFERENCE CURVE

Indifference curves have the four basic properties: Indifference curves have a negative slope; Indifference curves are convex to the origin; Indifference curves do not intersect nor are they tangent to one another; and upper indifference curves indicate a higher level of satisfaction. These properties of indifference curves, in fact, reveal the consumer's behaviour, his choices and preferences. They are, therefore, very important in the modern theory of consumer behaviour. Now, we will observe their implications.

Indifference Curves have a negative slope: In the words of Hicks, "so long as each commodity has a positive marginal utility, the indifference curve must slope downward to the right", as shown in Fig. 6.1. The negative slope of indifference

curve implies (i) that the two commodities can be substituted for each other; and (ii) that if the quantity of one commodity decreases, quantity of the other commodity must increase so that the consumer stays at the same level of satisfaction. If quantity of the other commodity does not increase simultaneously, the bundle of commodities will decrease as a result of decrease in the quantity of one commodity. And, a smaller bundle of goods is bound to yield a lower level of satisfaction. The consumer's satisfaction cannot remain the same if indifference curves have a positive slope (i.e., $\Delta Y/\Delta X > 0$) or if slope is equal to infinity, (i.e., $\Delta Y/\Delta X > \infty$). These situations are shown in Fig. 6.3 through inconsistent indifference curves.

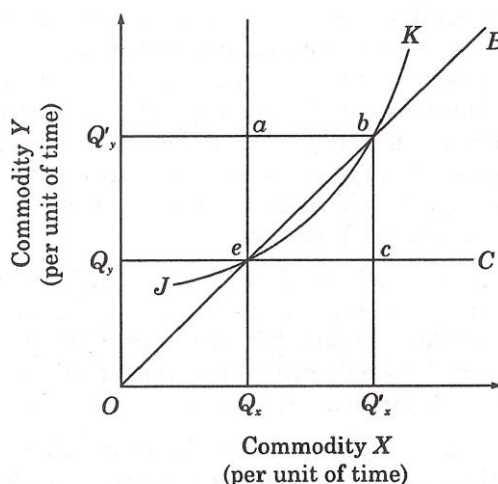


Figure 6.3: Inconsistent Indifference Curves

Let us suppose that the consumer is initially at point e where he/she is deriving some utility from OQ_x of X and OQ_y of Y . If an indifference curve has a positive slope (i.e., $\Delta Y/\Delta X > 0$); as shown by the line OB and curve JK , it implies that the consumer is equally satisfied with larger and smaller baskets of X and Y . This means an irrational behaviour of the consumer. For example, if the consumer moves from point e to b , the combination of the two goods increases by $ea (= bc)$ of Y and $ec (= ab)$ of X . Unless MU of ea and ec are equal to zero, the level of satisfaction is bound

to increase whereas on an indifference curve, the total utility is supposed to remain the same. Therefore, line OB and curve JK cannot be indifference curves.

Similarly, in the case of a vertical indifference line, aQ_x , and the movement from e to a means an increase in the quantity of Y by ea , while quantity of X remains the same, OQ_x . If MU of $ea > 0$, the total utility will increase. So is the case if an indifference curve takes the shape of a horizontal line, like Q_yC .

Indifference Curves are Convex to Origin: Indifference curves are not only negatively sloped, but are also convex to the origin. The convexity of the indifference curves implies two properties: (a) the two commodities are imperfect substitutes for one another, and (b) the marginal rate of substitution (MRS) between the two goods decreases as a consumer moves along an indifference curve. This characteristic of indifference curves is based on the postulate of diminishing marginal rate of substitution.

The postulate of diminishing MRS, as mentioned above, states an observed fact that if a consumer substitutes one commodity (X) for another (Y), his willingness to sacrifice more units of Y for one additional unit of X decreases, as quantity of Y decreases. There are two reasons for this: (i) two commodities are not perfect substitutes for one another, and (ii) MU of a commodity increases as its quantity decreases and vice versa, and, therefore, more and more units of the other commodity are needed to keep the total utility constant.

Indifference Curves can Neither Intersect nor be Tangent with one another: If two indifference curves intersect or are tangent with one another, it will reflect two rather impossible conclusions: (i) that two equal combinations of two goods yield two different levels of satisfaction, and (ii) that two different combinations—one being larger than the other—yield the same level of satisfaction. Such conditions are impossible if the consumer's subjective valuation of a commodity is greater than zero. Besides, if two indifference curves intersect, it would mean negation of consistency or transitivity assumption in consumer's preferences.

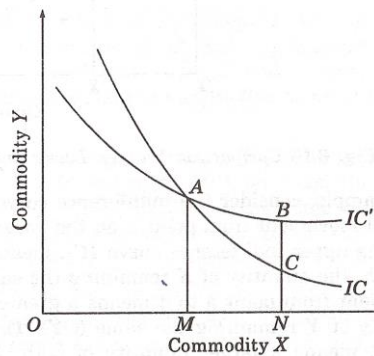


Figure 6.4: Intersecting Indifference Curves

Let us now see what happens when two indifference curves, IC and IC¹, intersect each other at point A (Fig. 6.4). Point A falls on both the indifference curves, IC and IC¹. It means that the same basket of goods (OM of X + AM of Y) yields different levels of utility below and above point A on the same indifference curve. The inconsistency that two different baskets of X and Y yield the same level of utility can be proved as follows. Consider two other points: point B on indifference curve IC¹ and point C on indifference curve IC both being on a vertical line. Points A, B and C represent three different combinations of commodities X and Y. Let us call these combinations as A, B and C, respectively. Note that combination A is common to both the indifference curves. The intersection of the two IC_s implies that in terms of utility, A=B; and A=C; therefore A=C. But if B = C it would mean that in terms of utility,

$$ON \text{ of } X + BN \text{ of } Y = ON \text{ of } X + CN \text{ of } Y$$

Since ON of X is common to both the sides, the above equation would mean that

$$BN \text{ of } Y = CN \text{ of } Y$$

But, Figure 6.4 shows $BN > CN$. Therefore, combinations B and C cannot be equal in terms of satisfaction. The intersection, therefore, violates the transitivity rule, which is a logical necessity in indifference curve analysis. The same reasoning is applicable when two indifference curves are tangent with each other.

Upper Indifference Curves Represent a Higher Level of Satisfaction than the Lower Ones: An indifference curve placed above and to the right of another represents a higher level of satisfaction than the lower one. In Figure 6.5, indifference curve IC₂ is placed above the curve IC₁. It represents, therefore, a

higher level of satisfaction. The reason is that an upper indifference curve contains all along its length a larger quantity of one or both the goods than the lower indifference curve. And a larger quantity of a commodity is supposed to yield a greater satisfaction than the smaller quantity of it, provided $MU > 0$. For example, consider the indifference curves IC_1 and IC_2 in Figure 6.5.

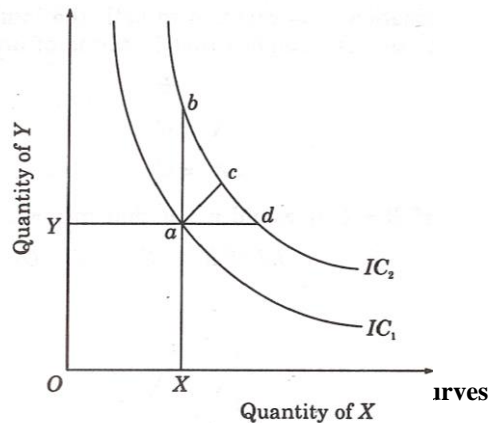


Figure 6.5: Comparison bet

The vertical movement from point a on the lower indifference curve IC_1 to point b and Quantity of X on the upper indifference curve IC_2 , means an increase in the quantity of Y by ab , the quantity of X remaining the same (OX). Similarly, a horizontal movement from point a to d means a greater quantity (ad) of commodity X , quantity of Y remaining the same (OY). The diagonal movement, i.e., from a to c , means a larger quantity of both X and Y . Unless the utility of additional quantities of X and Y are equal to zero, these additional quantities will yield additional utility. Therefore, the level of satisfaction indicated by the upper indifference curve (IC_2) would always be greater than that indicated by the lower indifference curve (IC_1).

6.3.2 BUDGETARY CONSTRAINT AND THE BUDGET LINE

Given the indifference map, a utility maximizing consumer would like to reach the highest possible indifference curve on his indifference map. But the consumer is assumed to have a limited income. The limitedness of income acts as a constraint on how high a consumer can ride on his indifference map. This is known as budgetary

constraint. In a two-commodity model, the budgetary constraint, may be expressed through a budget equation as

$$P_x \cdot Q_x + P_y \cdot Q_y = M$$

Where P_x and P_y are prices of X and Y, respectively, and Q_x and Q_y are their respective quantities; M is the consumer's money income. The budget equation states that the total expenditure of the consumer on goods X and Y cannot exceed his total income, M . The quantities of X and Y can be easily obtained from the budget equation, as shown below.

$$Q_x = \frac{M}{P_x} - \frac{P_y}{P_x} Q_y \quad \text{and} \quad Q_y = \frac{M}{P_y} - \frac{P_x}{P_y} Q_x$$

These equations are also called budget equations. Given Y the budget equations, if M , P_x and P_y are known, the values of Q_x and Q_y and different combinations thereof can be easily calculated. Now, Q_x or Q_y may be alternatively assigned any positive numerical value and the corresponding values of Q_y and Q_x may be obtained. When the values of Q_x and Q_y are plotted on the X and Y axes, we get a line with a negative slope, which is called the budget line or price line, as shown in Figure 6.6.

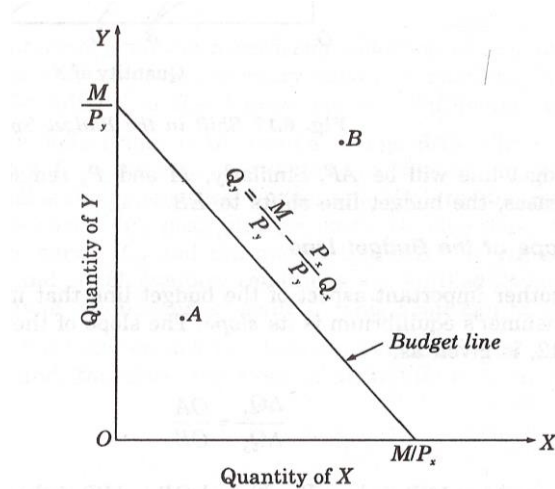


Figure 6.6: Budget Line and Budget Space

An easier method of drawing the budget line is to mark point M/P_y on the Y axis

(assuming $Q_x = 0$) and point M/P_x on X-axis (assuming $Q_y = 0$) and to join these points by a line. This gives the same budget line as given by the equation in Figure 6.6. The budget line shows the market opportunities available to the consumer given his income and the prices of X and Y. The budget line divides the commodity space into two parts: (i) feasibility area, and (ii) non-feasibility area. The area under the budget line (including the budget line) is feasibility area (Figure 6.6). For, any combination of goods X and Y represented by a point within this area (e.g., point A) or on the boundary line (i.e., on the budget line) is a feasible combination, given M, P_x and P_y . The area beyond the budget line is non-feasibility area because any point falling in this area, e.g., point B, is unattainable (given M, P_x and P_y).

Shifts in the Budget Line The budget line shifts upward or downward or swivels due to change in the consumer's income and prices of the commodities. If the consumer's income increases, prices remaining the same, the budget line shifts upwards, and remaining parallel to the original budget line. Suppose, the original budget line is given by line AB in Figure 6.7.

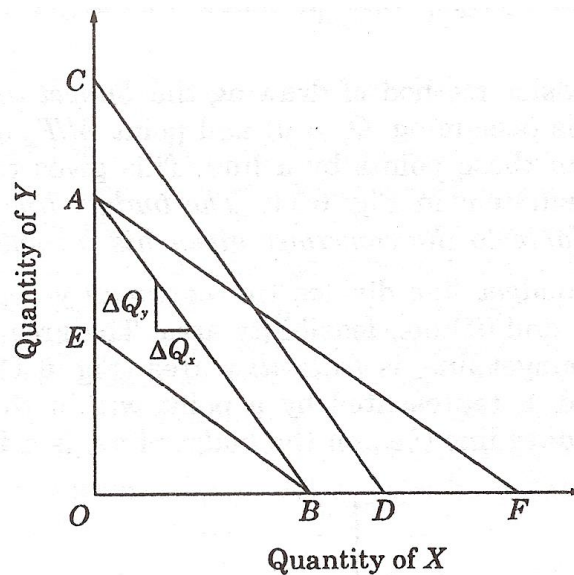


Fig. 6.7: Shift in the Budget Space

If M increases (prices remaining the same), the budget line AB will shift to CD. And, if M decreases by the same amount, the budget line will shift backward to its original position AB. Income remaining the same, if prices change, the budget line changes its position. For example, if M and P_y remain constant and P_x decreases to a half then the budget line will be AF. Similarly, M and P_x remaining constant; if P_y increases, the budget line shifts to EB.

Slope of the Budget Line: Another important aspect of the budget line that matters in determining a consumer's equilibrium is its slope. The slope of the budget line (AB) in Figure 6.8, is given as:

$$\frac{\Delta Q_y}{\Delta Q_x} = \frac{OA}{OB}$$

Since $OA = M/P_y$ (when $X = 0$) and $OB = M/P_x$ (when $Y = 0$), the slope of the budget line AB in Fig. 6.8 may be rewritten as

$$\frac{OA}{OB} = \frac{M/P_y}{M/P_x} = \frac{P_x}{P_y}$$

Thus, the slope of the budget line is the same as the price ratio of the two commodities.

6.4 CONSUMER'S EQUILIBRIUM

As noted earlier, a consumer attains his equilibrium when he maximizes his total utility, given his income and market prices of the goods and services that he consumes. The ordinal utility approach specifies two conditions for the consumer's equilibrium: (i) necessary or the first order condition and (ii) supplementary or the second order condition. In a two-commodity model, the necessary or the first order condition under ordinal utility approach is the same as equilibrium condition under

cardinal utility approach. It is given as

$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

Since, by implication, $MU_x/MU_y = MRS_{x,y}$ the necessary condition of equilibrium under ordinal utility approach can be written as

$$MRS_{x,y} = \frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

This is a necessary but not a sufficient condition of consumer's equilibrium. The, second order or supplementary condition requires that the necessary condition be fulfilled at the highest possible indifference curve.

Consumer's equilibrium is illustrated in Figure 6.8. The indifference curves IC_1 , IC_2 and IC_3 present a hypothetical indifference map of the consumer. The line AB is the hypothetical budget line. Both the budget line AB and the indifference curve IC_2 pass through point E . Therefore, the slopes of the indifference curve IC_2 and the budget line (AB) are equal. Thus, both the necessary and supplementary conditions are fulfilled at point E . Therefore; consumer is in equilibrium at point E . This point can' be proved as follows.

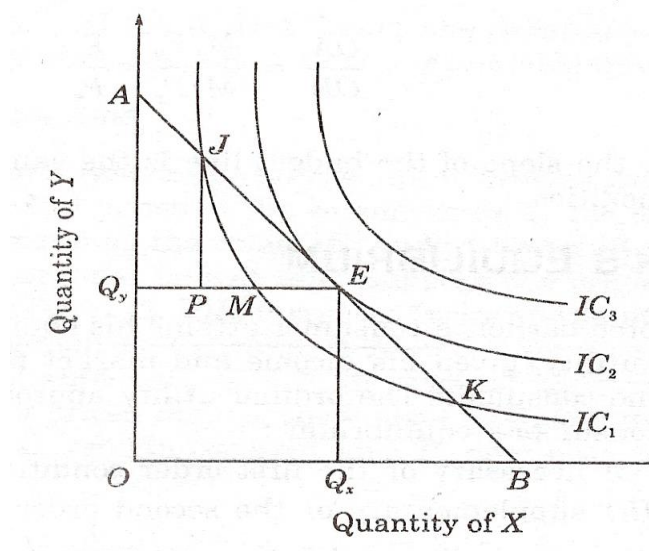


Figure 6.8: Equilibrium of the Consumer

We know that between any two points on an indifference curve, $\Delta Y \cdot MU_y = \Delta X \cdot MU_x$ and, therefore, the slope of an indifference curve is given by

$$\frac{\Delta Y}{\Delta X} = \frac{MU_x}{MU_y} = MRS_{x,y}$$

We know also that the slope of the budget line is given by

$$\frac{OA}{OB} = \frac{P_Y}{P_X}$$

As shown in Figure 6.8, at point E, $MRS_{x,y} = \frac{P_Y}{P_X}$. Therefore, the consumer is in

equilibrium at point E. The tangency of IC_2 with the budget line AB indicates that IC_2 is the highest possible indifference curve, which the consumer can reach, given his budgetary constraint and the prices. At equilibrium point E, the consumer consumes OQ_x of X and OQ_y of Y, which yield him the maximum satisfaction. Although, the necessary condition is also satisfied on two other points, J and K (i.e., the points of intersection between the budget line AB and indifference curve IC_1), these points do not satisfy the second order condition. Indifference curve IC_1 is not the highest possible curve on which the necessary condition is fulfilled. Since indifference curve IC_1 lies below the curve IC_2 , at any point on IC_1 , the level of satisfaction is lower than the level of satisfaction indicated by IC_2 . So long as the utility maximizing consumer has an opportunity to reach the curve IC_2 , he would not like to settle on a lower indifference curve.

From the information contained in Figure 6.8, it can be proved that the level of satisfaction at point E is greater than that on any other point on IC_1 . Suppose the consumer is at point J. If he moves to point M, he will be equally well-off because points J and M are on the same indifference curve. If he moves from point J to M, he will have to sacrifice JP of Y and take PM of X. But in the market, he can exchange JP of Y for PE of X. That is, he gets extra ME (= PE - PM) of X. but in the market

he can exchange JP of Y for PE of X. That is, he gets extra utility ME (= PE-PM) of X. Since ME gives him extra utility, the consumer moves to point E which means a utility higher than the point M. Therefore, point E is preferable to point M. The consumer will, therefore, have a tendency to move to point E from any other point on the curve IC₁ in order to reach the highest possible indifference curve, all other things (taste, preference and prices of goods) remaining the same. Another fact which is obvious from Figure 6.8 is that, due to budget constraint, the consumer cannot move to an indifference curve placed above and to the right of IC₂. For example, his income would be insufficient to buy any combination of two goods at the curve IC₃. Note that the indifference curve IC₃ falls in the infeasibility area.

6.4.1 EFFECTS OF CHANGE IN INCOME ON CONSUMER DEMAND

Generally, it is observed that the income of consumer change the quantity demanded by a consumer. Assuming, other things remaining the same; when a consumer's income changes, his capacity to buy goods and services changes too, these changes may be shown by a parallel upward or downward shift in the consumer's budget line. As shown in Figure 6.7, when a consumer's income decreases, his budget line shifts downward and when his income increases, the budget line shifts upward. With the changes in his income, the consumer moves from one equilibrium point to another. Such movements show the rise and fall in the consumption basket. This is called, "income effect"; illustrated in Figure 6.9.

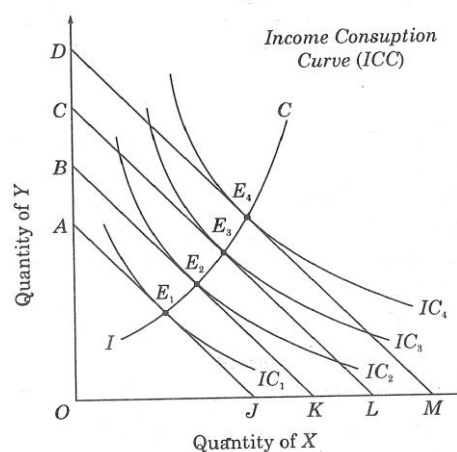


Figure 6.9: Income consumption curve of normal goods

The indifference curves IC_1 , IC_2 , IC_3 and IC_4 represent the consumer's indifference map. To analyse the effect of change in income on consumption, let us suppose that the consumer has a given income and prices of goods X and Y are given and his budget line is given by AJ, and that the consumer is initially in equilibrium at E_1 on the IC_1 . Now let the consumer's income increase so that his budget line shifts from position AJ to BK and the consumer reaches a new equilibrium point, E_2 on IC_2 . Similarly, if his income increases further, he moves from equilibrium E_2 to E_3 and then to E_4 . Thus, with each successive upward shift in the budget line, the equilibrium position of the consumer moves upward. The successive equilibrium combinations of goods (X and Y) at four different levels of income are indicated by points E_1 , E_2 , E_3 and E_4 in Figure 6.9. If these points of equilibrium are joined by a curve, we get the path of increase in consumption resulting from the increase in income. This curve is called the income consumption curve (ICC). The income-consumption curve may be defined as the locus of points representing various equilibrium quantities of two commodities consumed by a consumer at different levels of income, all other things remaining constant. The movement from point E_1 , towards point E_4 indicates increase in the consumption of the normal goods X and Y. This is called income effect.

Income-Effect on Inferior Goods

The income-effect on the consumption of different kinds of commodities is not uniform. It can be positive or negative or even neutral. Whether-the income effect is positive or negative depends on the nature of a commodity. In case of normal goods, income-effect is positive and in case of inferior goods, it is negative. By definition, an inferior good is one whose consumption decreases when income increases. In

Figure 6.9, consumption of both the commodities, X and Y, increases with an increase in the consumer's income. Therefore, the income-effect on both X and Y is positive. Figure 6.10 (a) and (b) present the case of negative income effect. In Figure 6.10 (a), X is an inferior good; its consumption decrease when consumer's income increases. The income-effect on consumption of X is, therefore, negative. Similarly, in Fig. 6.10 (b), income-effect on Y is negative as Y is considered to be an inferior commodity. Consumption of Y decreases with increase in income.

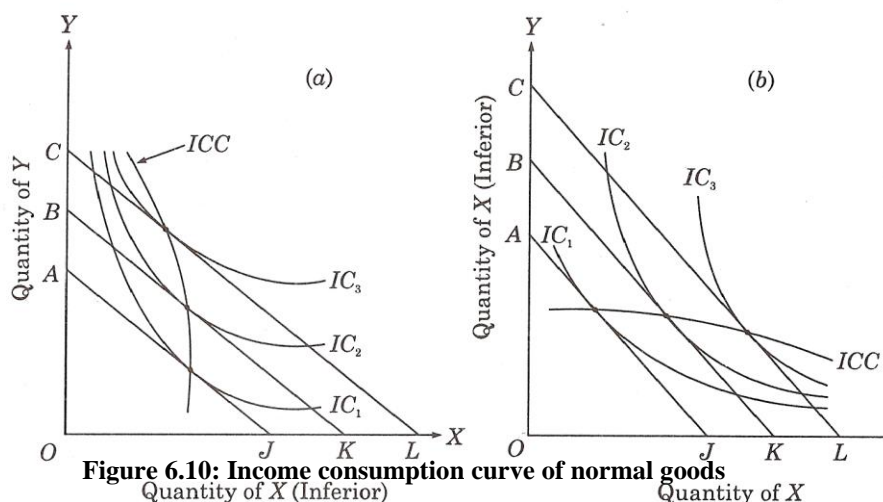


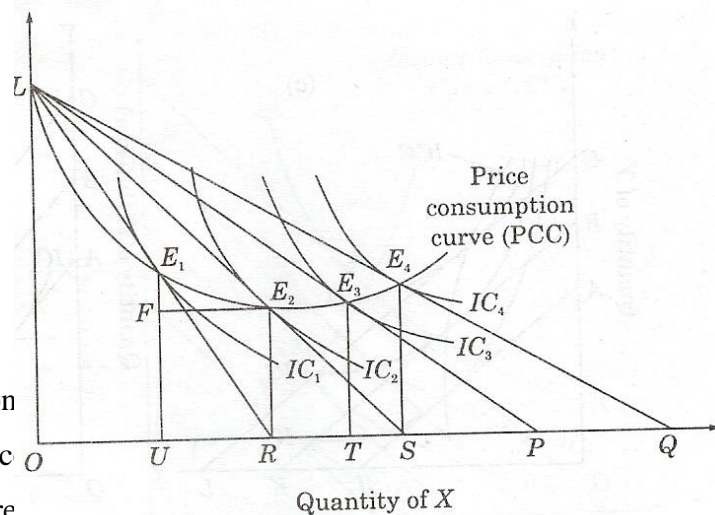
Figure 6.10: Income consumption curve of normal goods

In fact, whether a commodity is a normal good or an inferior good depends on whether income-effect on its consumption is positive or negative. If income effect is positive, the commodity is considered to be a 'normal good' and if it is negative, the commodity is said to be an 'inferior good'. Thus, the income consumption-curve may take various shapes depending on whether a commodity is a 'normal good' or an 'inferior good'.

Effects of Change in Prices on Consumption

The change in the price of a commodity changes the slope of the budget line and disturbs the consumer's equilibrium. A rational consumer adjusts his consumption basket with a view to maximizing his satisfaction under the new price conditions. The change in consumption basket is called "price-effect". It may be defined as the

total change in the quantity consumed of a commodity due to a change in its price. To examine the price-effect, let us introduce to our two-commodity model, it changes in price of commodity X. holding constant the consumer's income, his taste and preference and the price of commodity Y. The consumer's response to a change in the price of X and the resulting change in the combination of the two goods are illustrated in Figure 6.11.



Suppose that the price of commodity X falls, so that the consumer's budget line rotates from the initial position LS . As a result, his new equilibrium point is E_2 . Here, his consumption of X increases by UR . This is the price-effect on the consumption of commodity X. As shown in Figure 6.11, with a successive fall in the price of X, consumer's equilibrium shifts from E_2 to E_3 and from E_3 to E_4 . By joining the points of equilibrium E_1 , E_2 , E_3 and E_4 , we get a curve called price-consumption-curve (PCC). Price-consumption-curve is a locus of points of equilibrium on indifference curves, resulting from the change in the price of a commodity. The price-consumption curve (PCC) shows the change in consumption basket due to a change in the price of commodity X. It can be seen from Figure 6.11 that the quantity of X consumed goes on increasing whereas that of Y first decreases and then increases.

Income and Substitution Effects of Price Change

As illustrated above, the change in consumption basket due to change in the price of consumer goods is called 'price effect'. Price-effect combines two effects: (i) income-effect and (ii) substitution-effect. Income-effect results from the increase in real income due to a decrease in the price of a commodity. Substitution-effect arises due to the consumer's inherent tendency to substitute cheaper goods for the relatively expensive ones. Income-effect arises due to change in real income caused by the change in price of the goods consumed by the consumer. Income effect is reflected by the movement along the income-consumption-curve which has a positive slope. Substitution-effect, on the other hand, causes a movement along the price-consumption-curve which generally has a negative slope. There are two approaches: (i) Hicksian approach, and (ii) Slutsky's approach, which may explore the total price-effect into income and substitution-effects.

The Hicksian method of separating income and substitution effects of a price change is illustrated in Figure 6.12. Let the consumer be in equilibrium initially at point P on indifference curve IC_1 and budget line MN, where he consumes PX_1 of Y and OX_1 of X. Now let the price of X falls, price of Y remaining the same, therefore the new budget line is MN'' . The new budget line (MN'') is tangent to IC_2 at point Q. At this point, the consumer buys an additional quantity (X_1X_3) of X. That is, total price effect = X_1X_3 .

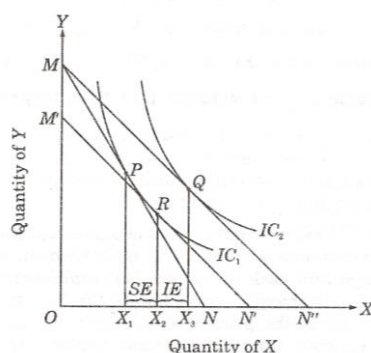


Figure 6.12: Income and substitution effects: Hicksian approach.

Now the problem is how to split the price-effect ($X_1 X_3$) into income and substitution effects. We know that $X_1X_3 = IE + SE$. Given this equation, if either of

the two effects is known, the other can be easily measured. The general practice is to first measure income-effect of the price-effect and then deducts it from the price effect to find the substitution-effect. The Hicksian method of eliminating income-effect is to reduce the consumer's income (by way of taxation) so that he returns to his original indifference curve IC_1 , to equilibrium point conforming to the new price ratio. This has been done by drawing an imaginary budget line ($M'N'$) parallel to MN and tangent to indifference curve IC_1 . The budget line $M'N'$ is tangent to indifference curve IC_1 at point R. Point R is thus the income-adjusted equilibrium of the consumer at the new price ratio of X and Y, after the elimination of the real income-effect caused by the fall in the price of X. The shift in equilibrium from Q to R means that the consumer cuts his consumption of X by X_2X_3 due to fall in his income. This gives, by implication, the measure of income-effect (X_2X_3) caused by the increase in real income of the consumer due to fall in price of X. The income effect of a change in the price of a commodity may thus be defined as the change in quantity demanded of the commodity resulting exclusively from a change in the real income, all other things remaining the same. With income effect measured at X_2X_3 the substitution effect (SE) can be easily obtained as $SE = PE - IE$ or, by substitutions as $X_1X_2 = X_1X_3 - X_2X_3$. In Figure 6.12, the movement of the consumer from P to R shows his response to the change in relative price ratio, his real income being held constant at its original level. The consumer's movement from point P to R means an increase in quantity demanded of X by X_1X_2 . This change in quantity demanded is called substitution-effect. The substitution effect may thus be defined as the change in quantity demanded; resulting from a change in relative price after real income-effect of price change is eliminated. The outcome of the above exercise may be summarized as follows:

$$\text{Price Effect} = X_2X_3$$

$$\text{Income effect} = X_1X_3 - X_1X_2 = X_2X_3$$

$$\text{Substitution Effect} = X_1X_3 - X_2X_2 = X_1X_2$$

According to Slutsky's method, the real income-effect of a fall in the price of a commodity must equal only that amount which if taken away from the consumer leaves with him an adequate income to buy the original combination of two goods after the change in price ratio. That is, Slutsky's method brings the consumer back not only to the original indifference curve but also to the original point of equilibrium. In simple words, under Hicksian method consumer's income has to be so reduced that he moves back to his original IC curve whereas, under Slutsky's method consumer's income has to be so reduced that he moves back not only to the original indifference curve but also to his original equilibrium point (P). The Slutskian method of splitting the total price effect into income and substitution effects is depicted in Figure 6.13.

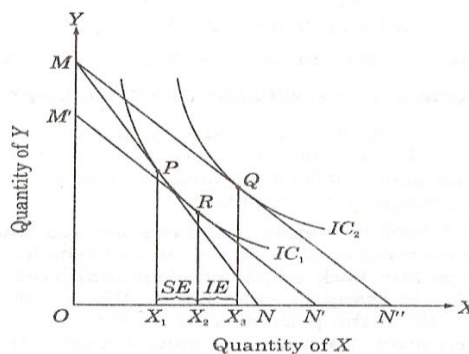


Figure 6.13: Income and Substitution effects: Slutsky's approach

The consumer is shown to be in equilibrium at point P on indifference curve IC_1 . When price of X falls, other things remaining the same, the consumer moves to another equilibrium point Q on indifference curve IC_2 . The movement from point P to Q increases the consumer's purchase of X Quantity of X by X_1X_3 . This is the total price-effect caused by the fall in the price of X in Slutsky's method is the same as in Hicksian method.

To measure the substitution-effect, the income-effect has to be eliminated first. According to the Slutskian approach, a consumer's real income is so reduced that he

is still able to purchase his original combination of the two goods (i.e., OX of X and PX_1 of Y) at the new price ratio. This is accomplished by drawing an imaginary budget line, M'N' through the point P. Since the whole commodity space is full of indifference curves, one of the indifference curves (IC_2) is tangent to the imaginary budget M'N' at point R. The movement from point Q to R shows a fall in the consumption of X by X_2 X_3 . This is the income effect. We may now easily find out the substitution effect (IE) by subtracting the income effect (IE) from the total price effect (PE), as given below.

$$\begin{aligned} \text{Substitution Effect: PE - IE} &= \text{SE} \\ &= X_1X_3 - X_2 X_3 = X_1 X_2 \end{aligned}$$

In Figure 6.13, the movement from P to R and the consequent increase in the quantity purchased of X (i.e., X_1X_2) is the substitution effect. Similarly, the consumer's movement from R to Q and the consequent increase in the quantity purchased of X is the income-effect.

Comparison of Hicksian Approach and Slutskian Approach

The comparison of Hicksian and Slutskian approaches is depicted in Figure 6.14. The Slutskian approach attempts to hold only apparent real income constant which is obtained by adjusting the consumer's real income by the amount of cost-difference so that the consumer is left with an income just sufficient to buy the original combination of the goods. The Hicksian approach, however, holds constant the real income expressed in terms of the original level of satisfaction so that the consumer is able to stay on the original indifference curve. To express the difference graphically, Hicksian method puts the consumer on the original indifference curve whereas Slutskian method makes the consumer move to an upper indifference curve. Let us compare the two methods in Figure 6.14. Let the consumer be in equilibrium at point P on indifference curve IC_1 . When the price of X falls the consumer moves to point Q. The movement from P to Q is the total price-effect which equals X_1X_4 of commodity X. Upto this point, there is no difference between Slutsky and Hicks.

Beyond this point, they differ. According to the Slutskian approach, the movement from P to T is the substitution effect and the movement from T to Q is the income effect. According to the Hicksian approach, the movement from P to R is the substitution effect and movement from R to Q is the income effect. The substitution and income effects of Slutskian and Hicksian approaches are summed up in quantitative terms in the following table.

Method	Price-effect	Substitution effect	Income effect
Hicksian	X_1X_4	X_1X_2	X_2X_4
Slutskian	X_1Y_4	X_1X_3	X_3X_4

Figure 6.14 shows; there is a good deal of difference between Hicksian and Slutskian measures of income and substitution effects. But it can be shown that if the change in price is small the difference between the Slutskian and Hicksian measures would be small and if the change in price tends to be zero, the difference would also be zero.

In addition to above, while the Hicksian approach is considered as a Highly persuasive solution to the problem of splitting price-effect into substitution and income effects, the Slutskian approach is intuitively perhaps less satisfying,. But the merit of the Slutskian approach is that substitution and income effects can be directly computed from the observed facts, whereas the Hicksian measure of these effects cannot be obtained without the knowledge of a consumer's indifference map. Both the methods, have however, their own merits. The merit of the Slutskian method, which Hicks calls the 'cost-difference' method, lies in its property that it makes income effect easy to handle. Hicks himself recognised this merit of the Slutskian method. The merit of Hicksian method or 'compensating variation method' is that it is a more convenient method of measuring the substitution effect. In Hicks own words, "The merit of the cost-difference method is confined to [its] property... that its income effect is peculiarly easy to handle. The compensating variation

method [i.e., his own method] does not share in this particular advantage; but it makes up for its clumsiness in relation to income-effect by its convenience with relation to the substitution effect.

6.4.2 CARDINAL APPROACH VERSUS ORDINAL UTILITY APPROACH

Similarity:

1. Both cardinal and ordinal approaches assume rationality and utility maximizing behaviour of the consumer.
2. The diminishing marginal utility assumption of the cardinal utility approach is implicit in the diminishing marginal rate of substitution assumption of the ordinal utility approach.
3. Both cardinal and ordinal utility approaches arrive at an identical equilibrium condition. The necessary (or the first order) equilibrium condition of the cardinal utility approach i.e.,

$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

and the first order (or necessary) equilibrium condition of the ordinal utility approach given as

$$MRS_{x,y} = \frac{P_x}{P_y}$$

are in fact, one and the same because $MU_x/MU_y = MRS_{x,y}$.

The second order equilibrium condition of the cardinal utility approach is that the total expenditure must not exceed the consumer's total income, This is similar to the second order condition of the ordinal utility) approach, i.e., the first order equilibrium condition must be fulfilled at the highest possible indifference curve on his indifference map.

Thus, in spite of the fact that cardinal and ordinal approaches are based on different assumptions regarding measurability of utility, both arrive at the same conclusion

with respect to consumer behaviour.

Superiority of Indifference Curve Approach:

In spite of their similarity in some respects, indifference curve analysis is in many respects superior to the cardinal utility approach. The indifference curve analysis has made major advances in the theory of consumer analysis at least in the following respects. First, the assumptions of the indifference curve approach are less restrictive than those of the cardinal utility approach. While cardinal utility approach assumes cardinal measurability of utility, the ordinal approach assumes only ordinal expression of utility. Besides, unlike the cardinal utility approach, the ordinal utility approach does not assume stability of utility of money. The Marshallian assumption of constancy of marginal utility of money is incompatible with demand functions involving more than one good. Second, indifference curve approach provides a better criterion for the classification of goods into substitutes and complements. This is considered it as one of the most important contributions of the ordinal utility approach. The cardinal utility approach uses the sign of cross-elasticity for the purpose of classifying goods into substitutes and complements. The cross-elasticity between two goods, X and Y, is given by

$$e_{x,y} = \Delta Q_y \cdot P_x / \Delta P_x \cdot Q_y$$

If cross-elasticity has a positive sign, it means X and Y are substitutes for each other and if elasticity has a negative sign, it means they are complements. This method of classifying goods into substitutes and compliments is somewhat misleading. For, as shown in the above measure of cross-elasticity, it uses the total effect of a price change (ΔP_x) on quantity demanded (ΔQ_y) without compensating for the change in real income caused by the change in the price of the commodity (i. e., ΔP_x). On the contrary, the indifference curve analysis suggests measuring cross elasticity after compensating for the changes in real income resulting from the change in P_x . According to Hicks, goods X and Y are substitutes for each other if cross-elasticity measured after eliminating the income effect is positive. Although the Hicksian

criterion for classifying goods into substitutes and complements is theoretically superior to the cross-elasticity method (unadjusted for real income-effect) and provides greater insight into the price-effect, it is impracticable, The reason is estimating income and substitution effects of a price-change is an extremely difficult task In the absence of an empirical indifference curve, On the other hand, the usual cross-elasticity method is feasible because it requires only the knowledge of the market demand function which is empirically estimable. Third, indifference curve analysis provides a more realistic measure of non-consumer's surplus compared to one provided by Marshall. The Marshallian concept of Consumer's surplus is based on the assumptions that utility cardinally measurable in terms of money and that utility of money remaining constant, Nether of these two assumptions is realistic, Indifference curve analysis measures consumer's surplus in terms of ordinal utility. The Hicksian measure of consumer's surplus is of great importance in welfare economics and in the formulation and assessment of government policy.

6.5 CHECK YOUR PROGRESS

Answer the following True/False on the basis of your knowledge regarding this chapter:

1. An indifference curve shows combinations of two goods yielding the same level of satisfaction. (T/F)
2. Any combination of goods that lie above a given indifference curve will provide the individual with a greater level of satisfaction. (T/F)
3. A 'budget line' shows combinations of two goods that can be purchased with a given income and prices of those goods. (T/F)
4. If income were to rise and prices fall then the budget line referred to in question 7 above will shift inwards towards the origin. (T/F)
5. When the indifference curve with 'good y' on the vertical axis and 'good x' on the horizontal is tangential to the budget line then at that point the marginal

rate of substitution of 'good x' for 'good y' is equal to the ratio of the price of 'good x' to 'good y' (P_x/P_y). (T/F)

6.6 SUMMARY

According to the classical economists, the concept of cardinal utility was used and they have instead employed the concept of ordinal utility for analysing consumer behaviour. The concept of ordinal utility is based on the fact that it may not be possible for consumers to express the utility of a commodity in absolute terms, but it is always possible for a consumer to tell introspectively whether a commodity is more or less or equally useful as compared to another. While neo-classical economists maintained that cardinal measurement of utility is practically possible and is meaningful in consumer analysis, modern economists maintain that utility being a psychological phenomenon is inherently immeasurable, theoretically or conceptually and quantitatively as well. They also maintain that the concept of ordinal utility is a practical concept and it meets the conceptual requirement of analysing the consumer behaviour in the absence of any cardinal measures of utility. In real life, both concepts may not be implemented; because the consumer is in a hurry to purchase as well as he is not so an economist so that he/she may compare the equilibrium of consumer behaviour in terms of consumption of goods and services.

6.7 KEYWORDS

Ordinal Utility- Ordinal utility refers to the utility which can be presented in absolute terms.

Consumer Equilibrium- A consumer attains his equilibrium when he maximizes his total utility, given his income and market prices of the goods and services that he consumes.

Law of Diminishing Marginal Utility- Law of Diminishing Marginal Utility states that all else equal as consumption increases the marginal utility derived from each

additional unit declines.

Indifference Curve- An indifference curve may be defined as the locus of points. Each point represents a different combination of two substitute goods, which yield the same utility or level of satisfaction to the consumer.

Marginal Rate of Substitution- The marginal rate of substitution is the rate at which a consumer is willing to substitute one commodity (X) for another (Y) so that his total satisfaction remains the same.

6.8 SELF ASSESSMENT TEST

1. *What do you mean by utility and the concept of ordinal utility?*
2. *Define the law of diminishing marginal utility.*
3. *What is the meaning of consumer equilibrium with reference to ordinal approach?*
4. *What is an indifference curve? What are its properties or characteristics? What role does it play in consumer analysis?*
5. *Define the marginal rate of substitution. What is the law behind the diminishing marginal rate of substitution?*

6.9 ANSWERS TO CHECK YOUR PROGRESS

1. TRUE
2. TRUE
3. TRUE
4. FALSE
5. TRUE

6.10 REFERENCES/SUGGESTED READINGS

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Lesson -7

Production Function

Structure

- 7.1 Learning Objectives
- 7.2 Introduction to Production Process
 - 7.2.1 Inputs
 - 7.2.2 Production Function
 - 7.2.3 The Marginal Productivity of Factors of Production
 - 7.2.4 The Marginal Rate of Substitution and the Elasticity of Substitution
 - 7.2.5 Behavior of Production Function

- 7.3 Law of Variable Proportions- Behaviour of Short Run Production Function
 - 7.3.1 The law of Diminishing Returns
 - 7.3.2 Important of the stage of Production
- 7.4 Check Your Progress
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- 7.8 Answer to Check Your Progress
- 7.9 References/Suggested Readings

7.1 Learning Objectives

One of the important elements in the economic theory of the firm is the production transformation process or processes which enables it to convert some finite number of inputs into a finite number of different outputs. The basic purpose of studying the production transformation process of a firm is to examine the conditions of supply for a commodity. The response of supply of a commodity to its price depends upon (i) the physical relationship between inputs and output and (ii) the prices of inputs. These two together determine the costs of production of commodity. Thus costs influence supply which together with demand determines the price.

7.2 Introduction to Production Process

Production refers to the transformation of resources into output of goods and services. For example, a farm takes fertilizer, seed, land and labour and turns them into wheat or corn. Modern factories like Maruti hire workers who use machinery in factories to transform steel, plastic, glass, rubber and so on into automobiles. The output of a firm can either be a final commodity such as automobiles or an intermediate product such as steel. The output can also be a service rather than a good. An airlines takes airplanes, fuel, labour and computer systems and provides

passengers with the ability to travel quickly through its network of routes. An accounting firm takes pencils, computers, papers, office space and labour and produce audits or tax return for its clients.

Major portion of goods and services consumed in a modern economy are produced by firms. A firm is an organization that combines and organizes resources for the purpose of producing goods and services for sale at a profit. The most important reason for a firm or business enterprises exist is that firms are specialized organization devoted to manage the process of production.

Production is organized in firm because efficiency generally requires large scale production, the raising of significant financial resources and careful management and monitoring of ongoing activities. In microeconomic theory our focus is to know what the firm does. Just consumers seek to maximize utility or satisfaction; firms generally seek to maximize profits. Both consumer and firms can be regarded as maximizing entities. For maximizing the profit in a given circumstances, firm always strive to produce efficiently, that is at lowest cost. In other words, they always attempt to produce the maximum level of output for a given does of inputs, avoiding waste wherever possible.

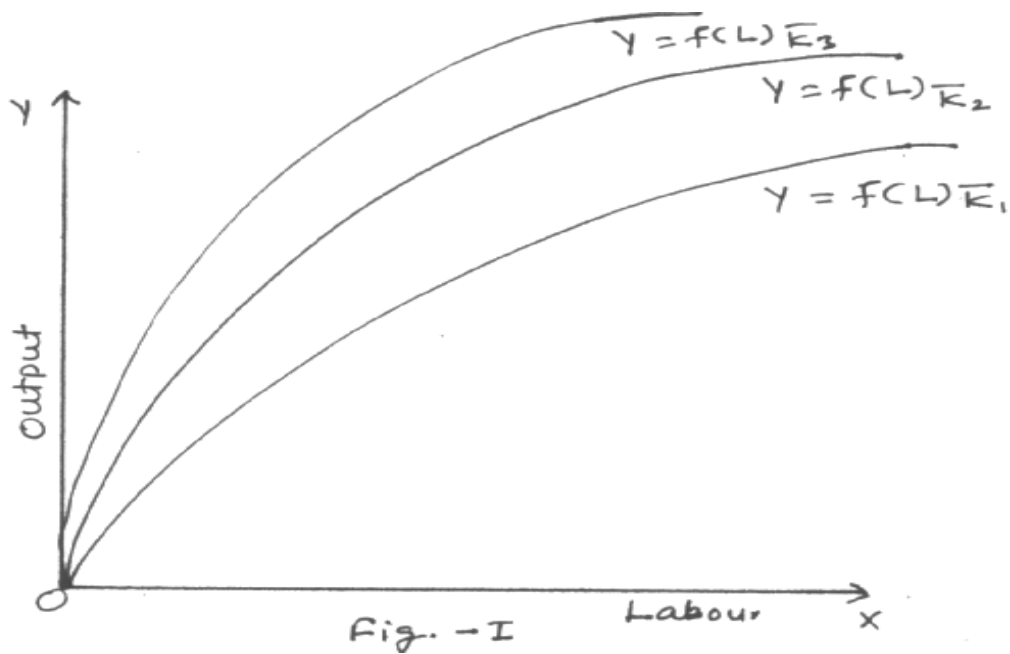
7.2.1 Inputs

Firms convert the inputs into outputs. Inputs also refer resources, or factors of production are the means of producing the goods and services demanded by society. Inputs can be classified broadly into labour or human resources, capital or investment goods, and land or natural resources. All these variables are flow variables, since they are measured per unit of time. Inputs may be further classified on the basis of availability as fixed and variable inputs. Fixed factor is one that remains fixed (or constant) for a certain level of output e.g. plant size etc. A variable input is defined as one that changes with the change in output e.g. raw material, labour etc.

7.2.2 Production Function

The term production function refers to the physical relationship between a firm's input of resources and its output of goods or services per unit of time, leaving prices asides. In other words production function is a purely technical relation which connects factor inputs and output. It means it is defined for a given state of engineering and technical knowledge. There may be enormous of different production functions – one for each and every product or service. In areas of the economy where technology is changing rapidly like computer software and biotechnology production function may become obsolete soon after they are used and of range of techniques available the firm uses those that are economically most efficient, that is those provides the greatest value of output for a given value of input. An improvement in the state of technology will in general increase the output per unit of input.

A production function can be represented by a table, a graph or an equation and shows the maximum output for a commodity that can be produced per unit of time with each set of inputs. Both inputs and outputs are measured in terms of physical rather than monetary units. Graphically, the production function is usually presented as a curve on two dimensional graphs. Changes in relevant variables are shown either by movements along the curve that depicts the production function or by shift this curve. The most commonly used diagrams for production function of a single commodity are show in fig.1



Assuming that production Y commodity depends upon the two inputs capital (K) and labour (L). As labour increases, while keeping capital constant, output measures we move along the curve depicting the production function. If capital (K) increases, the production function $Y = f(L)$ shifts upwards.

The general form of production function can be expressed as

$$Y = f(I_1, I_2, \dots, I_n) \text{-----(i)}$$

Where Y is the quantity of output for a production unit and inputs are represented as I_1, I_2, \dots, I_n . In economic theory very often labour (L) and capital (K) are taken as variable. In agricultural economics, land is taken constant and other factors as variable. Production functions involve concepts which are useful tools in all fields of economics. The main concepts are:

7.2.3 The Marginal Productivity of Factors of Production:

It is defined as change in output resulting from a change in a factor of production, keeping all other factors constant. Mathematically, the marginal product of each factor is the partial derivative of the production function with respect to this factor. Thus,

$$MP_L = \frac{\partial Y}{\partial L} \quad \text{and} \quad MP_K = \frac{\partial Y}{\partial K} \quad \text{-----(ii)}$$

In principle, the marginal product of a factor may assume any value, positive, zero or negative. However basic production theory concentrates only on the efficient part of the production function, that is, on the range output over which the marginal products of the factors are positive. Ranges of output over which the marginal products of factors would be negative imply irrational behavior of the firm and are not considered by the theory of production.

7.2.4 The Marginal Rate of Substitution and the Elasticity of Substitution.

The marginal rate of substitution measures the how one factor of production is substituted for another while keeping the output constant. Suppose in simple care output (Y) depends upon capital (k) and labour (L) so

$$Y = f(K, L) \text{-----(iii)}$$

The marginal rate of sustained of labour for capital K can be determined as

$$MRS_{LK} = -\frac{\partial K}{\partial L} = \frac{\partial Y / \partial L}{\partial Y / \partial K} = \frac{MP_L}{MP_K} \text{-----(iv)}$$

Where MP_L and MP_K are marginal productivity of labour and capital respectively.

The marginal rate of substitution as a measure of the degree of substitutability of factors has a serious defect it depends on the units of measurement of the factors. A better measure of the ease of factor substitution is provided by the elasticity of

substitution. The elasticity of substitution is defined as the percentage change in capital labour ratio divided by the percentage change in the rate of technical substitution

$$\sigma = \frac{\text{Percentage change in } K/L}{\text{Percentage change in } MRS} \text{-----(iv)}$$

or

$$\sigma = \frac{d(K/L)/(K/L)}{d(MRS)/(MRS)} \text{-----(v)}$$

The elasticity of substitution is a pure number independent of the units of measurement of K and L, since both the numerator and denominator are measured in the same units.

7.2.5 Behavior of Production Function

To illustrate the behaviour of production function, let us assume that output (Y) of a firm is based on two inputs capital (K) and labour (L)

$$Y = f(K, L)$$

For changing the output the firm can change K and L or only L depends upon the time period whether the firm considers a short run or a long run. The short run behaviour of production process is subject to three general restrictions: the time period should (i) short enough so that firm is unable to alter the levels of its fixed inputs (ii) sufficiently short so that the shape of the production function is not changed through technological improvements and (iii) sufficiently long to allow the completion of the necessary technical processes. In long run expansion of output may be achieved by varying all inputs. In the long run all factors of production are variable so the major difference between a short run and long run production

analysis lies in the number of variable inputs. A variable input is defined as one where supply in short run is elastic e.g. labour and raw material etc. In short run output may be expanded by using more of variable factors where factors like capital are kept constant. In the long run, however the firm can employ more of both capital and labour because of capital becomes elastic overtime. It is to be noted that both types of inputs variable as well as fixed are necessary for production, only short run production function is characterized by variable or non proportional return to a variable factor ratio and may be expressed for instance as.

$$Y = f(L/K) \text{-----}(vi)$$

Where only labour (L) is variable, while capital (K) is constant. The rate of increase in output in response to an increase in the variable input is not a question of logic and mathematics but of actual observation of real world and of the experience of producers.

7.3 Law of Variable Proportions- Behaviour of Short Run Production Function

Some factors of production are elastic in supply in short period and the production units can employ an unlimited quantity of such factors also called variable factors. For production, the firms can employ in short run varying quantities of variable inputs against a given quantity of fixed factors. This kind of change in input combination leads to variation in factor proportions. The relationship between varying factor proportions and output is known as law of diminishing returns. According to this law as equal increments of one input are added, the input of other productive services being held constant, beyond a certain point the resulting increments of product will decrease – that is marginal product will diminish. This law is subject to three conditions (i) there are other inputs whose quantities are held constant (ii) the state of technical knowledge is given and (iii) the proportions in which inputs can be effectively combined are variable due to this it is also called law of variable proportions.

This law is illustrated with the help of table -1. In this table it is assumed that a firm is using different amount of labour for given amount of capital.

Table-I

Unit of Capital	No. of Labourers	Capital Labour	Total	API	
MPI		Ratio	Output		
1	1	1	3	3	3
1	2	½	8	4	5
1	3	1/3	12	4	4
1	4	¼	14	3.5	2
1	5	1/5	14	2.8	0
1	6	1/6	12	2	-2

We can see from the table that if we combine increasing inputs of labour with constant amount of capital total output increases at an increasing rate in the beginning (from 3 to 8 i. e. more than double whereas the labour input just doubles, hence increasing marginal returns) and then increases at a diminishing rate. By employing fifth unit of labour, the total product becomes constant so the marginal product becomes zero and further employing of the labour with constant amount of capital, leads to ultimately decline in the total production and so negative marginal productivity. Here in our case total product is a function of both factors K and L : $Y = f(L/K)$ and marginal productivity of labour in $MP_L = \frac{\Delta Y}{\Delta L}$ and average productivity of labour is

$$AP_L = \frac{Y}{L} = \frac{f(L/K)}{L} . \text{-----(vii)}$$

The input level K is treated as a parameter and Y becomes a function of L along.

If we see the relationship between the capital labour ratio and output it is observed that as the ratio of capital labour decreases initially the output increases at increasing rate and then intimately with declining rate. The reason for decline in production is that as more and more labour is employed the optimum combination of capital and labour lost and labourers get into each other's way and actually disturb the production where sixth worker is employed.

The short run behaviour of production function can also be explored through diagram as shown in fig.(ii).

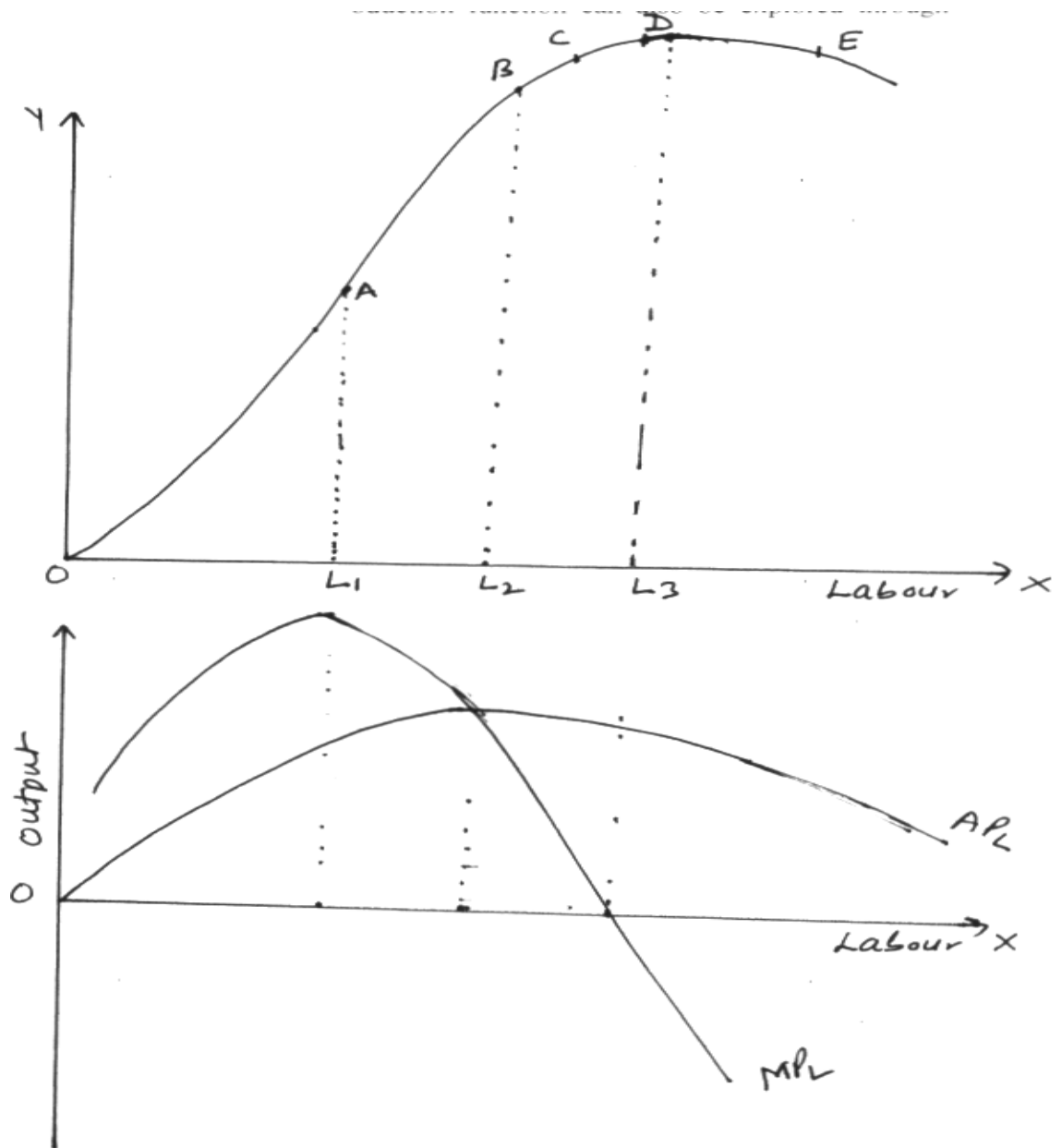


Fig -(ii)

It shows that total product increases at an increasing rate up to the point of inflexion A on total product curve and both AP_L and MP_L products consequently increase. At the point B on the TP curve average product of labour becomes equal to marginal

product of labour ($AP_L = MP_L$) and at point B the AP_L is highest meanwhile MP_L has already started declining and three workers are employed at this point. This is known as the first stage of production.

In the second stage, total output continue to increase and reaches the highest point D, but this increase is at further decline rate, with the result that the MP_L curve continues to decline and yields zero output at the end of the stage when total output is the highest. The average output now starts declining though continues to be positive so long as the total output is positive.

In the third stage the total output declines, the marginal output is negative and the average output is negative and the average output continues to decline though positive.

7.3.1 The law of Diminishing Returns

The decline in marginal productivity of labour in figure (i) is a reflection of the law of diminishing returns. This is an empirical generalization or a physical law, not a proposition of economics. It postulates that as more units of a variable input are used with a fixed amount of other inputs, after a point, a smaller and smaller return will accrue to each additional unit of the variable unit. In other words, the marginal product of the variable input eventually declines. This occurs because each additional unit of the variable input has less and less of the fixed inputs with which to work. It is to be noted that to observe the law of diminishing returns at least one input must be held constant. Technology is also assumed to remain unchanged.

7.3.2 Important of the stage of Production

From above, it is observed that the variations in output are a function not of labour alone but of the proportion in which the two factors are combined. During the process of production capital's efficiency is constant and similarly all the labourers are equally efficient. Unless we know the prices of inputs and the output, we cannot

decide about the optimal combination of the two factors. Even then the physical law itself throws light on the nature of the problem.

In the first state the capital labour ratio is favourable to efficient production. As labour or more capital (more machines) is increased, the average productivity continuously increases. It is profitable to employ more labour. The marginal productivity also increases, though it starts declining before the end of the first stage. In the second stage, though total product continues to increase, both the AP_L and MP_L decline. Some decision has to be taken this stage, because at the end of 2nd stage, TP is highest and the MP_L becomes zero. The law of diminishing marginal returns to labour has to operate as labour is a very important imperfect substitute for capital. The point of zero MP_L of labour is its intensive margin.

No wise producer will consciously enter the 3rd stage even when both the factors are free, when for the TP declines and the MP is negative, though it is not uncommon for lacking perfect knowledge to a producers actually produce in this region.

The second stage is therefore crucial for decision making. But maximum total product need not coincide with the point of the most profitable employment of labour. If the inputs are paid in terms of their own output, the employment of the variable input labour is carried up to the point where its marginal physical product equals its market rate of remuneration.

7.4 Check Your Process

On the basis of your knowledge about production function, answer the followings:

1- Which of the following is not a factor of production?

- A) Capital B) Material C) Money D) Labour

2- A production function tells the firm

- A) The maximum it can expect to produce with a given mx of inputs.
B) The minimum it can expect to produce with a given mx of inputs.
C) The average it can expect to produce with a given mx of inputs.

D) The average level of production for other firms in the industry.

3- Which of the following statement is TRUE in short term?

- A) The ratio of output to the number of workers used to produce the output.
- B) Whether or not an input is considered fixed is dependent on the paid for the input.
- C) Generally, labour is a variable input.
- D) Generally, capital is a variable input.

4- The marginal product of labour is

- A) The ratio of output to the number of workers used to produce that output.
- B) The change in total product resulting from an extra unit of labour, holding other factors constant.
- C) Equal to the marginal product of labour when average product is increasing
- D) The amount of output that can be produced by a given amount of labour.

5- Given the production function $q= 4L+K$, formula for MP of labour

- A) $4+K$
- B) 4
- C) $4K$
- D) Cannot be determined.

7.5 Summary

Production is a process by which goods and services are made available to the consumer. In theory of demand, individual consumer is considered as economic unit .Similar to that, in the theory of production, individual firm or industry is regarded as economic unit. Product refers to the volume of goods produced by a firm or industry during that specified period of time. Product has reference to physical volume, whereas productivity is a ratio and has reference to output per unit of input. Production function can be short run production function or long run production function. This chapter presents the traditional production theory by explaining three

different laws of production applicable in short period. Production function shows the physical relation between firm input and output of goods and services per unit of time. It means the nature of production function is an economic but technological. Production function depends upon technique of production. The relationship of input and output not only depends upon combination of input and output but affected by technology also. Short period production function shows the physical relationship between input and output when some factors are fixed whereas others are variable or changing. Short period production function is also known as Laws of Returns. As per classical economist in short period three different laws are applicable. These are Law of Increasing Returns to Scale, Law of Constant Returns to Scale and Law of Diminishing Returns to Scale. In case of manufacturing industries role of man increases when we employ more and more variable factors of production with some fixed factors. As a result of this marginal productivity will increase. At the same time average cost will fall and law of increasing returns to scale will be applicable. Law of constant returns to scale as per classical economists applies in the short period. It applies after the application of law of increasing returns to scale. This law is applicable when advantages from increased scale of production become equal to disadvantages. Constant returns to scale means the stage where input and output increases in the same proportion. It means when more and more doses of labour and capital are employed with some fixed factor then output increases in the same proportion in which the factors of production are employed. Law of diminishing returns to scale is also known as law of Increasing Cost. This law states that when with some fixed factors, units of variable factors like labour and capital are increased without making any improvement in the technology of production then marginal return will be diminishing. On the other hand average cost will be increasing.

7.6 Keywords

Production refers to the transformation of resources into output of goods and services.

Inputs also refer resources, or factors of production are the means of producing the goods and services demanded by society.

Production Function refers to the physical relationship between a firm's input of resources and its output of goods or services per unit of time, leaving prices asides. It is a purely technical relation which connects factor inputs and output.

The Marginal Productivity of Factors of Production is change in output resulting from a change in a factor of production, keeping all other factors constant. Mathematically, the marginal product of each factor is the partial derivative of the production function with respect to this factor

The Marginal Rate of Substitution and the Elasticity of Substitution measures the how one factor of production is substituted for another while keeping the output constant. The marginal rate of substitution as a measure of the degree of substitutability of factors has a serious defect it depends on the units of measurement of the factors. A better measure of the ease of factor substitution is provided by the elasticity of substitution. The elasticity of substitution is defined as the percentage change in capital labour ratio divided by the percentage change in the rate of technical substitution.

Law of Variable Proportions & Diminishing Return Some factors of production are elastic in supply in short period and the production units can employ an unlimited quantity of such factors also called variable factors. For production, the firms can employ in short run varying quantities of variable inputs against a given quantity of fixed factors. This kind of change in input combination leads to variation in factor proportions. The relationship between varying factor proportions and output is known as law of diminishing returns. According to this law as equal increments of one input are added, the input of other productive services being held

constant, beyond a certain point the resulting increments of product will decrease – that is marginal product will diminish.

7.7 Self-Assessment Test

1. What is meant by production? Define production function and describe the underlying assumptions.
2. “As we add more and more of variable input to a fixed input the amount of extra product will fall off.” (Samuelson). Explain the conditions under which this law operates and discuss if it will also operate with several variable inputs
3. What do you mean by production function? What is the difference between a short run and a long-run production function?
- 4.(a) What is the marginal rate of technical substitution?
(b) What is elasticity of technical substitution?
5. What is meant by production? Explain the different stages Define production function and describe the underlying assumptions.

7.8 Answers to Check Your Process

- 1- C
- 2- A
- 3- C
- 4- B
- 5- B

7.9 References/ Suggested Readings

- | | |
|----------------------|--|
| Duan, Joel | : Managerial Economics |
| Koutsayiannis, A. | : Modern Micro Economics, Macmillan |
| Mote, Paul and Gupta | : Managerial Economics: Concept and Cases, |
| Tata | : McGraw Hill |
| Young, Karts | : Managerial Economics. |
| Landsburg Steven E | : Price Theory and Applications, Dryden. |
| Salvatore S. | : Managerial Economics, McGraw |

Subject: Economics Analysis	
Course Code: MC-104	Author: Dr. Mandeep Kaur
Lesson No.: 8	Vetter: Prof. Anil Kumar
Labor Market Analysis	

STRUCTURE

- 8.1 Learning Objectives
- 8.2 Introduction
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8.1 LEARNING OBJECTIVES

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

- Understand the concept of Labour
- Elaborate Characteristics of Labour

- Understand the concept of Labour Market
- Elaborate the concept of Demand and Supply of Labour
- Understand theories of determination of Wages

8.2 INTRODUCTION:

Production function depends upon different factors of production and labour is one of the important factor of production. Labour includes both physical and mental work undertaken for some monetary reward. In this way, workers working in factories, services of doctors, advocates, ministers, officers and teachers are all included in labour. The demand for labour is a derived demand. It is derived from demand for the commodities it helps to produce. The greater the consumers' demand for the product, the greater the producers' demand for the labour required in making it. This chapter presents the meaning of labour along with understanding the concept of labour demand and labour supply. It also discusses different theories related to determination of wages.

8.3 MEANING OF LABOUR:

Labour includes both physical and mental work undertaken for some monetary reward. In this way, workers working in factories, services of doctors, advocates, ministers, officers and teachers are all included in labour. Any physical or mental work which is not undertaken for getting income, but simply to attain pleasure or happiness, is not labour. For example, the work of a gardener in the garden is called labour, because he gets income for it. But if the same work is done by him in his home garden, it will not be called labour, as he is not paid for that work. So, if a mother brings up her children, a teacher teaches his son and a doctor treats his wife, these activities are not considered 'labour' in economics. It is so because these are not done to earn income.

According to S.E. Thomas, "Labour connotes all human efforts of body or mind which are undertaken in the expectation of reward."

8.3.1 CHARACTERISTICS OF LABOUR:

Labour has the following peculiarities which are explained as under:

1. Labour is Perishable: Labour is more perishable than other factors of production. It means labour cannot be stored. The labour of an unemployed worker is lost forever for that day when he does not work. Labour can neither be postponed nor accumulated for the next day. It will perish. Once time is lost, it is lost forever.

2. Labour cannot be separated from the Labourer: Land and capital can be separated from their owner, but labour cannot be separated from a labourer. Labour and labourer are indispensable for each other. For example, it is not possible to bring the ability of a teacher to teach in the school, leaving the teacher at home. The labour of a teacher can work only if he himself is present in the class. Therefore, labour and labourer cannot be separated from each other.

3. Less Mobility of Labour: As compared to capital and other goods, labour is less mobile. Capital can be easily transported from one place to other, but labour cannot be transported easily from its present place to other places. A labourer is not ready to go too far off places leaving his native place. Therefore, labour has less mobility.

4. Weak Bargaining Power of Labour: The ability of the buyer to purchase goods at the lowest price and the ability of the seller to sell his goods at the highest possible price is called the bargaining power. A labourer sells his labour for wages and an employer purchases labour by paying wages. Labourers have a very weak bargaining power, because their labour cannot be stored and they are poor, ignorant and less organised. Moreover, labour as a class does not have reserves to fall back upon when either there is no work or the wage rate is so low that it is not worth working. Poor labourers have to work for their subsistence. Therefore, the labourers have a weak bargaining power as compared to the employers.

5. Inelastic Supply of labour: The supply of labour is inelastic in a country at a particular time. It means their supply can neither be increased nor decreased if the need demands so. For example, if a country has a scarcity of a particular type of workers, their supply cannot be increased within a day, month or year. Labourers cannot be 'made to order' like other goods. The supply of labour can be increased to a limited extent by importing labour from other countries in the short period. The supply of labour depends upon the size of population. Population cannot be increased or decreased quickly. Therefore, the supply of labour is inelastic to a great extent. It cannot be increased or decreased immediately.

6. Labourer is a Human being and not a Machine: Every labourer has his own tastes, habits and feelings. Therefore, labourers cannot be made to work like machines. Labourers cannot work round the clock like machines. After continuous work for a few hours, leisure is essential for them.

7. A Labourer sells his Labour and not Himself: A labourer sells his labour for wages and not himself. 'The worker sells work but he himself remains his own property'. For example, when we purchase an animal, we become owners of the services as well as the body of that animal. But we cannot become the owner of a labourer in this sense.

8. Increase in Wages may reduce the Supply of Labour: The supply of goods increases, when their prices increase, but the supply of labourers decreases, when their wages are increased. For example, when wages are low, all men, women and children in a labourer's family have to work to earn their livelihood. But when wage rates are increased, the labourer may work alone and his wife and children may stop working. In this way, the increase in wage rates decreases the supply of labourers. Labourers also work for less hours when they are paid more and hence again their supply decreases.

9. Labour is both the Beginning and the End of Production: The presence of land and capital alone cannot make production. Production can be started only with

the help of labour. It means labour is the beginning of production. Goods are produced to satisfy human wants. When we consume them, production comes to an end. Therefore, labour is both the beginning and the end of production.

10. Differences in the Efficiency of Labour: Labourer differs in efficiency. Some labourers are more efficient due to their ability, training and skill, whereas others are less efficient on account of their illiteracy, ignorance, etc.

11. Indirect Demand for Labour: The consumer goods like bread, vegetables, fruit, milk, etc. have direct demand as they satisfy our wants directly. But the demand for labourers is not direct, it is indirect. They are demanded so as to produce other goods, which satisfy our wants. So the demand for labourers depends upon the demand for goods which they help to produce. Therefore, the demand for labourers arises because of their productive capacity to produce other goods.

12. Difficult to find out the Cost of Production of Labour: We can easily calculate the cost of production of a machine. But it is not easy to calculate the cost of production of a labourer i.e., of an advocate, teacher, doctor, etc. If a person becomes an engineer at the age of twenty, it is difficult to find out the total cost on his education, food, clothes, etc. Therefore, it is difficult to calculate the cost of production of a labourer.

13. Labour creates Capital: Capital, which is considered as a separate factor of production is, in fact, the result of the reward for labour. Labour earns wealth by way of production. We know that capital is that portion of wealth which is used to earn income. Therefore, capital is formulated and accumulated by labour. It is evident that labour is more important in the process of production than capital because capital is the result of the working of labour.

14. Labour is an Active Factor of Production: Land and capital are considered as the passive factors of production, because they alone cannot start the production process. Production from land and capital starts only when a man makes efforts.

Production begins with the active participation of man. Therefore, labour is an active factor of production.

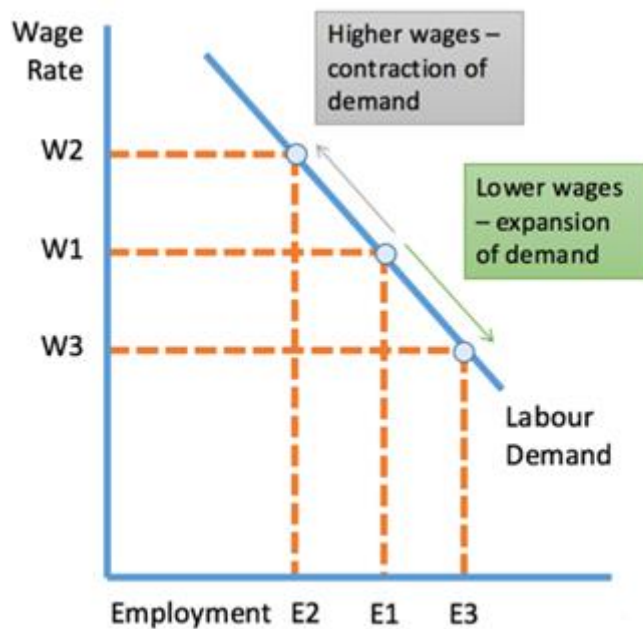
8.3.2 DEMAND FOR LABOUR:

The demand for labour is a derived demand. It is derived from demand for the commodities it helps to produce. The greater the consumers' demand for the product, the greater the producers' demand for the labour required in making it. Hence an expected increase in the demand for a commodity will increase the demand for the type of labour that produces this commodity. Demand for labour depends upon the following factors:

- Wage rate prevailing in the market is the most peculiar factor which affects the labour demand. If the wage rate is low then more workers will be demanded and if the wage rate increases less workers will be demanded.
- Demand for output for which labour is required. If the demand of output is high demand for labour will also be high and vice versa.
- Demand for labour will generally be inelastic if their wages form only a small proportion of the total wages. The demand for labour, on the other hand, will be elastic if wages form the major proportion of the total wages.
- The demand for labour also depends on the prices of the co-operating factors. Suppose the machines are costly, as is the case in India, obviously more labour will be employed. The demand for labour will increase.
- Another factor that influences the demand for labour is the technical progress. In some cases, labour and machinery are used in a definite ratio. For instance, the introduction of automatic looms reduces the demand for labour.

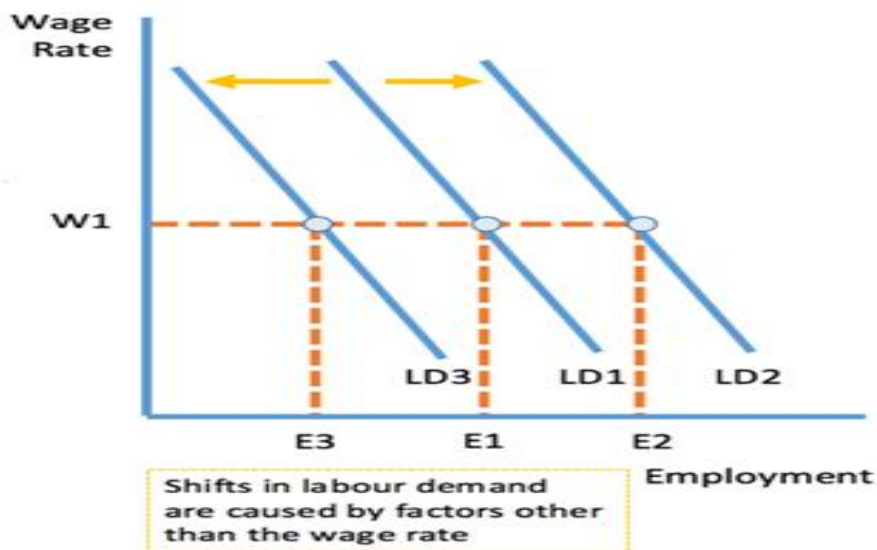
8.3.3 LABOUR DEMAND CURVE:

As explained above wage rate is the most obvious factor which affects the demand for labour and there is inverse relationship between demand of labour and wage rate. So the demand curve of labour can be shown in the diagram 8.1. The diagram shows that wage rate is measured on Y axis and number of labourers employed on X axis. When the wage rate is W_2 then E_2 number of labourers are employed and when the wage rate falls to W_1 and W_3 then more number of labourers are employed. Thus, demand curve of the labour is downward sloping with respect to wage rate. This change in the demand of labour due to change in the wage rate is called Expansion and contraction of Demand. When demand for labour increases due to fall in wage rate then this is called expansion of demand. On the other hand, when demand fall due to increase in the wage rate then this is called contraction of demand.



Graph 8.1 Demand Curve of Labour

Demand for labour may undergo a change not only due to changes in wage rate but due to other factors such as demand of product, prices of other factors of production, technical progress etc. When demand changes due to change in factors other than wages then this is called increase and decrease of demand. This is also called shift in the demand curve. This can be shown with the help of diagram 8.2. The diagram shows that demand for labour is increasing while the wage rate remain constant at W_1 . This may be because of other factors such as change in demand of product, change in price of the product, change in productivity of labour etc.



Graph 8.2 Shift in Demand Curve of Labour

8.3.4 SUPPLY OF LABOUR:

By the supply of labour, we mean the numbers of workers of a given type of labour which would offer themselves for employment at various wage rates. The supply of labour may be considered from two view-points:

(a) **Supply of labour to the industry :** For an industry, the supply of labour is elastic. Hence, if a given industry wants more labour, it can attract it from other

industries by offering a higher wage. It can also work the existing labour force overtime. This in effect will mean an increase in supply. The supply of labour for the industry is subject to the law of supply, of low wages less will be the supply of labour and vice versa. Hence, the supply curve of labour for an industry rises upwards from left to right. It is positively sloped.

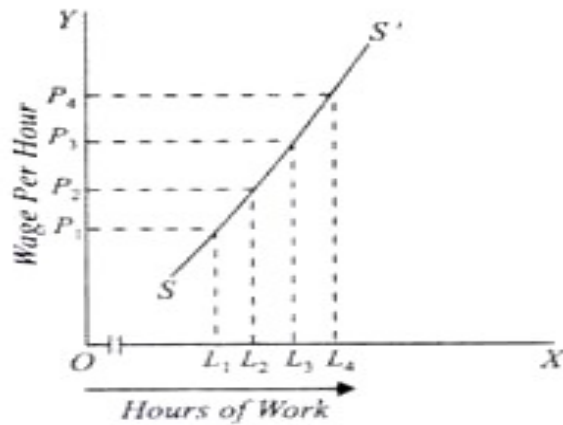
(b) Supply of labour to the entire economy: The supply of labour for the entire economy depends on economic, social and political factors or institutional factors, e.g., attitude of women towards work, working age, school and college leaving age and possibilities of part-time employment for students, size and composition of the population and sex distribution, attitude to marriage, the size of the family, birth control, standard of medical facilities and sanitation, etc.

The supply of labour may be decreased by workers refusing to work for a time. This happens when labour is organised into trade unions. The workers may not accept wages offered by the employer if such wages do not ensure the maintenance of a standard of living to which they are accustomed.

8.3.5 LABOUR SUPPLY CURVE:

Upward Sloping Supply Curve of Labour

Higher wages usually will encourage a worker to supply more labour because work is more attractive compared to leisure. Therefore the supply curve for labour tends to be upwardly sloping. This is shown in the diagram 8.3. The supply curve of labour is obtained when the wage rate is directly represented on the Y-axis and number of working hours on X axis. As the wage rate increase the supply of labour is increasing in the form of number of working hrs. increasing from L_1 to L_2 , L_3 and L_4 .

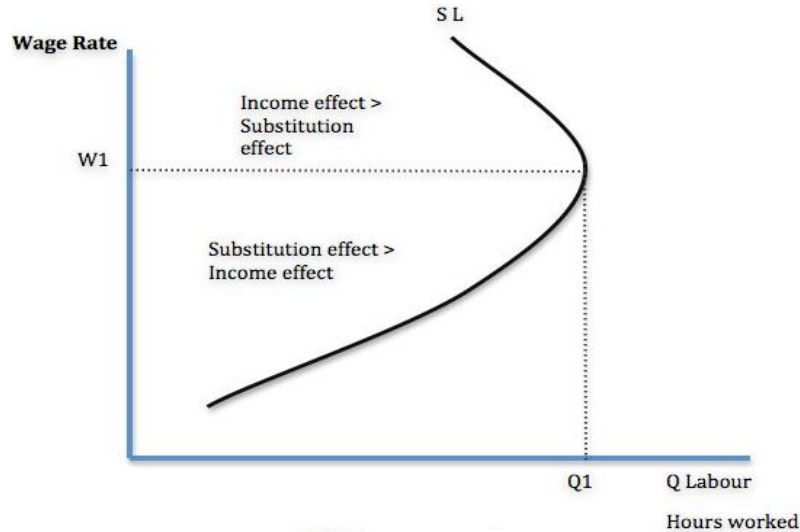


Graph 8.3 Upward Sloping Supply Curve of Labour

Backward Sloping Supply Curve of Labour: A worker isn't just interested in earning money; they are also interested in leisure. Therefore, there is a choice between working more (higher wage) and working less (more leisure). So the two factors that influence the supply of labour are:

- **Substitution effect of a rise in wages:** With higher wages, workers will give greater value to working than leisure. With work more profitable, there is a higher opportunity cost of not working. The substitution effect causes more hours to be worked as wages rise.
- **Income effect of a rise in wages:** This occurs when an increase in wages causes workers to work fewer hours. This is because workers can get a higher income by working fewer hours. Therefore they may work less. Therefore, after wage rise, workers may work less because they can get their target income with fewer hours spent working. Thus backward sloping supply curve of labour can be presented as below diagram 8.4. It shows that

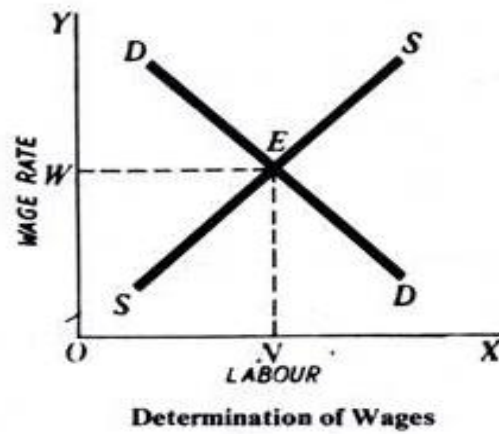
up to W_1 , the substitution effect is greater than the income effect, and higher wages causes more hours worked. After W_1 , the income effect outweighs the substitution effect. Now people work fewer hours because they can get their target income from a lower number of hours.



Graph 8.4 Backward Sloping Supply Curve of Labour

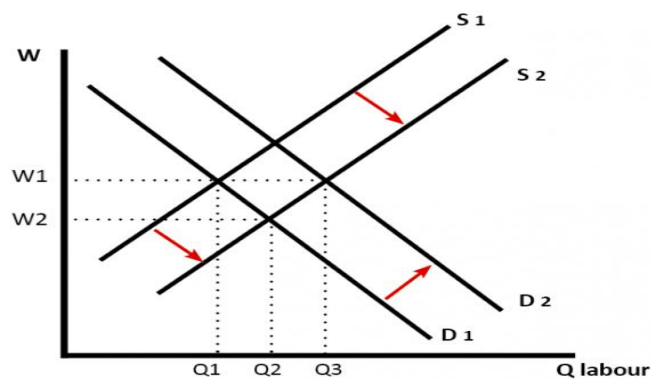
8.3.6 INTERACTION OF LABOUR DEMAND CURVE AND SUPPLY CURVE:

So far we have discussed the forces operating behind the demand for and supply of labour in the market. As regards the price or the wage of particular grade of labour, it is determined by the interaction of the forces of demand for and supply of labour in the competitive market. The determination of wage rate is explained with the help of diagram. The wage rate is determined by interaction of labour demand and labour supply curve. This determination of wage rate can be presented in the diagram 8.5. This shows that Demand curve is downward sloping and supply curve is upward sloping. OW wage rate is determined by the forces of demand and supply.



Graph 8.5 Determination of Wage Rate

An increase in the supply of labour leads to a fall in the wage rate from W_1 to W_2 . Quantity increases from Q_1 to Q_2 . If immigration led to an increase in the supply of labour (more workers) then wages would initially fall. However, net migration would also lead to increase in demand for labour because the new workers create additional demand in the economy. This can be presented in the diagram 8.6:



Graph 8.6 Impact of change in demand and supply of labour

8.4 THEORIES OF DETERMINATION OF WAGES:

There are various theories of wages which have been put forward by different economists from time to time but none of them is free from criticism. The most important *theories of wages determination* are:

1. Subsistence Theory of Wages.
2. Wage Fund Theory.
3. Residual Claimant Theory.
4. Marginal Productivity Theory.
5. Modern Theory of Supply and Demand.

1. Subsistence Theory of Wages/Iron or Brazen Law of Wages: The *subsistence theory of wages* owes its origin to Physiocratic School of France. The theory is also named as Iron or Brazen Law of Wages. According to this theory:
"The wage in the long run tends to be equal to the minimum level of subsistence. By 'minimum level of subsistence' is meant the amount which is just sufficient to meet the bare necessities of life of the worker and his family".

It is argued that if wages exceed the subsistence level, the labour will marry earlier and will produce more children. This will result in the increase in number of workers than what is required by employers. So the money wages will fall to the level of subsistence. If wages remain below the subsistence level, the labour will not be able to maintain their families. Due to starvation and malnutrition, etc. the death toll will increase. The supply of labor will fall short of demand and the wages would go up to the subsistence level.

Criticism of the theory:

This theory has been criticized on the following grounds:

- (i) It is incorrect to say that when the money income of a person increases above the subsistence level, he marries early and the birth rate increases. On the other hand, the fact is that when the income increases, it is generally followed by a higher standard of living and the workers do not produce more children.

(ii) The theory fails to explain the wage differences in different employments. According to the theory, the wage rate tends to be equal to the subsistence level of all the workers. So then, how is it that wages differ from occupation to occupation and from person to person? The theory has nothing to say in defense of this criticism.

(iii) The third criticism levied on the subsistence wages is that it entirely ignores the demand side of the labor and emphasizes only the supply side for the determination of the wages.

(iv) The theory does not take into account the influence of trade unions in the determination of wage rate though it is one of the every important factors to be taken into consideration.

2. Wage Fund Theory: The *theory of wage fund* first introduced in Economics by Adam Smith and later on it was developed by J.S. Mill. The theory briefly explains that:

"Wages depend upon the proportion between population and capital, or rather between the number of labouring classes who work for hire and the aggregate of what may be called the wage fund which consists of that part of circulating capital which is expended in the direct hire of labour".

In short, we can say, wage fund is that amount of floating capital which is set apart by employers for paying wages to the labor. The average wage rate is determined by dividing the wage fund by the total number of workers employed. It can be presented as below:

$$\text{Wage Rate} = \frac{\text{Wage Fund}}{\text{Total Number of Workers}}$$

If it is desired that the average rate should increase, it can be achieved in two ways. Firstly, by increasing the floating capital and secondly by reducing the number of workers.

Criticism on Wage Fund Theory:

The theory has been subjected to a great deal of criticism by Longe, Thornton and Jevon on the following grounds:

- (i) There is no special fund which is particularly meant for the payment of wages to the workers. The wages are paid out of the national dividend which is a flow and not fixed like that of fund.
- (ii) The theory is inadequate to explain the wage differences in different occupations.
- (iii) The theory gives undue importance to the supply side. It makes wrong assumption that the demand for labor remains constant.
- (iv) The theory assumes that labor is homogeneous but in fact it is heterogeneous.
- (v) The level of wages do not necessarily depend upon remunerator capital. In newly developed countries, the capital available is generally less than the established countries but there the wages are relatively higher because of the greater productivity of each worker.

3. Residual Claimant Theory: *Residual claimant theory* is associated with the name of American economist Walker. According to Walker:

"Wages equal to Whole product minus rent interest and profit".

Jevon has stated the *theory of residual claimant* in the following words:

"The wages of a working man are ultimately coincident with what he produces, after the deduction of rent, taxes and the interest on capital".

In short, the theory states that labour receives what remains after payment of rent, interest, profit and taxes out of the national dividend.

Criticism on Residual Claimant Theory:

The theory has been criticized by Longe and Thornton on the following points:

- (i) The theory ignores the influence of supply side in the determination of wages.
- (ii) It fails to explain as to how the trade unions raise the wages of the workers.
- (iii) It is also pointed out that the residual claimant is the entrepreneur and not the labour. The labour gets his share during the process of production of a commodity.

(4) Marginal Productivity Theory of Wages Under Perfect Competition:

Some of the modern economics explain the determination of wages by means of marginal productivity analysis. According to this theory:

"Wages in perfect competition tend to be equal to the marginal net product of a labour. By marginal net product of a labour is meant net addition or net subtraction made to the value of the total produce of a firm when one unit is added or withdrawn from it".

When an entrepreneur employs a unit of labour, how much he pays to him as wages depend upon the addition which he makes to the total revenue of the firm. If the addition made to the total revenue by a labour is \$5000, the rate of wages will be equal to \$5000. The entrepreneur will not pay him more than the return which he contributes to the total production. The aim of the firm, as we already know, is to maximize profits. If the net product of a labour is higher than the amount paid to him. The entrepreneur will go on employing more units of labour. As he engages more and more units of labour, the net produce on the successive units begins to diminish. It is not because the successive units of labour are in any way inferior to the previous units but because

of the operation of law of diminishing returns. When the net product of the labour becomes equal to the rate of wages paid to him, the employer discontinues the employment of further unit of labour, the last unit which he thinks just worthwhile to engage is called the *marginal unit*. The net addition made to the total revenue of a firm by the marginal labour is called the *marginal net product*. The rate of wages paid to the labour tends to be equal to the marginal net product of the labour employed. As we have assumed that all units of labor are of the same grade, the remuneration which is paid to the marginal labour will be given to all the units of labour employed earlier. If any worker demands more than the marginal net product of the labour, he will not be engaged by the employer.

Professor Taussing has reproduced the marginal productivity theory of wages in a slightly refined form. According to him:

"Wages tend to be equal not to the marginal net product but the discounted marginal net product

of the labour employed at the margin".

When goods are produced, he says, they are not sold at the same time. There is a time lag between the production and the sale of the commodities. The labor receives their remuneration during the course of production. If the prices of goods falls, the entrepreneur will have to undergo losses as he has paid the wages to the labor keeping in view the prices of the goods prevailing at that time. As the entrepreneur has borne the risk, so he should pay little less than the actual marginal net product of the labor keeping in view the risk of fluctuation of price. Secondly, the entrepreneur has to pay interest on the capital invested. So a deduction at the current rate of interest is to be made from the final output of the labour. Thus, we find that wages according to Taussing tend to be equal not to the marginal net-product but discounted marginal net product of a labor employed at the marginal.

Criticism on Marginal Productivity Theory of Wages:

The theory of marginal net product of wages has been criticized on the following grounds:

- (i) The theory assumes that there is perfect competition, among the entrepreneurs and the wage earners while in the real world there is no such perfect competition.
- (ii) The theory assumes that all units of labour engaged are perfectly homogeneous but the fact is otherwise.
- (iii) The theory also assumes perfect mobility amongst the labor but the assumption does not hold good in the real life.
- (iv) The theory emphasizes on the demand side of the problem and makes a wrong assumption that the supply of labor remains constant.

It is clear now that marginal net product theory of wages is true only under certain assumed conditions. In spite of the flaws which have been discussed above, it offers a bit satisfactory explanation of the wages.

(5) Modern Theory of Wages: We have studied various theories which explain the determination of wages but they all stand discredited as they do not offer satisfactory explanation of wages. The modern economists are of the opinion that just as the price of a commodity is determined by the interaction of the forces of demand and supply, the rate of wages can also be determined in the same way with the help of usual *demand and supply analysis*. Let us now discuss in brief as to what we mean by demand for and supply of labour as per this theory. **Demand for Labor:**

There are various factors which influence the *demand for labor*. These factors in brief are as under:-

- (i) Demand for labor is a derived demand. The demand for labor is not a direct demand. It is derived from the demand for the commodities and services it helps to produce. If the demand for a product is high in the market, the demand for labor producing that particular type of product will also be high. In case, the demand for a commodity is small, the demand for that labor will also be low.

(ii) Elasticity of demand for the product. If the demand for a particular product is inelastic, the demand for the type of labor that produces this product will also be inelastic. The demand for labor will be elastic, if cheaper substitutes of the product are available in the market or the demand for the commodity it produces is elastic.

(iii) Proportion of labor cost to total cost. If the wages of workers account for only a small proportion to total cost of a product, then the demand for labor will tend to be inelastic. In a capital intensive industry, for instance, a slight increase in the workers' wages will have little effect on the unit cost of product. So, the rise in wages will not reduce the demand for labor.

(iv) Availability of substitutes for labor. If the substitutes of labor producing a particular product are easily available in the market, the demand for labor will then be elastic.

After considering the various factors which influence the demand for labor, we now take up the demand price of labour.

Demand Price of Labour: Demand price of labour can be explained as below:

Marginal Revenue Productivity (MRP). An employer hires labor in order to make profit. He, while employing a worker, compares the cost of hiring a worker to the contribution he is expected to make to the total revenue of the firm. So long as the addition made by the labor to the revenue is greater than the cost of employing him, the entrepreneur will engage that labor. In other words, we can say that so long as the marginal revenue product of labor is higher than the cost of employing him, the employer employs that worker. The entrepreneur will continue hiring the worker up to the point at which the cost of employing a worker is just equal to the marginal revenue product of the labour.

The marginal revenue productivity of labor due to the operation of law of diminishing returns decreases, as more workers are put to work. The wage rate also decreases with the fall in the MRP of **labour**. Thus the demand curve for **labour** is downward, sloping (The demand curve for **labour** is the MRP curve of the firm as each worker earns what his **labour** is worth). If we add up the demand curves for

labour of all the individual firms (the MRP curves), we get the demand curve of the industry, it is the demand of the industry which determines wage rate for **labour**. The individual firm in a competitive market has to accept wage rate set in the market. Diagram for Demand Price of Labor :

The demand for labour of an individual firm in a competitive market is explained with the help of diagrams 8.7 and 8.8. In a competitive labour market, a firm employs 100 workers at a wage rate of \$10 each per hour and 250 workers at the wage rate of \$2 per hour as per diagram 8.7 . The demand curve of the industry for labour is downward sloping. In diagram 8.8 the demand curve of the industry for labour is derived from the total summation of the demand: curves of the individual firms. The total demand of all the firms in the market is 2000 workers at the wage rate of \$10 per hour.

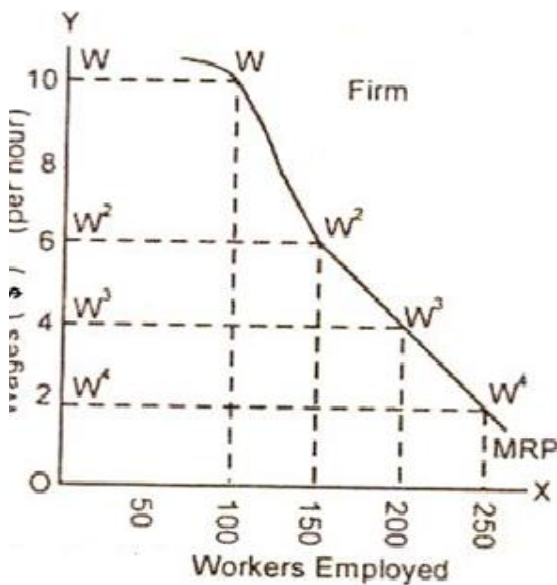


Diagram 8.7 Demand Curve of Firm Curve of Industry

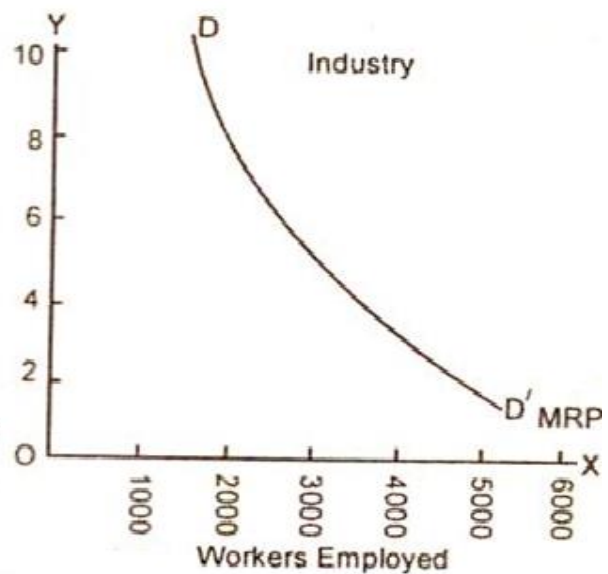


Diagram 8.8 Demand Curve of Industry

Supply of Labour: Supply of labor is the number of hours of work which the labour force offers in the factor market. The supply of labour for the entire economy is

influenced by various factors such as wage rate, size of population, age composition, availability of education and training, the length of training period, provision of opportunities for women to work, the social security programmes etc., etc. The supply of labor for the industry as a whole is less elastic in the short-run. The supply of labour here depends on the availability of workers in the locality and from the nearby areas and the willingness of the labour to work overtime. In the long-run, the supply of labour for the industry is more elastic. The labour can be attracted by offering higher wages, providing training facilities, making working conditions pleasant etc, So the supply of labour for the industry is of the normal shape rising upward from left to the right. The supply of labour can be explained with the help of diagram 8.9. This shows that supply curve of labor to an industry shows an upward slope. At OW wage rate, ON workers are ready to work. At OW_1 wage, the supply of labor increases to ON_1 .

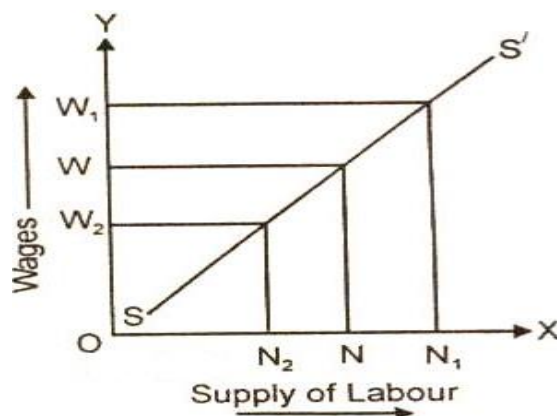


Diagram 8.9 Supply of Labour

Wage Determination as per theory: As regards the price or the wage of particular grade of labour, it is determined by the interaction of the forces of demand for and supply of labour in the competitive market. The determination of wage, rate is explained with the help of diagrams 8.10. It is found by summation of the demands of carpenters of all the firms. Similarly SS represents the supply curve of carpenters to the industry. The market demand

curve DD' intersects the market supply curve SS at point N . The equilibrium wage rate is NL or \$20 and the number of workers hired at the equilibrium wage rate (\$20) is 200 thousand.

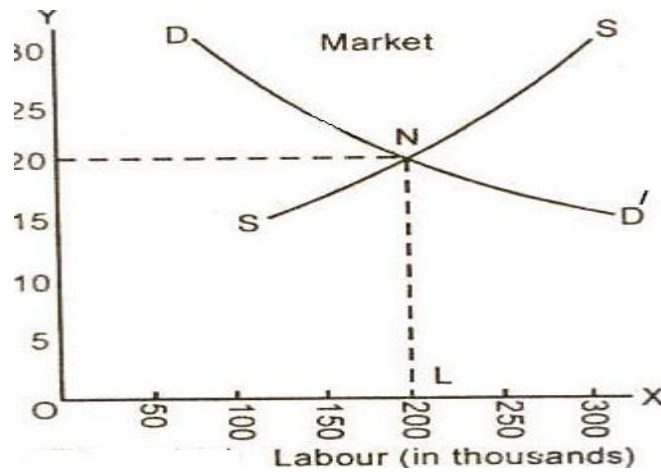


Diagram 8.10 Wage Determination

8.5 Check Your Progress

Answers the following questions:

1- An increase in the wage rate:

- a) Will usually lead to more people employed
- b) Will decrease total earnings of employees if the demand for labour is wage elastic
- c) Is illegal in a free market
- d) Will cause a shift in the demand for labour

2- The Marginal Revenue Product is likely to be wage inelastic if:

- a) Labour costs are a high percentage of total costs
- b) Demand for the final product is price inelastic
- c) It is relatively easy to substitute capital for labour
- d) There are many substitutes for the final product

3- With a downward sloping demand for labour and upward sloping supply of labour curve then a fall in demand for labour will lead to:

- a) A lower equilibrium wage and lower quantity of labour employed
- b) A lower equilibrium wage and higher quantity of labour employed
- c) A higher equilibrium wage and higher quantity of labour employed
- d) A higher equilibrium wage and lower quantity of labour market

4- A decrease in the supply of labour is likely to lead to:

- a) A lower equilibrium wage and lower quantity of labour employed
- b) A lower equilibrium wage and higher quantity of labour employed
- c) A higher equilibrium wage and higher quantity of labour employed
- d) A higher equilibrium wage and lower quantity of labour employed

5- A profit maximizing firm will employ labour up to the point where:

- a) Marginal revenue = marginal product
- b) Marginal cost = marginal product
- c) Marginal revenue product = average cost of labour
- d) Marginal revenue product = marginal cost of labour

8.6 Summary

Labour includes both physical and mental work undertaken for some monetary reward. In this way, workers working in factories, services of doctors, advocates, ministers, officers and teachers are all included in labour. Any physical or mental work which is not undertaken for getting income, but simply to attain pleasure or happiness, is not labour. For example, the work of a gardener in the garden is called labour, because he gets income for it. But if the same work is done by him in his home garden, it will not be called labour, as he is not paid for that work. So, if a mother brings up her children, a teacher teaches his son and a doctor treats his wife, these activities are not considered 'labour' in economics. It is so because these are not done to earn income. The demand for labour is a derived demand. It is derived

from demand for the commodities it helps to produce. The greater the consumers' demand for the product, the greater the producers' demand for the labour required in making it. Hence an expected increase in the demand for a commodity will increase the demand for the type of labour that produces this commodity. When demand for labour increases due to fall in wage rate then this is called expansion of demand. On the other hand, when demand falls due to increase in the wage rate then this is called contraction of demand. Demand for labour may undergoes a change not only due to changes in wage rate but also due to other factors such as demand of product, prices of other factors of production, technical progress etc. When demand changes due to change in factors other than wages then this is called increase and decrease of demand. This is also called shift in the demand curve. Higher wages usually will encourage a worker to supply more labour because work is more attractive compared to leisure. Therefore the supply curve for labour tends to be upwardly sloping. A worker isn't just interested in earning money; they are also interested in leisure. Therefore, there is a choice between working more (higher wage) and working less (more leisure). So the two factors that influence the supply of labour are **substitution effect of a rise in wages** and income effect of rise in wages. With higher wages, workers will give greater value to working than leisure. With work more profitable, there is a higher opportunity cost of not working. The substitution effect causes more hours to be worked as wages rise. Income effect occurs when an increase in wages causes workers to work fewer hours. This is because workers can get a higher income by working fewer hours. Therefore, they may work less. Therefore, after wage rise, workers may work less because they can get their target income with fewer hours spent working. As regards the price or the wage of particular grade of labour, it is determined by the interaction of the forces of demand for and supply of labour in the competitive market. There are different theories which have been explained in this chapter explaining the process of determination of wages.

8.7 Keywords

Labour includes both physical and mental work undertaken for some monetary reward. In this way, workers working in factories, services of doctors, advocates, ministers, officers and teachers are all included in labour.

Labour Demand is a derived demand. It is derived from demand for the commodities it helps to produce. The greater the consumers' demand for the product, the greater the producers' demand for the labour required in making it.

Labour Supply mean the various numbers of workers of a given type of labour which would offer themselves for employment at various wage rates

Marginal Revenue Productivity is the net addition made to total revenue due to the employment of one additional unit of labour.

8.8 Self -Assessment Test

Q1. Discuss the concept of Labour. Describe its different characteristics.

Q2, What is demand of Labour? Explain different factors of determination of demand of labour.

Q3. Elaborate in detail supply of labour and supply curve of labour.

Q4. Discuss the process of determination of wages.

Q5. Critically evaluate the different theories of determination of wages

8.9 Answers to Check Your Process

1- B

2- B

3- A

4- D

5- D

8.10 References/Suggested Readings

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Lesson -9

Cost Concepts

Structure

- 9.1 Learning Objectives
- 9.2 Introduction to Concepts of Cost
 - 9.2.1 Opportunity Cost
 - 9.2.2 Accounting Cost
 - 9.2.3 Explicit and Implicit Costs
 - 9.2.4 Social Costs and Private Cost of Production
 - 9.2.5 Marginal, Incremental and Sink Costs
 - 9.2.6 The Behaviour of Cost Function
 - 9.2.6.1 Firm's Short-Run Cost Curves
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- 9.3 Economies and Diseconomies of Scale
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- 9.6 Summary
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9.1 Learning Objectives:

After reading this chapter you will be able to understand the concept of cost and its different types. This chapter also provides you knowledge regarding behaviour of cost in short run and long run. Further, economies and diseconomies of scale are also described to you in this chapter and break even analysis is discussed in the last section of this chapter.

9.2 Introduction to Concept of Cost

The term cost has different meanings, so it becomes pertinent to define the term precisely. In the traditional approach, the explicit and historical dimension of cost is considered, whereas contrast the economic approach to cost emphasizes opportunity cost rather than historical cost and includes both explicit and implicit costs.

9.2.1 Opportunity Cost

It is major component of decision making in economic. The best measure of cost of a consumer product or a factor of production is what must be given up to obtain that product for factor. For example the resources needed to build 10 houses can also be used to build one office building, and then opportunity cost of the decision to build office building is equal to the 10 houses that have to be forgone. With fixed quantity of resources available to the organization, input used in the production of one good cannot be used in the production of other goods. In general, opportunity cost is the value of a resource in its next best alternate use. Opportunity cost represents the return or compensation that must forgo as a result of the decision to employ the resources in a given activity.

9.2.2 Accounting Cost

Accounts have been primarily concerned with measuring cost for financial reporting purposes. So an accountant considers only the explicit costs as costs those which involve cash payment by the entrepreneur of the firm. Accountants define and measure the cost by the historical outlays of funds that take place in the exchange or transformation of a resource.

In case of economists, they are mainly concerned with measuring costs for decision making purposes. The objectives are to determine the present and future costs of resources associated with various alternative courses of action. Such an objective requires a consideration of the opportunities forgone whenever a resource is used in a given course of action. An economist would include, in addition to accounting costs, all other implicit costs as well that are typically not reflected in the cost figures appearing in the financial reports of the firm. Both the accounting cost and economic cost of a product will include such explicit cost as labour, raw material, rent etc. Economists also include several implicit costs. The implicit cost consists of the opportunity costs of time and capital that the owner manager has invested in producing the given quantity of output.

9.2.3 Explicit and Implicit Costs

Explicit costs are those which fall under actual or business costs entered in the books of accounts. The payments for wages and salaries, materials, license fee, insurance etc. are the examples of explicit costs. These costs involve cash payments and are recorded in normal accounting practices. In contrast, there are certain other costs which do not take the form of cash outlays, nor do they appear in the accounting systems. Such costs are known as implicit or imputed costs. An Opportunity cost is an important example of implicit cost. For example, suppose an entrepreneur does not utilize his services in his own business and works as a manager in some other firm on a salary business. If he sets up his own business, he forgoes his salary as a manager. The loss of salary is the opportunity costs of doing his own business. This is an implicit cost of his own business. Thus implicit wages, rent, and implicit interest are the wages of rents and interest which the owners, labour, building and capital respectively can earn from these second best use.

9.2.4 Social Costs and Private Cost of Production

The social cost of using a bundle of resources for the production of a unit of commodity X is the number of units of commodity Y that must be sacrificed in the process. The social cost of producing gun is the amount of butter forgone. It is also called the alternative or opportunity cost of production. Private costs of production refer to individual firms and include explicit costs as well as monetary estimates of implicit costs. Implicit costs consist of the amounts of income the entrepreneur could earn in the best alternative use of his time and money.

9.2.5 Marginal, Incremental and Sink Costs

Sink costs are the expenditure that have been made in the past or that must be paid in future as part of a contractual agreement. The cost of inventory and future rental payments on a warehouse that must be paid as part of a long-term lease are examples. In general such costs are irrelevant in making decision.

Marginal costs refer to the change in total cost associated with a unit of change in output. This concept is integral to short run decision about profit maximizing rates of output. For example, in an automobile manufacturing plant the marginal cost of making one additional car per production period would be labour, materials and every cost directly associated with that extra car. In contrast, the long run incremental cost refers to the total additional cost of implementing a managerial decision. The cost associated with adding a new product line, acquiring a major competitor to fall into the broader class of incremental costs. In a sense, marginal cost so that subcategory of incremental cost that refers to the additional cost associated with the decision to make marginal variation in the rate of output.

The cost function belongs to both in the short run and the long run. The short-run costs are those costs of production at which the firm operate in one given period when one or more factors of production are fixed in quantity. Therefore, the firm has some fixed costs and some variable costs. On the other hand, 'the long-run costs are

planning costs or ex ante costs, in that they present the optimal possibilities for expansion of the output and thus help the entrepreneur to plan his future activities. In the long run, there are no fixed factors of production and hence no fixed costs. In the long run, all factors being variable, all costs are also variable. Therefore, the firm plans for the future, given its fixed capital equipment. But it operates on the short-run cost curves relating to each plant.

9.2.6 The Behaviour of Cost Function

The traditional theory of costs analyses the behaviour of cost curves in the short run and the long run and arrives at the conclusion that both the short run and the long run cost curves are U-shaped but the long-run cost curves are flatter than the short-run cost curves.

9.2.6.1 Firm's Short-Run Cost Curves

The short run is a period in which the firm cannot change its plant, equipment and the scale of organisation. To meet the increased demand, it can raise output by hiring more labour and raw materials or asking the existing labour force to work overtime. The scale of organisation being fixed, the short-run total costs are divided into total fixed costs and total variable costs:

$$TC = TFC + TVC$$

Total costs or TC: Total costs are the total expenses incurred by a firm in producing a given quantity or a commodity. They include payments for rent, interest, wages, taxes and expenses on raw materials, electricity, water, advertising, etc.

Total fixed costs or TFC is those costs of production that do not change with output. They are independent of the level of output. In fact, they have to be incurred even when the firm stops production temporarily. They include payments for renting land and buildings, interest on borrowed money, insurance charges, property tax, depreciation, maintenance expenditures, wages and salaries of the permanent staff, etc. They are also called overhead costs.

Total variable costs or TVC is those costs of production that change directly with output. They rise when output increases, and fall when output declines. They include expenses on raw materials, power, water, taxes, hiring of labour, advertising etc. They are also known as direct costs.

The curves relating to these three total costs are shown diagrammatically in Figure-1 the TC curve is a continuous curve which shows that with increasing output total costs also increases. This curve cuts the vertical axis at a point above the origin and rises continuously from left to right. This is because even when no output is produced, the firm has to incur fixed costs. The TFC curve is shown as parallel to the output axis because total fixed costs are the same whatever the level of output.

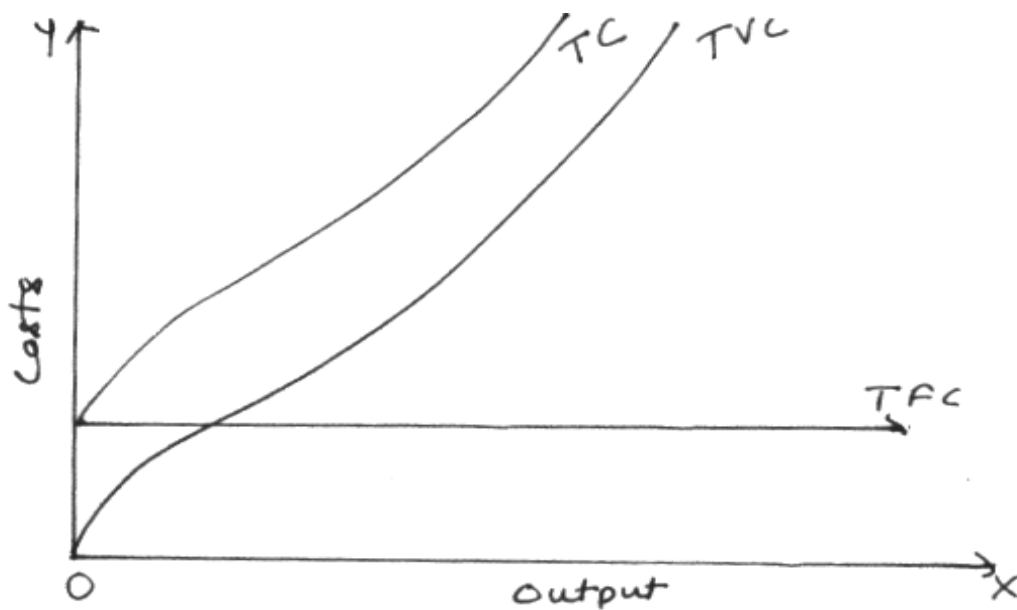


Fig.-(i)

The TVC curve has an inverted-S shape and starts from the origin O because when output is zero, the TVC are also zero. They increase as output increases. So long as the firm is using less variable factors in proportion to the fixed factors, the total variable costs rise at a diminishing rate. But after a point, with the use of more

variable factors in proportion to the fixed factors, they rise steeply because of the application of the law of variable proportions. Since the TFC curve is a horizontal straight line, the TC curve follows the TVC curve at an equal vertical distance.

Short-run average costs: In the short run analysis of the firm, average costs are more important than total costs. The units of output that a firm produces do not cost the same amount to the firm. But they must be sold at the same price. Therefore, the firm must know the per unit cost or the average cost. The short-run average costs of a firm are the average fixed costs, the average variable costs, and the average total costs.

Average fixed costs or AFC equal total fixed costs at each level of output divided by the number of units produced:

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

The average fixed costs diminish continuously as output increases. This is natural because when a constant figure, total fixed costs, are divided by a continuously increasing unit of output; the result is continuously diminishing average fixed costs. Thus the AFC curve is a downward sloping curve which approaches the quantity axis without touching it, as shown in Fig.-(ii). It is a rectangular hyperbola.

Short-run average variable costs (or SAVC) equal total variable costs at each level of output divided by the number of units produced:

$$SAVC = \frac{TVC}{Q}$$

The average variable costs first decline with the rise in output as larger quantities of variable factors is applied to fixed plant and equipment. But eventually they begin to rise due to the law of diminishing returns. Thus the SAVC curve is U-shaped, as shown in Fig.-(ii).

Short-run average total costs (or SATC or SAC) are the average costs of producing any given output. They are arrived at by dividing the total costs at each level of output by the number of units produced:

$$\text{SAC or SATC} = \frac{\text{TC}}{Q} = \frac{\text{TFC}}{Q} + \frac{\text{TVC}}{Q} = \text{AFC} + \text{AVC}$$

Average total costs reflect the influence of both the average fixed costs and average variable costs. At first average total costs are high at low levels of output because both average fixed costs and average variable costs are large. But as output increases, the average total costs fall sharply because of the steady decline of both average fixed costs and average variable costs till they reach the minimum point. This results from the internal economies, from better utilisation of existing plant, labour, etc. the minimum point E in the figure represents optimal capacity. As production is increased after this point, the average total costs rise quickly because the fall in average fixed costs is negligible in relation to the rising average variable costs. The rising portion of the SAC curve results from producing above capacity and the appearance of internal diseconomies of management, labour, etc. Thus the SAC curve is U-shaped, as shown in Figure-(ii).

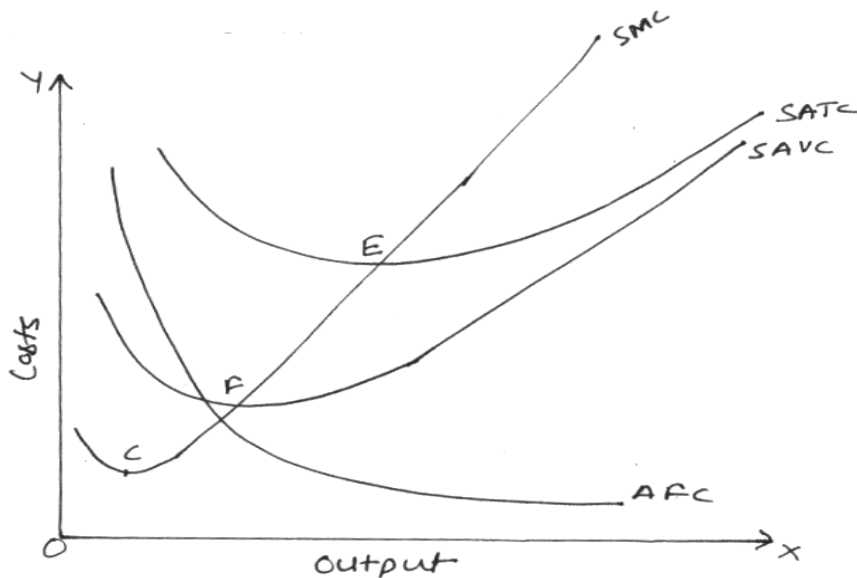


Fig.-(ii)

The U-shape of the SAC curve can also be explained in terms of the law of variable proportions. This law tells that when the quantity of one variable factor is changed while keeping the quantities of other factors fixed, the total output increases but after some time it starts declining. Machines, equipment and scale of production are the fixed factors of a firm that do not change in the short run. On the other hand, factors like labour and raw materials are variable. When increasing quantities of variable factors are applied on the fixed factors the law of variable proportions operates. When, say the quantities of a variable factor like labour are increased in equal quantities, production rises till fixed factors like machines, equipment, etc. are used to their maximum capacity. In this stage, the average costs of the firm continue to fall as output increases because it operates under increasing returns. Due to the operation of the law of increasing returns when the variable factors are increased further, the firm is able to work the machines to their optimum capacity. It produces the optimum output and its average costs of production will be the minimum which is revealed by the minimum point of the SAC curve, point E. If the firm tries to raise output after this point by increasing the quantities of the variable factors, the fixed factors like machines would be worked beyond their capacity. This would lead to diminishing returns. The average costs will start rising rapidly. Hence due to the working of the law of variable proportions the short-run AC curve is U-shaped.

Marginal cost- A fundamental concept for the determination of the exact level of output of a firm is the marginal cost. Marginal cost is the addition to total cost by producing an additional unit of output:

$$MC = \frac{DTC}{DQ}$$

Algebraically, it is the total cost of n+1 units minus the total cost of n unit of output $MC_n = TC_{n+1} - TC_n$. Since total fixed costs do not change with output, therefore, marginal fixed cost is zero. So marginal cost can be calculated either from total variable costs or total costs. The result would be the same in both the cases. As total

variable costs or total costs first fall and then rise, marginal cost also behaves in the same way. The SMC curve is also U-shaped, as shown in Figure-2.

Relationship of Short-run Cost Curves

The relationships of short-run curves are explained in terms of Figure -2.

(i) The AFC curve declines continuously and is asymptotic to both axes. It means that the AFC curve approaches both axes but never touches either X-axis or Y-axis. Thus the AFC curve is a rectangular hyperbola.

(ii) The SAVC curve first declines, reaches a minimum at point F, and rises thereafter. When the SAVC curve reaches its minimum point F, the SMC curve equals the SAVC curve.

(iii) The SAC curve first declines, reaches a minimum at point E, and rises thereafter, when the SAC curve reaches its minimum point E, the SMC curve equals the SAC curve. Since $SAC = AFC + AVC$, the vertical distance between the SAC and the SAVC curves gives the AFC curve. So there is no need to draw a separate AFC curve. As output expands, the vertical distance between the SAC curve and the SAVC curve declines because of the falling AFC curve.

(iv) Relation between AC and MC curves: There is a direct relationship between AC and MC curves as shown in the Figure-3. Both the AC curve and the MC curve are U-shaped. When AC falls, MC is less than AC. This is because the fall in MC is related to one unit of output while in the case of AC the same decline is spread over all units of output. That is why the fall in AC is less and that in MC is more. This also explains the fact that MC reaches its minimum point F before the minimum point A of AC is reached. So when MC starts rising, AC is still declining, as shown in Figure-(iii).

When AC is minimum, MC equals AC. The MC curve cuts the AC curve from below at its minimum point A in the figure.

When AC rises, MC is greater than AC. MC is above AC when AC is rising but the rise in MC is greater than AC. This is because the rise in MC is the result of the

increase in one unit of output while in the case of AC the same increases are spread over all units of output.

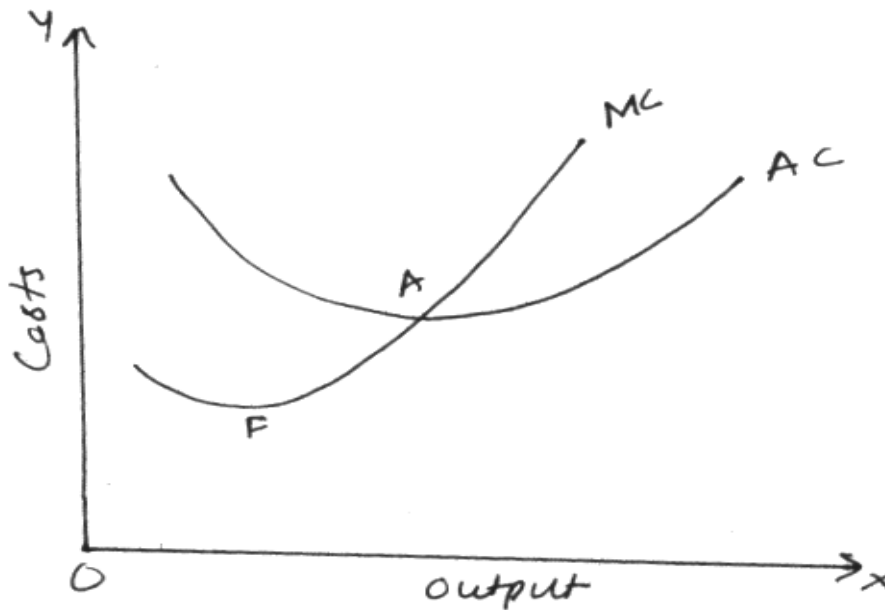


Fig.-(iii)

It should be noted that we cannot say anything about the direction of MC, when AC rises or falls. When AC is falling, it is not essential that MC must fall. MC can increase or fall but it is definite that MC will be less than AC. Similarly, when AC is increasing, it is not essential that MC must rise. MC can fall or rise but it is definite that MC will be larger than AC. But if AC is constant, MC must be constant.

Relation between SMC and AVC curves

The SMC curve bears a close relationship to the SAVC curve along with the SAC curve. So long as the SMC curve lies below the SAVC and SAC curves, it continues to fall and its rate of fall is greater than that of SAC and AVC curves. But the AVC and SAC curves start rising from the points E₁ and E₂ respectively where the SMC curve touches them, as shown in Figure –(iv). The SMC curve passes through the minimum point of the SAVC curve to the left of the minimum point of the SAC curve.

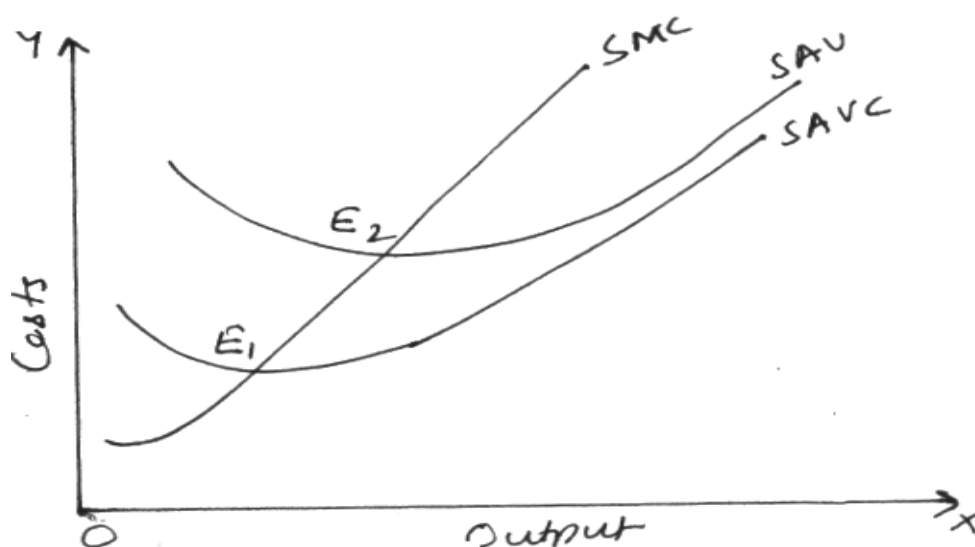


Fig.-(iv)

Since AC is the sum total of ACV + AFC, therefore when SAVC is at its minimum point, AFC is falling and it takes time for SAC to reach its minimum point. E_1 and E_2 are thus the respective minimum points of the SAVC and SAC curves. After these points the SMC curve rises sharply and is above the SAVC and SAC curves.

9.2.6.2 Firm's Long Run Cost Curves

In the long run, there are no fixed factors of production and hence no fixed costs. The firm can change its size or scale of plant and employ more or less inputs. Thus in the long run all factors are variable and hence all costs are variable.

The long run average total cost or LAC curve of the firm shows the minimum average cost of producing various levels of output from all possible short-run average cost curves (SAC). Thus the LAC curve is derived from the SAC curves. The LAC curve can be viewed as a series of alternative short-run situations into any one of which the firm can move. Each SAC curve represents a plant of a particular size which is suitable for a particular range of output. The firm will, therefore, make use of the various plants up to that level where the short-run average costs fall with

increase in output. It will not produce beyond the minimum short-run average cost of producing various outputs from all the plants used together.

Let there be three plants represented by their short-run average cost curves SAC_1 , SAC_2 and SAC_3 in Figure-(v).

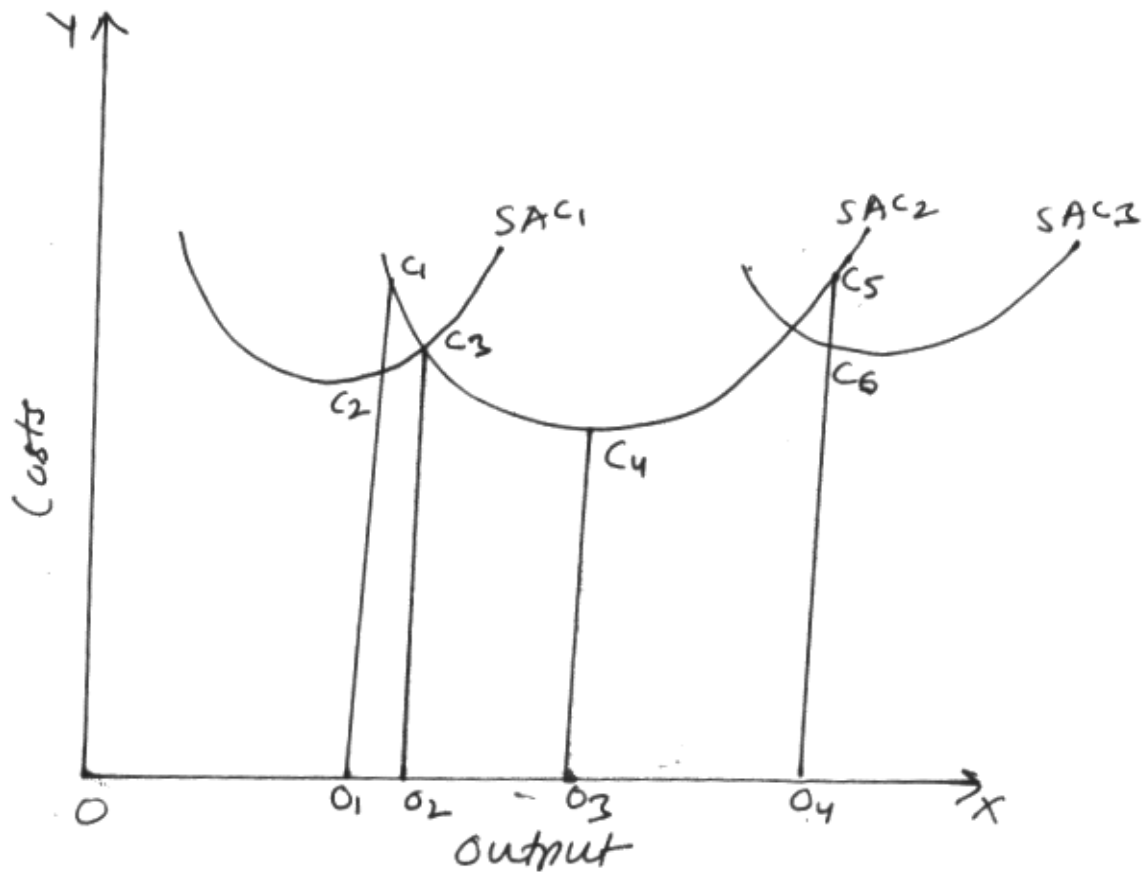


Fig - v

Each curve represents the scale of the firm. SAC_1 depicts a lower scale while the movement from SAC_2 to SAC_3 shows the firm to be of a larger size. Given this scale of the firm, it will produce up to the least cost per unit of output. For producing OO_1 output, the firm can use SAC_1 or SAC_2 plant. The firm will, however, use the scale of plant represented by SAC_1 since the average cost of producing OO_1 output is O_1C_2 which is less than O_1C_1 , the cost of producing this output on the SAC_2 plant. If

the firm is to produce OO_2 output, it can produce at either of the two plants. But it would be advantageous for the firm to use the plant SAC_2 for the OO_2 level of output because the larger output OO_3 can be obtained at the lowest average cost O_3C_4 from this plant. However, for output OO_4 , the firm would use the SAC_3 plant where the average cost O_4C_5 is lower than O_4C_6 of the SAC_2 plant. Thus in the long-run in order to produce any level of output the firm will use that plant which has the minimum unit cost.

If the firm expands its scale by the three stages represented by SAC_1 , SAC_2 and SAC_3 curves, the thick wave-like portions of these curves form the long-run average cost curve. The dotted portions of these SAC curves are of no consideration during the long run because the firm would change the scale of plant rather than operate on them.

But the long-run average cost curve LAC is usually shown as a smooth curve fitted to the SAC curves so that it is tangent to each of them at some point, as shown in Figure-6 where SAC_1 , SAC_2 , SAC_3 , SAC_4 and SAC_5 are the short-run cost curves. It is tangent to all the SAC curves but only to one at its minimum point. The LAC is tangent to the lowest point E of the curve SAC_4 in Figure-(vi) at OO_1 optimum output, the plant SAC_3 which produces this OQ optimum output at the minimum cost EO_1 is the optimum plant, and the firm producing this optimum output at the minimum cost with this optimum plant is the optimum firm. If the firm produces less than the optimum output OO_1 , it is not working its plant to full capacity and if it produces beyond OO_1 , it is overworking its plants. In both the cases, the plants SAC_2 and SAC_4 have higher average costs of production than the plant SAC_3 .

The LAC curve is known as an 'envelope' curve because it envelopes all the SAC curves. Every point on an envelope long-run cost curve is also a point on one of the short-run cost curves which it envelopes. Some economists consider it as a planning curve because it is composed of plant curves and the firm plans to expand its scale of production over the long run.

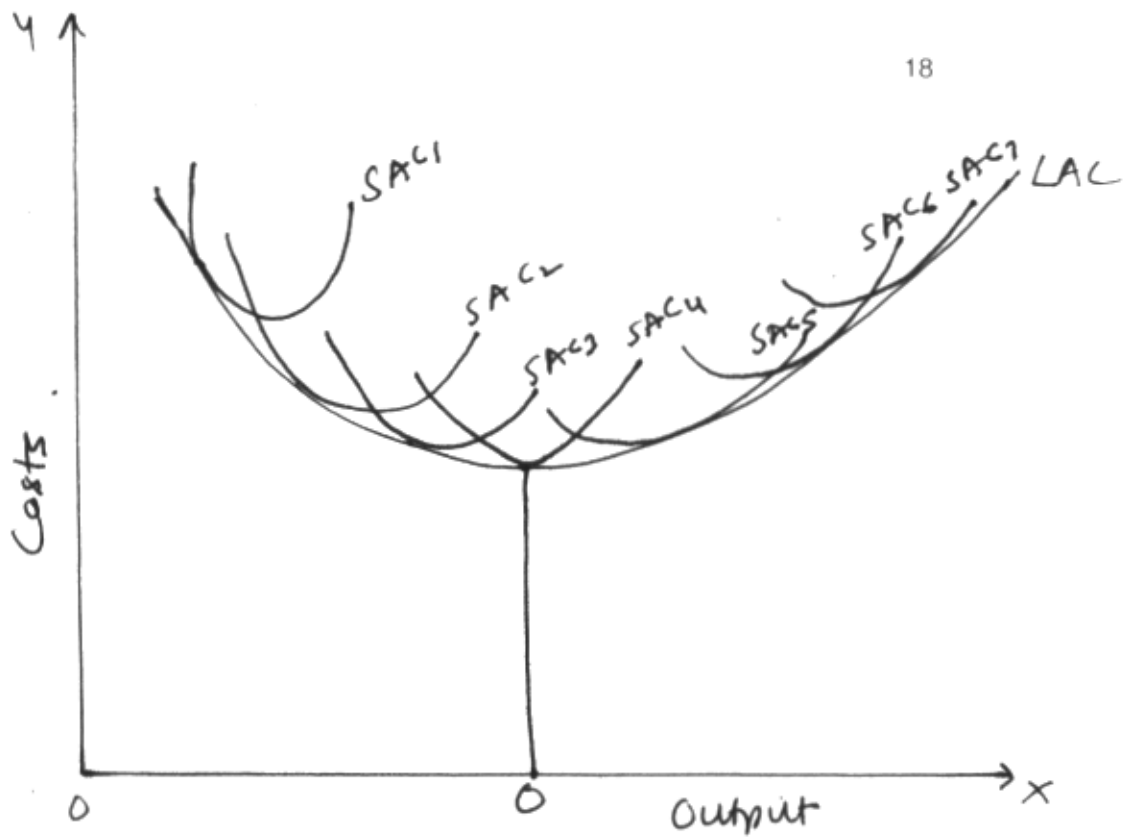


Fig.-(vi)

The long-run marginal cost (LMC) curve of the firm is derived from the SAC curves, as illustrated in Figure-(vii) where the SAC_1 , SAC_2 and SAC_3 curves are enveloped by the LAC curve at points C_2 , C_3 and C_4 respectively. Draw perpendiculars C_2O_1 , C_3O_2 and C_4O_3 from these Respective points on the X-axis. When the points C_1 , C_3 and C_5 where the curves SMC_1 , SMC_2 and SMC_3 cut these vertical lines, are joined, they trace out the LMC curve. The LMC curve intersects the curves SAC_2 and LAC at the minimum point C_3 so that $LMC=LAC= SAC_2 = SMC_2$. Thus there exists the usual relation between marginal and average cost curves. To the left of point C_3 , $LAC > LMC$ and to its right $LMC > LAC$.

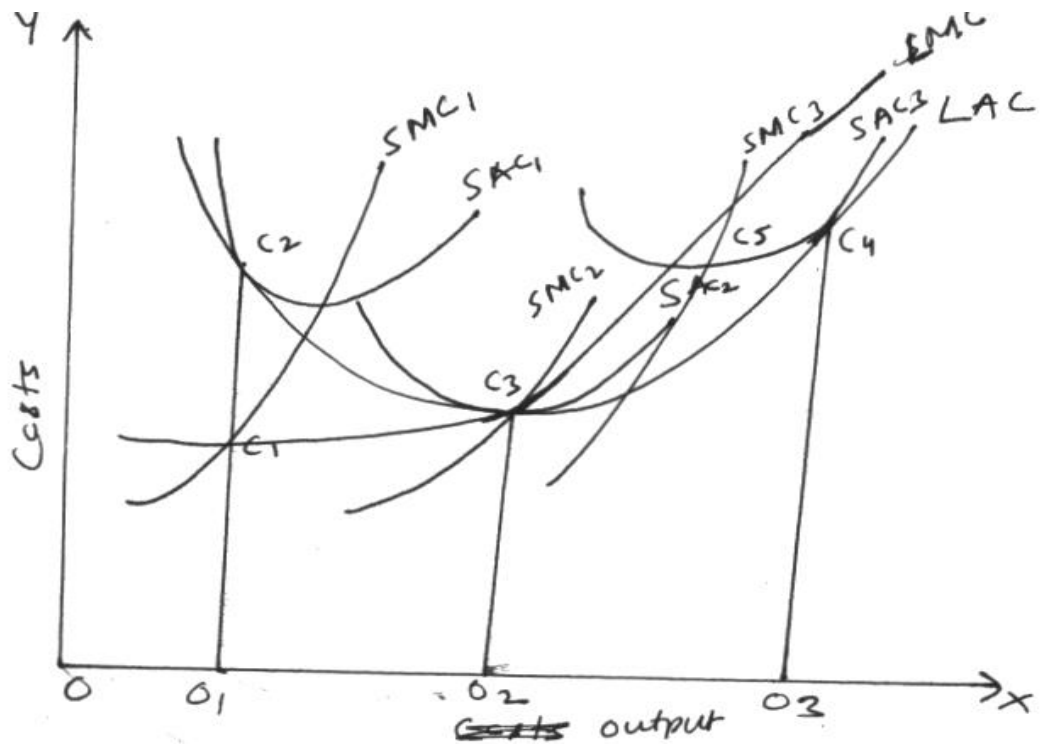


Fig VII

9.3 Economies and Diseconomies of Scale:

The long run average cost function of economic theory is hypothesized to be U-shaped- Long run average costs decline over lower range of output and rise over higher ranges of output.

Economies of scale: Declining long run average cost over the lower part of the range of possible output is usually attributed to economies of scale. The sources of economies of scale can be classified into two categories- one is real economies and second is pecuniary economies of scale. Pecuniary economies are realised from paying lower prices for the factors used in the production and distribution of the product, due to bulk buying by the firm as its size increases. Such economies of scale do not imply reduction in the inputs used in production process. Real economies are those associated with a reduction in physical quantity of inputs, raw

materials, various types of labour and various types of capital. These economies of scale can be explained as under:

9.3.1 Real Economies of Scale:

These economies of scale can be attributed to the following factors:

1. Production Economies of Scale: Production economies may arise from product specific economies and plant specific economies.

Product Specific Economies: A number of different sources of scale economies are associated with producing large volume of a single product. Expansion of output may lead to greater specialisation in the use of labour and capital. Large scale allows division of labour and specialisation of labour force with the result of an improvement of the skills and hence productivity of the various types of labour. As the scale of production is increased, the production process can be broken into a series of small tasks and the workers can be assigned to the tasks for which they are most qualified workers are then able to acquire additional proficiency through repetition of the tasks to which they are assigned. It is also observed a learning curve effect in producing multiple units of a product that is the amount of inputs such as labour and associated costs required to produce each unit of output decrease for successive increases in the cumulative output of the enterprise. Similarly the higher scale of production may lead to technical economies which are result of (i) specialisation and indivisibilities of capital (ii) set up costs (iii) initial fixed costs (iv) reserve capacity requirements. Modern technology generally involves a higher degree of mechanisation for large scales output. That is the production methods become more mechanised as scale increases. Mechanisation often implies more specialised capital equipment as well as more investment. Such method may lead to higher overhead costs but there methods have lower variable costs which may affect the overhead cost at higher output level.

Firm's Specific Economies: These economies are related to the overall size of the firm. The major sources of these economies arise from sales and distribution, raising funds and; transport and storage.

Economies in Marketing: Economies in marketing arise from large scale from the large scale purchase of inputs and large scale selling of the firm's own products. As to get the economies in purchase of inputs the large size firms normally make bulk purchases of their inputs. The large scale purchase entices the firm for certain discounts which are not available on small purchases. Large scale of firm may also lead to economies in marketing and sales promotion. These scale economies can take such forms as quantity discounts in securing advertising media space and time and ability of the large firm to spread the fixed costs of advertising preparation over a greater output volumes. In addition, the large firm may be able to achieve a relatively greater degree of brand recognition and brand loyalty from its higher level of sales promotion expenditure over an extended period of time. Purchasing financial funds for larger firm is also easy, because securities of larger firm are generally less risky than those of smaller firm. Most investors are averse to risk, so they are often willing to pay a higher price for less risky securities of larger firm.

Managerial Economies: Managerial economies are attributed to (i) specialisation in management and (ii) mechanisation of managerial functions. For a large size firm, it becomes possible to divide its management into specialized departments under specialised personnel such as production manager, sales manager, and finance manager. Such a framework in modern organisation lead to quick decision making, help in saving valuable time of management and thereby the management efficiency.

Economies of Transport and Storage: The large size firms may acquire their own mean of transport and they can thereby reduce the unit cost of transportation compared to market rate and also prevents delay in transporting goods. Similarly large scale firm can generate their own god owns in the various centre of product distribution and can save cost of storage.

9.3.2 Diseconomies of Scale:

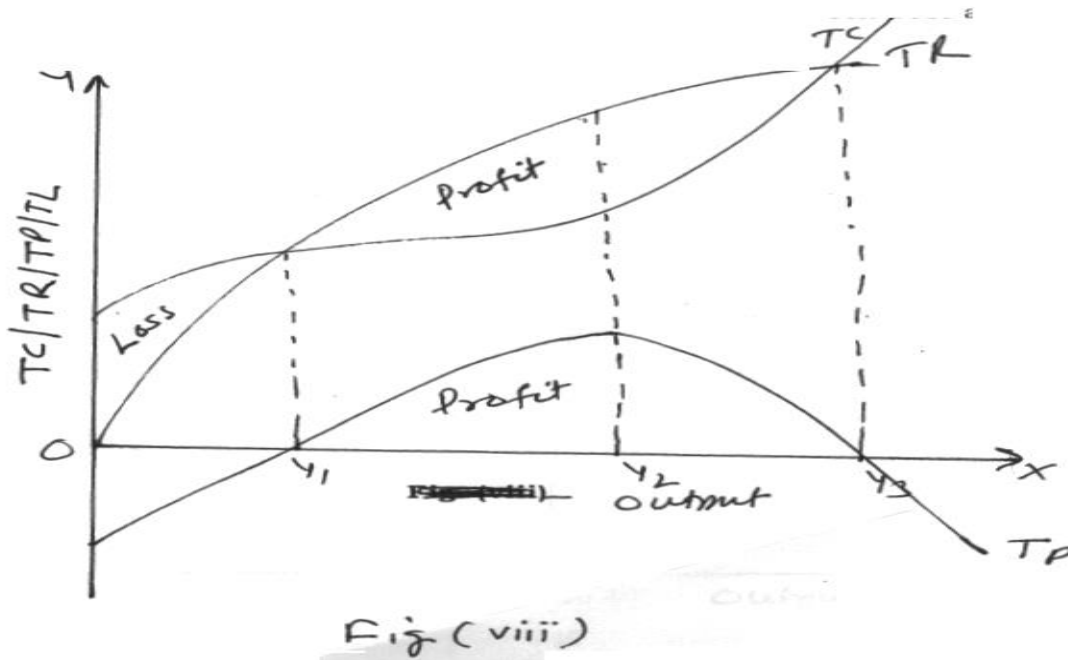
Rising long run average costs at higher level of output are usually attributed to diseconomies of scale. These diseconomies are disadvantage that arise due to the higher scale of production and lead to rise in cost of production. These economies may be classified into two categories- (i) Internal diseconomies (ii) External diseconomies.

These diseconomies are exclusive and internal to a firm. When a firm becomes very large a limit of economies of scale may reached. This limit is reached when the advantage of division of labour and managerial staff have been fully exploited, excess capacity of plant, storage, transport and communication system is fully used. These diseconomies may also appear in the form of problems of co-ordination and control encountered by management as the scale of operation is increased. These coordination and control problems may impose rising cost on the firm in a number of different ways. These costs may be associated with the increase in costs of salary and perks, and losses arising from delayed or faulty decision and weakened or distorted management incentives.

9.4 Break-even Analysis:

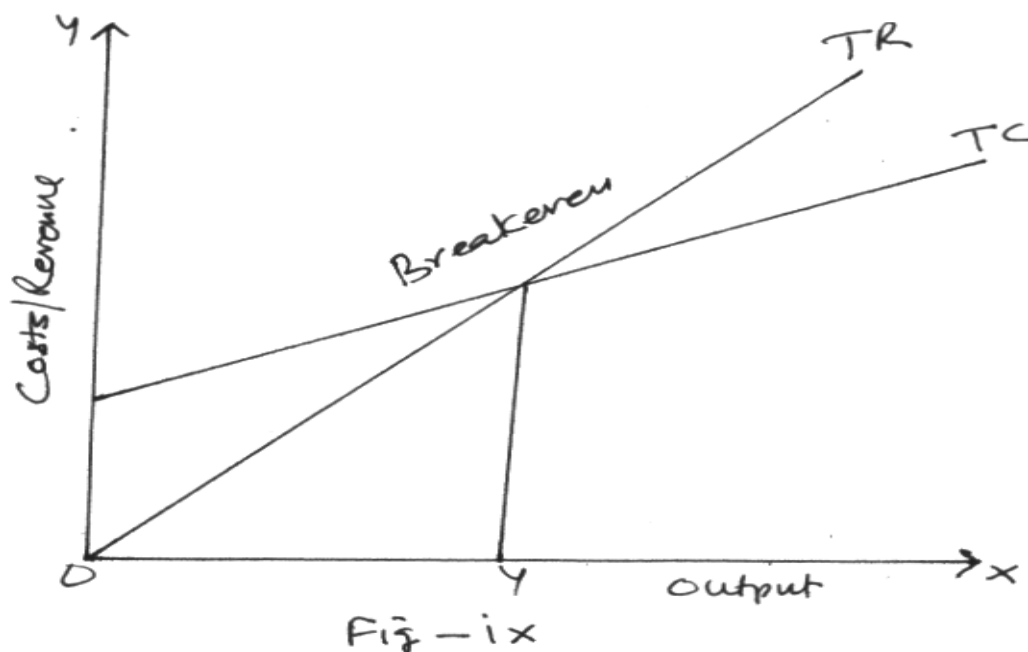
Many of the planning activities that take place within a firm are based on anticipated level of output. The study of the interrelationship among firm's sales, costs and operating profits at various level of output levels is known as cost-volume profit analysis or break even analysis. This analysis is often used by business executive to determine the sales volume required to break even and total profits and losses at different output levels. For illustrating the breakeven analysis. It is assumed that the cost and revenue curves are non-linear as shown in Fig-(viii) Total revenue is equal to the number of units of output sold multiplied by the price per unit. The concave form of revenue curve implies that the firm can sell additional units of output only

by lowering the price. The total cost curve is based on traditional approach of relationship between cost and output in short run;



The difference between total revenue and total cost at any level of output represents the total profit or loss that will be realised. The total profit (TP) at any level of output is given by vertical distance between the total revenue (TR) and total cost (TC) curves. A breakeven situation (zero profit) occurs whenever total revenue equals total cost. In Fig. not that a breakeven condition occurs at two different output level- Y_1 and Y_3 . Below an output level Y_1 losses will incurred because $TR < TC$. Between Y_1 and Y_3 profits will be obtained because $TR > TC$. An output level above Y_3 , losses will occur again because $TR < TC$. Total profit are maximized within the range of Y_1 to Y_3 , where the vertical distance between the TR and TC curves is greatest, that is at an output level of Y_2 .

For practical decision making the non-linear revenue output and cost output relationship of economic theory are generally replaced by linear functions. The breakeven analysis based on linear function is shown in Fig-(ix)



Here TR is a straight line assuming that firms charge a constant selling price P per unit of output. In case of cost curve, total cost is taken as sum of fixed cost which are independent of the output level plus the variable costs which increases at a constant rate per unit of output. In this case the breakeven analysis occurs at point Y_b in Fig-(ix) where TR and TC intersect. If a firm's output level is below this breakeven point that is if $TR < TC$, it incurs operating losses. If firm's output level is above this breakeven point that is if $TR > TC$ it realises operating profits. Algebraically it can be defined as:

Total revenue is equal to the selling price per unit times the output level.

$$TR = P \times Y$$

Total cost is equal to fixed cost plus variable cost, where the variable cost is the product of the variable cost per unit times the output level.

$$TC = TFC + AVC \times QY$$

Now break-even output level is that level where profit is zero.

$$TR = TC.$$

$$P \times Y = TFC + AVC \times Y$$

$$P \times Y - AVC \times Y = TFC$$

$$Y (P - AVC) = TFC$$

$$Y = \frac{TFC}{P - AVC}$$

9.5 Check Your Progress

After reading this chapter, you have to answer the following True/False so that you can check your progress.

- 1- With increase in level of output, AFC goes on falling till reaches zero.
- 2- AVC falls even when MC is rising.
- 3- The difference between TC and TVC falls with increase in output.
- 4- As output is increased, the difference between ATC and AVC falls and ultimately becomes zero.
- 5- The difference between ATC and AVC is constant.

9.6 Summary

The information of production costs provides an important input for decision making at management level in a firm. Decisions such as resource allocation, expansion, and diversification are made through cost analysis. For the profit maximizing firm, decision on capital investment in the form of new machinery or a warehouse are made by comparing the rate of return on investment with the opportunity cost of funds used to make the capital acquisitions. Further, the traditional theory of costs analyses the behaviour of cost curves in the short run and the long run and arrives at the conclusion that both the short run and the long run cost curves are U-shaped but the long-run cost curves are flatter than the short-run cost curves. At the end, many of the planning activities that take place within a firm are based on anticipated level of output. The study of the interrelationship among firm's sales, costs and operating profits at various levels of output levels is known as cost-volume profit analysis or break even analysis. This analysis is often used by

business executive to determine the sales volume required to break even and total profits and losses at different output levels.

9.7 Keywords

Opportunity cost is the value of a resource in its next best alternate use. Opportunity cost represents the return or compensation that must be forgone as a result of the decision to employ the resources in a given activity.

Accounting cost: accountants define and measure the cost by the historical outlays of funds that take place in the exchange or transformation of a resource.

Explicit costs are those which fall under actual or business costs entered in the books of accounts. The payments for wages and salaries, materials, license fee, insurance etc. are the examples of explicit costs.

Implicit Cost: there are not certain other costs which don't take the form of cash outlays, nor do they appear in the accounting systems. Such costs are known as implicit or imputed costs.

Sink costs are the expenditure that have been made in the past or that must be paid in future as part of a contractual agreement.

Marginal costs refer to the change in total cost associated with a unit of change in output.

In the long run, there are no fixed factors of production and hence no fixed costs. The firm can change its size or scale of plant and employ more or less inputs. Thus in the long run all factors are variable and hence all costs are variable.

Economies of scale: declining long run average cost over the lower part of the range of possible output is usually attributed to economies of scale.

Diseconomies of Scale: Rising long run average costs at higher level of output are usually attributed to diseconomies of scale.

9.8 Self- Assessment Test

1. Discuss the nature of the short-run and long-run average cost curves. Why is the long-run cost curve flatter than the short-run cost curve?
2. Explain and illustrate the traditional cost curves of a firm in the short run and the long run.
3. How do economies and diseconomies of scale affect the LAC curve?
4. Derive geometrically long-run average and marginal cost curves from a long-run total cost curve.
5. What is opportunity cost? Give some examples of opportunity cost. How are these costs relevant for managerial decisions?

9.9 Answers to Check Your Progress

- 1- FALSE
- 2- TRUE
- 3- FALSE
- 4- FALSE
- 5- FALSE

9.10 References/ Suggested Readings

- | | |
|----------------------|---|
| Duan, Joel | : Managerial Economics |
| Koutsayiannis, A. | : Modern Micro Economics, Macmillan |
| Mote, Paul and Gupta | : Managerial Economics: Concept and Cases, Tata McGraw Hill |
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Lesson -10 Price Determination: Perfect Competition and Monopoly

Structure

- 10.1 Learning Objective
- 10.2 Introduction
- 10.3 Market and its type
 - 10.3.1 Perfect Competitive Market
 - 10.3.1.1 Price Determination in the Perfect Competitive Market
 - 10.3.1.2 Effect of Change in Demand on the Price
 - 10.3.1.3 Effect of the Change of the Supply on the Price
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 - 10.3.2.3 Equilibrium of the Industry
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10.1 Learning Objective

After reading this chapter you will be able to understand the market and its structure. Then, you will be provided knowledge regarding types of market and price determination in different types of market. Further, equilibrium in short run and long run is also described. One important topic i.e. price discrimination is also discussed at the end of this chapter.

10.2 INTRODUCTION TO MARKET

Markets are focal point for economic activity as it plays important role in pricing and allocating resources in a competitive economy. A market is a group of economic agents (individuals/or firms) that interact with each other in a buyer-seller relationship. This interaction results in transactions between the demand (buyer) side of the market and the supply side of the market. The determination of output and the price of a commodity in a market depend upon the number of buyers, sellers and the characteristics of the product which are also the determinants of market structure.

10.3 Market and Types of Market:

The determination of output and the price of a commodity in a market depend upon the number of buyers, sellers and the characteristics of the product which are also the determinants of market structure. On the basis of the characteristics of market structure the market can be classified as given under.

1. Perfect competitive market
2. Monopoly
3. Monopolistic competition
 - (i) Duopoly
 - (ii) Oligopoly

Firm: Basically there are two types of actors in an economy.

(1) Households (2) Firms.

Households are the consumers of the goods and services while firms are the producers of such goods and services. Firm is an economic entity which works for profit motive.

10.3.1 Perfect Competitive Market

Perfect competitive market is that market where large numbers of are many sellers and buyers producing homogeneous product but the size of the sellers and buyers is so small that they can not change the demand and supply of the product. In this market the price of the commodity is determined by the industry and the firm is merely a price taker.

Characteristics of the Perfect Competitive Market:

1. Larger number of buyers and sellers and their size is small.
2. Homogenous product.
3. Perfect knowledge.
4. Perfect mobility.
5. There is no entry ban on the firms.
6. There is no transport and selling costs in this market.
7. Equal cost throughout the market.

10.3.1.1 Price Determination in the Perfect Competitive Market:

In this market the price of the commodity is determined by the industry. The industry determines the price of the commodity at the point where the market demand and supply of the commodity becomes equal to each other. We can show it with the help of following schedule and Fig-1:

Price of the commodity	Demand	Supply
1	10	2
2	8	4
3	6	6
4	4	8
5	2	10

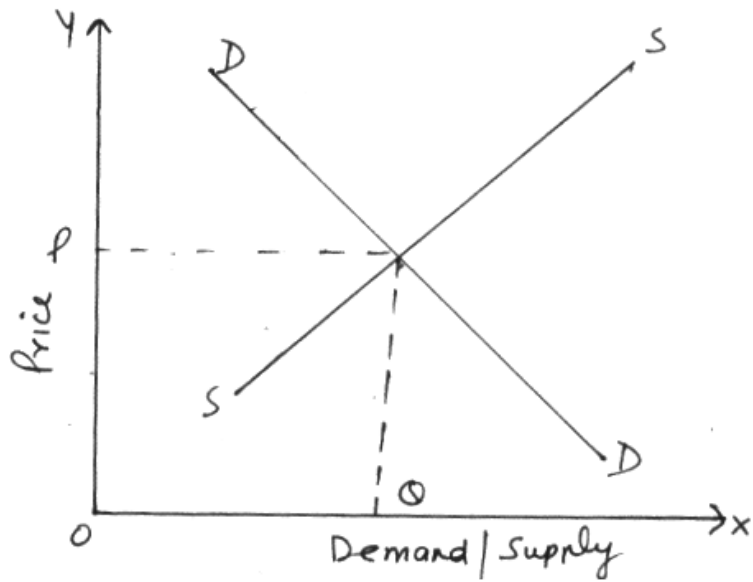
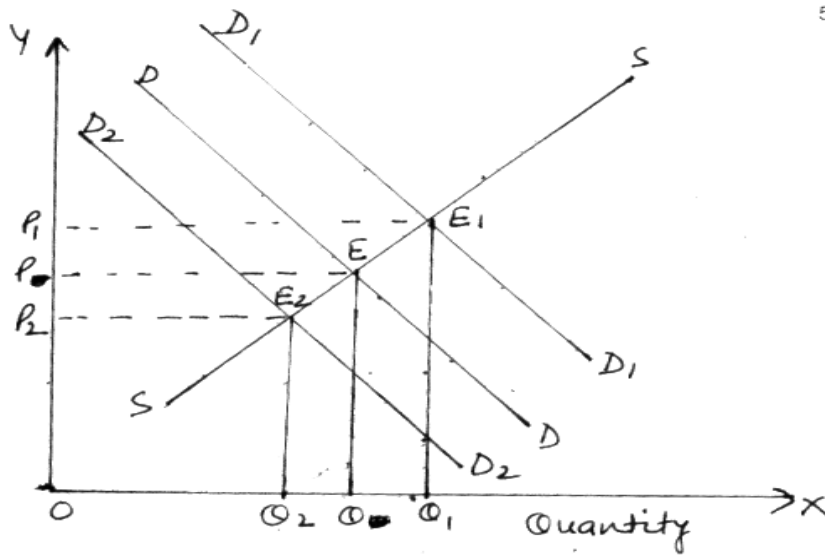


Fig.-I

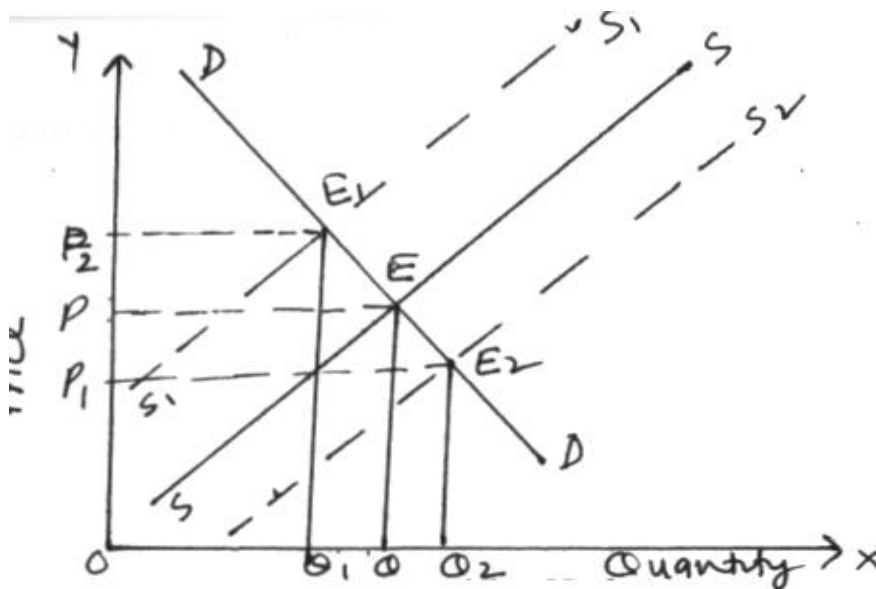
10.3.1.2 Effect of Change in Demand on the Price: If the supply of the commodity remains constant and its demand increases the price of the commodity increases in the same way if the demand decreases supply being the constant than price decreases we can show it as



5

In the above diagram SS and the supply curve and DD is the first demand curve. Point E is the first equilibrium-point where price is OP and the equilibrium quantity is OQ . If the demand curve shifts upward i.e. it becomes D_1D_1 after increasing the demand. Now the new equilibrium point is E_1 , where the new price is OP_1 which is more than OP . and in the same way after decreasing the demand the demand curve shifts backward i.e. it becomes D_2D_2 and the new equilibrium point is E_2 where new price is OP_2 which is less than OP .

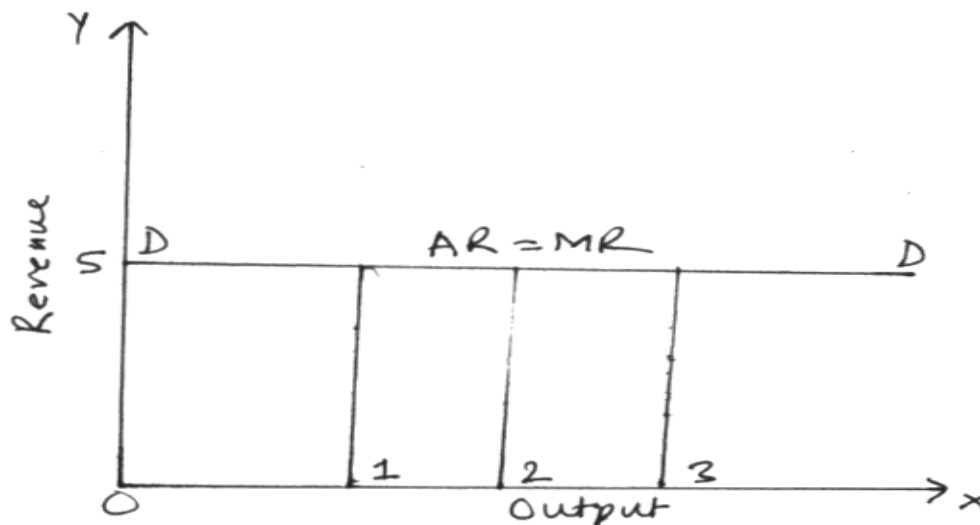
10.3.1.3 Effect of the Change of the Supply on the Price: When the supply of the commodity increases when its demand remains constant its price decreases and vice-versa also. We can show it as



Revenue Curve of the Perfect Competitive Market

In the perfect competitive market the demand curve i.e. the price curve and the marginal revenue curves are the same.

In the above diagram it is shown that if the one unit of the commodity is sold then AR i.e. price is 5 Rs. If the demand increases and two or three units of the commodity are sold then also the price of the commodity



Remains same i.e. of 5 Rs. /unit. So the marginal revenue also remains the same i.e. 5 Rs. /unit. The demand/revenue curve in this market remains parallel to X-axis.

10.3.2 Equilibrium of the Firm and Industry in the Perfect Competitive Market:

A firm is a business or economic entity which produces goods and services for sale. Its motive is to maximise its profit.

Industry: In the perfect competitive market there are so many firms which produce homogeneous product. The group of these firms is known as industry.

In the perfect competitive market the equilibrium of the firm and industry are shown less than two time periods.

- (1) Short run equilibrium.
- (2) Long run equilibrium.

1. Short run equilibrium

Meaning of the Firms Equilibrium

A firm is in equilibrium when it is satisfied with its present production quantity. At its equilibrium point the firm is getting either maximum profit or minimum loss. For a firm, equilibrium is a position when to increase and decrease in production is not profitable for it.

Firm's equilibrium can be explained in two ways-

1. On the basis of total revenue and total cost.
2. On the basis of marginal revenue and marginal cost.

Firm's Equilibrium on the Basis of Total Revenue and Total Cost:

On the basis of total revenue and total cost a firm is in equilibrium when the difference between total revenue and total cost is maximum i.e. at the point where the firm's total profit is maximum.

$$\pi = TR - TC = \text{Maximum.}$$

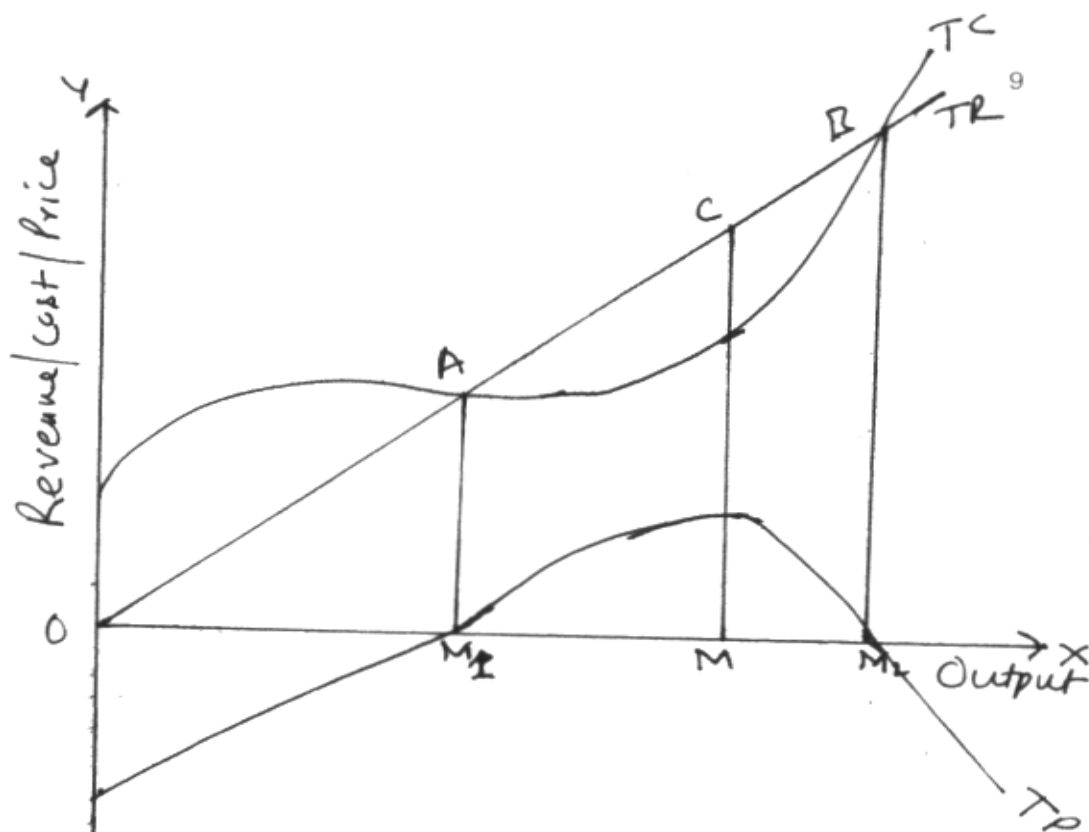
π = Total profit

TR = Total revenue

TC = Total cost.

In perfect competitive market, we can show it as,

TR is the total revenue curve in the diagram given which remains increasing with a same rate because in this market the price of the good is determined by the industry and the firms have to sell their whole production on this price. So in this market marginal and average revenue remains constant and equal to each other's is the total cost curve which becomes equal to TR at point A and remains decreasing till point B and then starts increasing and cuts the total revenue curve at point C. The reasons of this is that at first the returns to scale are increasing and after some time decreasing returns to a scale are required.



TP is the total profit curve which is negative before point A because before this point total cost is more than total revenue. Total profit is maximum at the output M where the difference between total revenue and total cost is maximum. After that total profit starts decreasing and it becomes equal to zero at output M_2 , OM is the firm's equilibrium production because at this production the firm is acquiring maximum profit.

2. Firms Equilibrium on the Basis of Marginal Revenue (MR) and Marginal Cost (MC) Method:

Another and most popular method to know the firms equilibrium position is the marginal revenue and marginal cost method.

Marginal Revenue: The change in total revenue due to addition of revenue by selling one more unit by a firm is known as the marginal revenue.

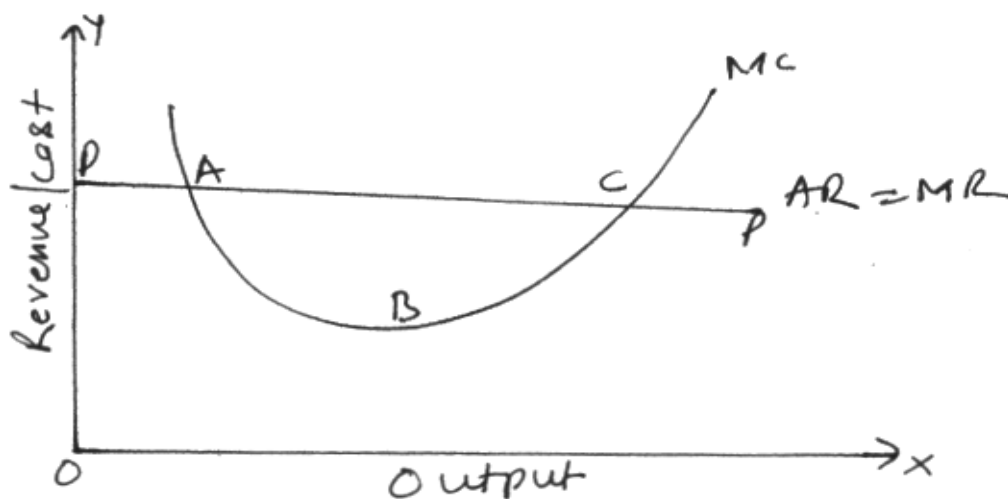
Marginal Cost: The change in total cost due to addition of cost by producing one more unit is known as marginal cost.

To determine the equilibrium position a firm has to compare its marginal revenue and marginal cost. A firm increases its production till its marginal revenue is more than its marginal cost i.e. till $MR > MC$. A firm wants to decrease its production when its marginal revenue MR is less than its marginal cost i.e. when $MR < MC$. A firm does not want to change its production when its $MR = MC$. This position will be the firm's equilibrium position.

Marginal revenue should be equal to marginal cost is the necessary condition for a firm's equilibrium but not the sufficient condition. So the second condition of the firm's equilibrium is that the marginal cost (MC) curve should cut the marginal revenue (MR) curve from below. Because it may be possible that at the point where $MR = MC$ firm is not acquiring maximum profit. So according to marginal analysis the above two conditions are necessary for the firm's equilibrium. i.e.

1. $MC = MR$
2. Marginal cost curve should cut the marginal revenue curve from below.

In perfect competitive market the equilibrium position of the firm can be shown as under:



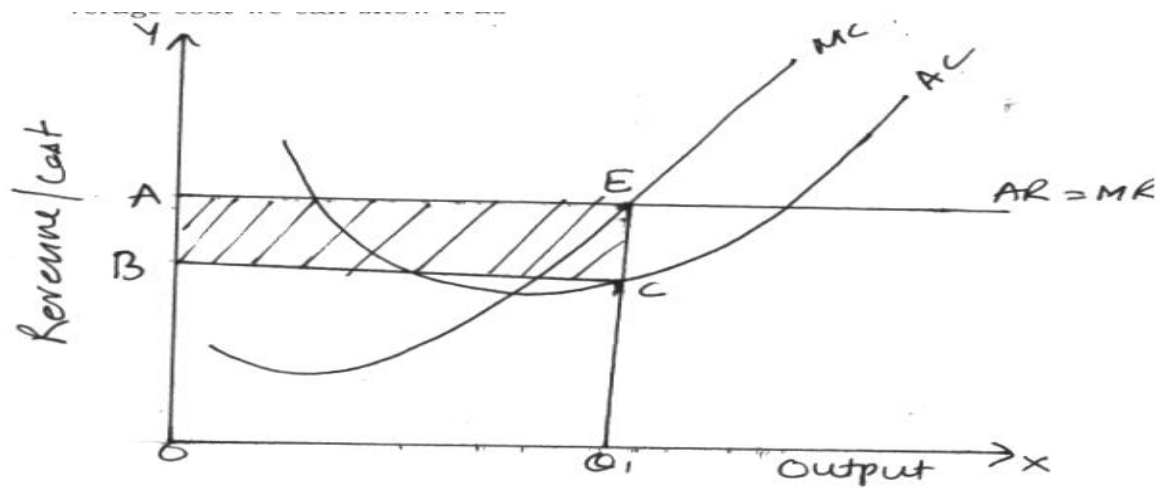
In the above diagram PP curve is the average (AR) and marginal (MR) revenue curve, which is parallel to X-axis. MC is the firms marginal cost curve which slopes downward first and after point B it starts increasing. The marginal cost curve cuts the marginal revenue curve at point A and C. Point A is not equal equilibrium point because at this point the equilibrium's first condition i.e. $MC = MR$ is satisfied but the second condition i.e. MC cuts the MR from below is not satisfied. Point C is the equilibrium point because at this point both the conditions of equilibrium are satisfied.

10.3.2.1 Equilibrium of the Firm in the Short Run:

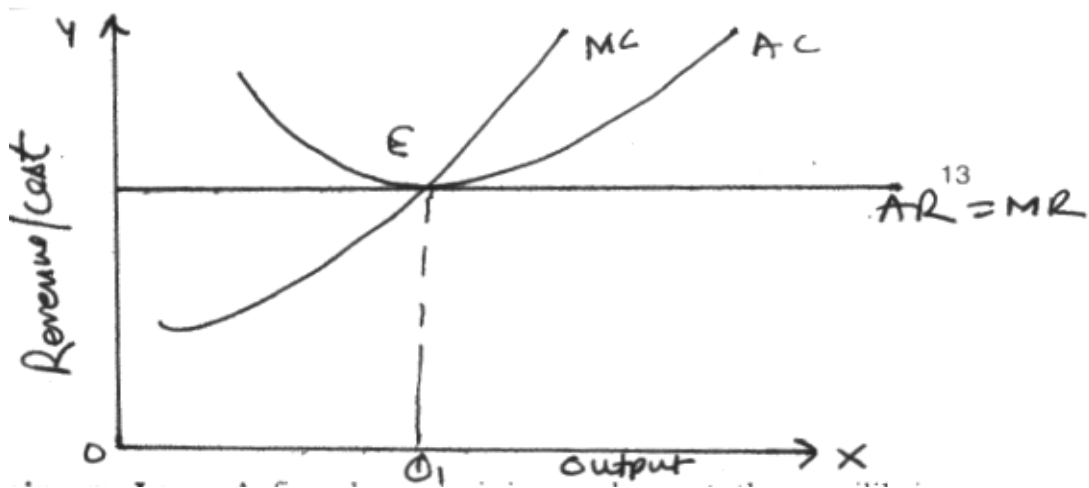
Short run is the time period in which the firm can increase its production by increasing its variable factor only. So in the short run the scale of the production remains constant i.e. in the short run no firm can enter or leave the industry. In the short run equilibrium position a firm may be in three positions.

1. Abnormal profit
2. Normal profit
3. Minimum loss

1. Abnormal Profit: A firm is in equilibrium when it produces so much amount of a commodity at which its marginal revenue (MR) will be equal to its marginal cost i.e. (MC) and its (MC) curve cuts its (MR) curve from below. A firm requires abnormal profit in its equilibrium position when the average revenue determined by the industry is more than the firms average cost we can show it as



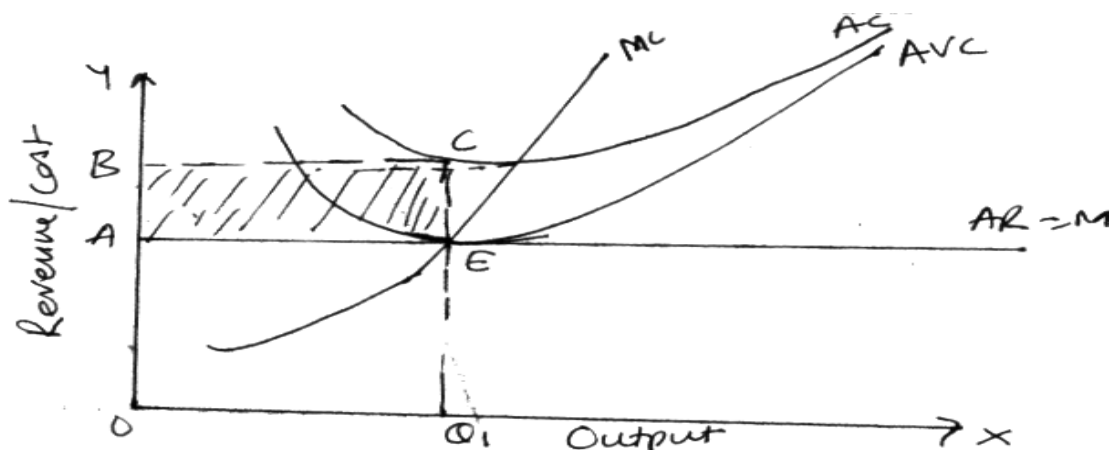
2. Normal Profit: A firm acquires normal profit at the equilibrium position when the average cost at the equilibrium production will be equal to the price determined by the industry it can be shown as.



3. Minimum Loss: A firm bears minimum loss at the equilibrium position when the difference between AC and AR at equilibrium output is equal to fixed cost of the firm i.e.

$$\text{When } AC - AR = FC$$

It means that in the short run a firm continues its production till it acquires revenue equal to its marginal variable costs. Because in the short run if it drops production it will have to bear the fixed costs. We can show it as



In the above diagram E is the firm's equilibrium point and the firm bears minimum loss which is equal to its fixed cost at equilibrium point. Because at equilibrium point the industry has determined the price of the output equal to average variable cost. If the industry decreases price less than this than the firm will stop production.

10.3.2.2 Long Run Equilibrium of the Firm in Perfect Competition Market

Long run is the time period in which supply can be changed according to demand. The new firms can enter or the existing firms can leave the industry. The existing firms can also change their scale of production according to their necessity.

Conditions of Long Run Equilibrium of the Firm:

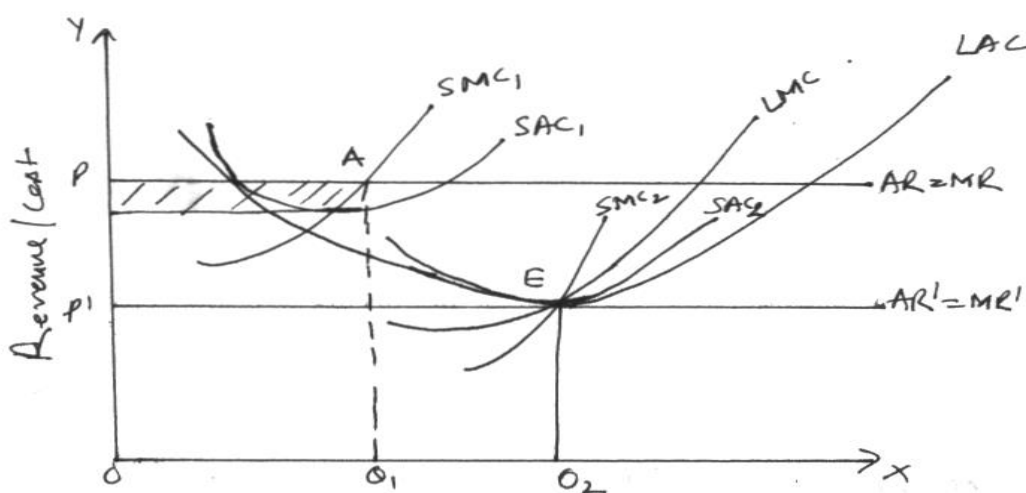
A firm will be in equilibrium in the long run when

1. Firm's long run marginal cost and long run marginal revenue will be equal to each other.

i.e. $LMC = LMR$

2. Long run marginal cost curve should cut the long run marginal revenue curve from below.

In the long run all firms get only normal profit when they are in equilibrium. Because in the long run, if firms will get abnormal profit then the old firms will increase their production and the new firms will enter the industry. So the supply of the commodity will increase and price will decrease. On the other hand if the firms are in loss than some firms will leave the industry and the supply decreases and the price will increase. In the long run the firm will produce at minimum average cost in equilibrium position. This production is also known as optimum production.



In the above diagram point A is showing the short-run equilibrium of the firm where a firm is earning supernormal profit. The long run equilibrium of the firm will be at point E. where the firm is acquiring normal profit, here its $LMC = SMC = MR = AR = SAC = LAC$.

10.3.2.3 Equilibrium of the Industry

An industry will be in equilibrium when there will be no tendency of change in it. It means that in equilibrium position no firm can enter or leave the industry.

New firms will not enter the industry when the existing firms are acquiring normal profit. In the same way the older firm will not leave the industry because due to fear of loss. So when the existing firm will not want to leave and the new firms will not want to enter the industry. There will be no tendency of contraction or extension of the industry. This position is known as the industries equilibrium.

Conditions of the Industry Equilibrium

An industry can contract or expand in two ways-

1. When the existing firms of the industry make contraction or expansion in their production.
2. Either new firms enter or the older firms leave the industry.

The industry will be in equilibrium when there will be no tendency of above two changes. So there are two conditions of industry's equilibrium.

1. Constant number of firms.
2. Existing firms should be in equilibrium.

10.3.2.4 Short Run Equilibrium of the Industry

In the short run an industry will be in equilibrium at the price at which the industry's demand and supply are equal to each other. In the short run industry can not acquire perfect equilibrium, because to acquire perfect equilibrium all the firms should acquire normal profit but in the short run there is a possibility that some firms are in a position of abnormal profit and some are in loss. We can show it as

Diagram A is showing the industry as equilibrium E is the equilibrium point where demand and supply curves of the industry cut each other. Diagram B, is showing that at the equilibrium price firms are acquiring abnormal profit so these will be a tendency that they will increase their supply in the long run.

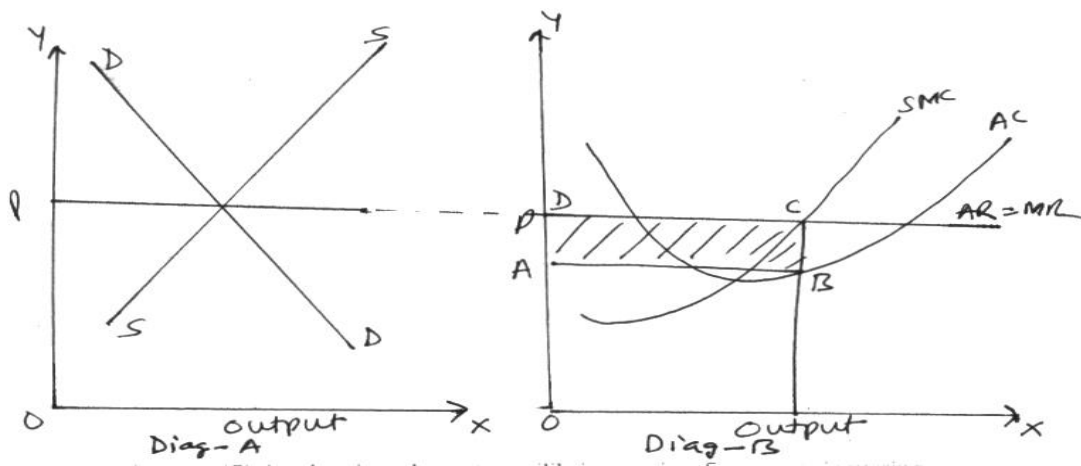
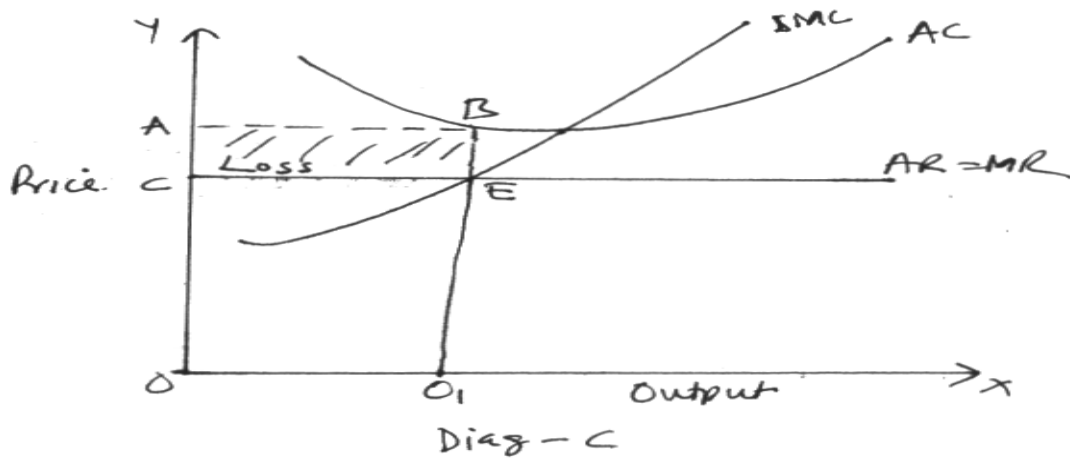
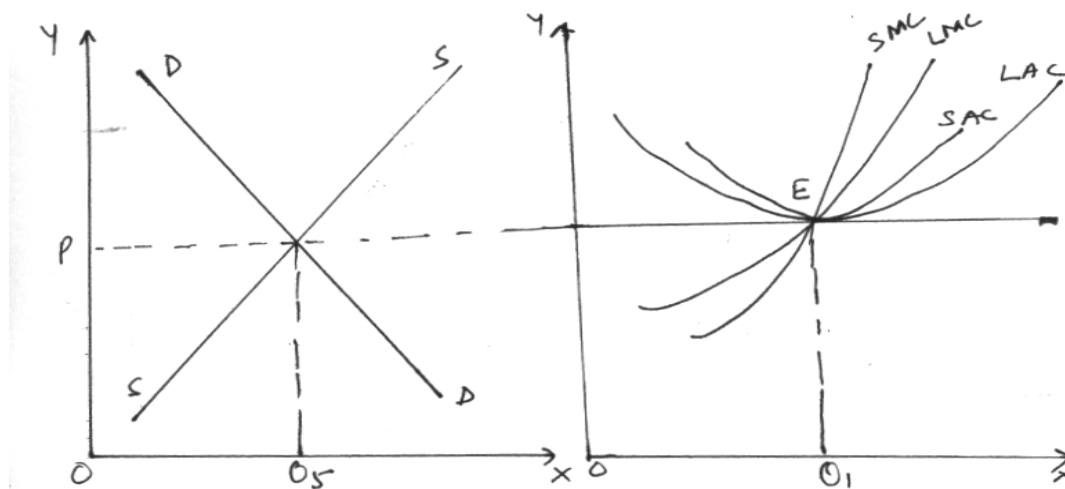


Diagram (C) is showing that at equilibrium price firms are incurring losses so there will be a tendency to decrease the supply in the long run. So the industry will be in perfect equilibrium only in the long run.



10.3.2.5 Long Run Equilibrium of the Industry-

In the long run the industry will be in equilibrium when it testifies these conditions.



1. Each firm of the industry should be in equilibrium individually i.e. their $MC = MR$ and their MC should cut MR from below.
2. The number of firms should remain constant i.e. $LAC = LAR$.

10.4 Monopoly

Monopoly is a market where there is only one producer of a good or services. There is also no substitute of the good or service.

Conditions of Monopoly Market

1. Single seller and large number of buyers.
2. There is no substitute in the market.
3. Entry ban.
4. Controlled supply.
5. Independent price policy.
6. There is no difference between firm and industry.
7. Price discrimination.

8. Abnormal profit.
9. There are no selling costs.
10. Different average and marginal revenue curve.

10.4.1 Price and Equilibrium Determination under Monopoly

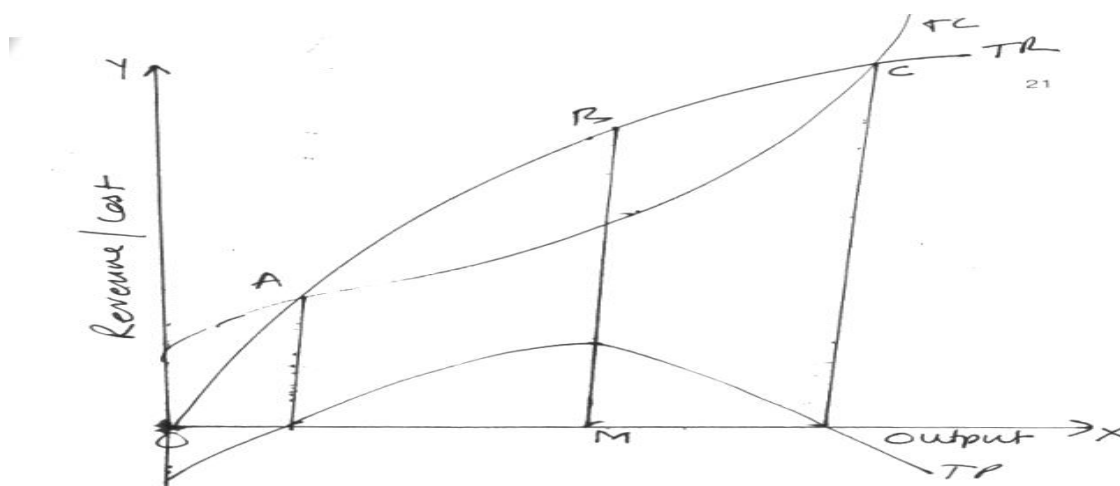
A monopolist determines that price of his product at which he will get maximum profit. He will be in equilibrium when he produces that amount of his product at which his total profit will be maximum. In the short run the monopolist may get minimum loss at the equilibrium position.

In monopoly also price and equilibrium determines by two ways-

1. Total revenue and total cost method.
2. Marginal revenue and marginal cost method.

Total Revenue and Total Cost Method:

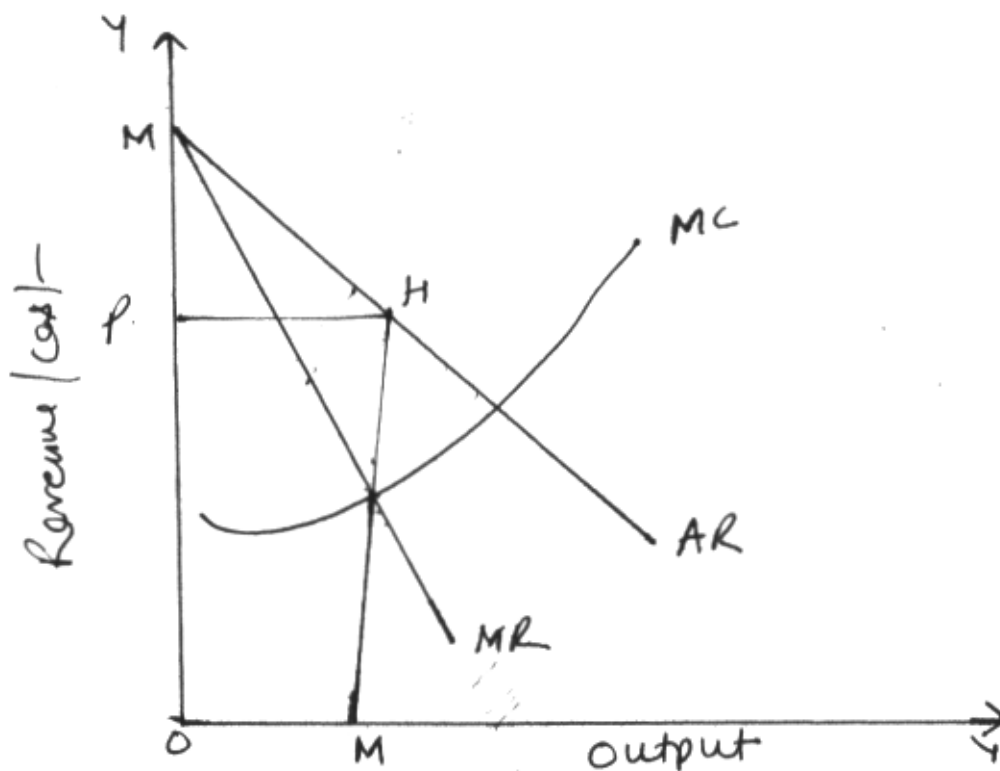
According to this method a monopolist will be in equilibrium when he is acquiring maximum profit i.e. where the difference between total revenue and total cost will be maximum. $\pi = TR - TC = \text{maximum}$; $\pi = \text{Total profit}$, $TR = \text{Total revenue}$, $TC = \text{Total cost}$. This can be shown as under:



TC is the total cost curve in the above diagram and TR is the total revenue curve. TC starts from OP it means that if the firm stops production than also it has to bear fixed costs. TP is the total profit curve. The firm is in equilibrium when it produces OM quantity of its product because of this production the firm is getting maximum profit.

2. Marginal Revenue and Marginal Cost Analysis-

According to this method a monopolist is in equilibrium when (a) its MR is equal to MC (b) MC cuts MR from below. This can be shown as



22

E is the equilibrium point in the above diagram where $MC = MR$ and MC cuts MR from below.

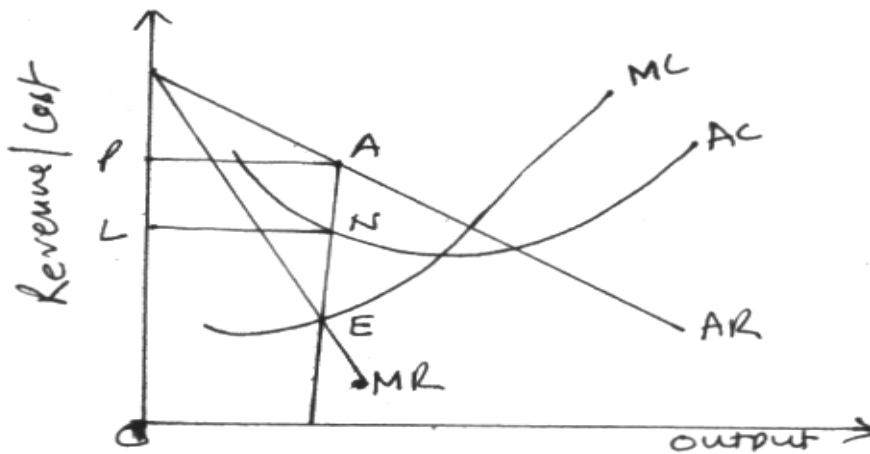
10.4.1.1 Short Run Equilibrium of the Monopolist:

In the short run the monopolist can increase or decrease its production only by increasing or decreasing its variable factors. He will be in equilibrium.

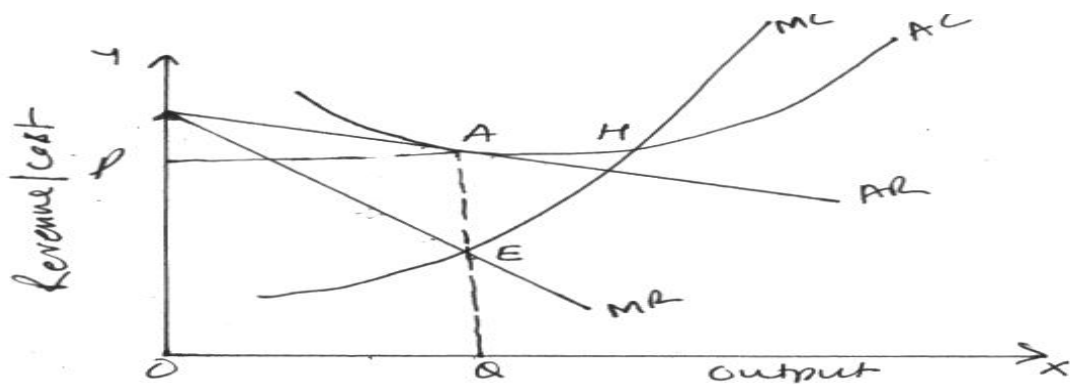
When $MC = MR$ and MC cuts MR from below. In short-run the monopolist may be in three positions during equilibrium

1. Abnormal profit.
2. Normal profit
3. Minimum loss

Abnormal Profit: At equilibrium point if the price determined by the monopolist i.e. (AR) is more than average cost i.e. (AC) of production, the monopolist will get abnormal profit. The monopolist will control its production till as $MC = MR$. It will be known as equilibrium profit.

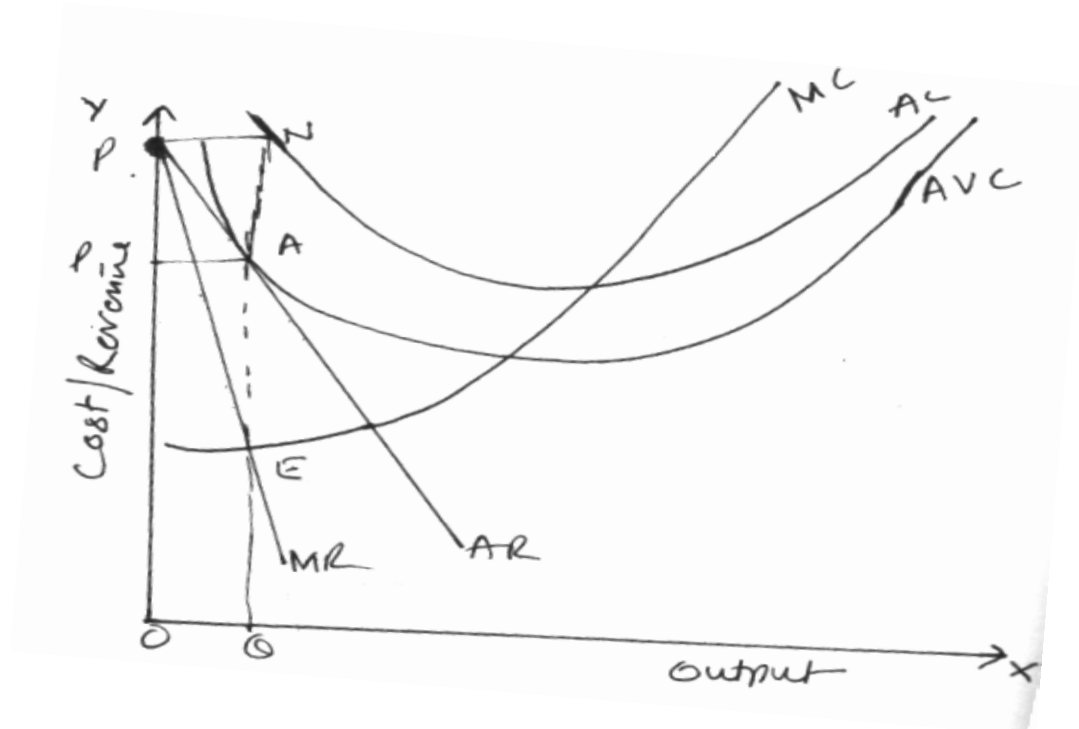


Normal Profit: The price determined by monopolist at equilibrium position is equal to the average cost i.e. $AR = AC$ then the monopolist will get only normal profit. This can be shown as-



E is the equilibrium point of the monopolist because at this point $MR = MC$. Equilibrium production is OQ . At this production average cost curve AC is touches average revenue curve AR . It means that at point A both the prices of the commodity and its average cost are equal. So the monopolist is getting normal profit.

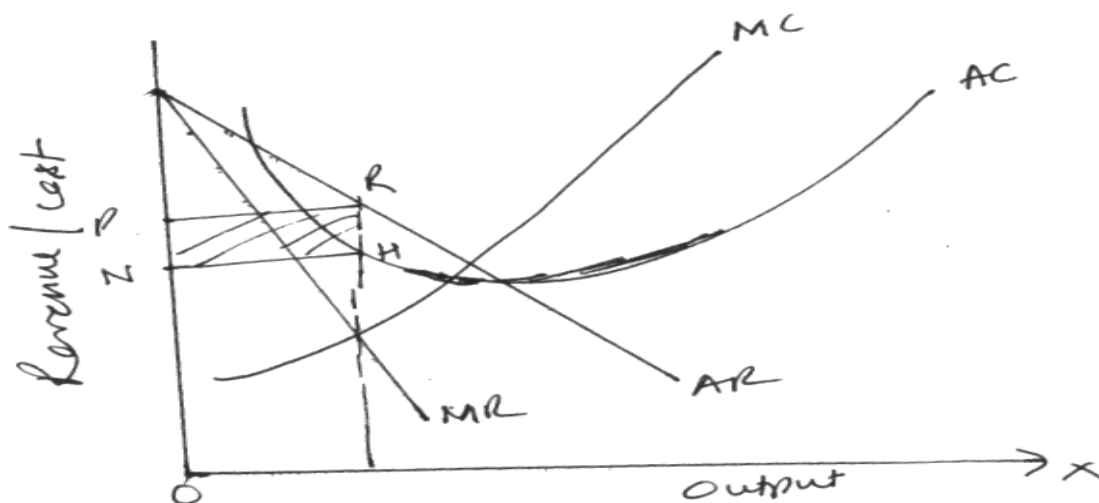
3. Minimum Loss- In the short run the monopolist will have to continue its production even at losses. In the short run if the demand of the commodity decreases then price a will also decrease and the monopolist will continue its production if he is getting price equal to (AVC) i.e. equal to average variable cost. This can be shown diagrammatically as under



A monopolist is in equilibrium at point E in the above diagram. The equilibrium production of it is OQ and the price is OP_1 . At this price AVC curve touches AR curve at point A. It means that the firm is acquiring price equal to its average variable cost. The firm is bearing total loss equal to $ANPP_1$ which is its minimum at production of OQ quantity, then any other amount of quantity of production. If the price will decrease than OP_1 then the monopolist stop the production.

10.4.1.2 Long Run Equilibrium of the Monopolist-

In the long run the monopolist will be in equilibrium at the point where its LMR will be equal to its LMC. The short run price of a monopolist may be less, more or equal to average cost but in the long run his price will be more than its long run average cost i.e. he acquires abnormal profit in the long run. In the long run the monopolist determines the price at which he gets abnormal profit.



The monopolist is in equilibrium at point E after producing OQ production. At equilibrium point its average revenue is QR which is more than its average cost which is equal to QH. It means that he is getting total abnormal profit equivalent to NHRP.

10.4.2 Monopoly Power

The monopolist can decide its production quantity or the price of its product. This decision power of the monopolist is known as monopoly power. This power depends on many factors.

The entire monopolist is not equal in this matter.

The economists have developed many methods to measure the monopoly power the two main methods of them are as,

10.4.3 Lerner's Method

According to Lerner monopoly power depends upon the difference between price and marginal cost. The monopoly power increases as this difference increases. He used this method to measure the monopoly power.

$$\text{Monopoly power} = \frac{P - MC}{P}$$

P = AR (Price) ,MC = Marginal cost

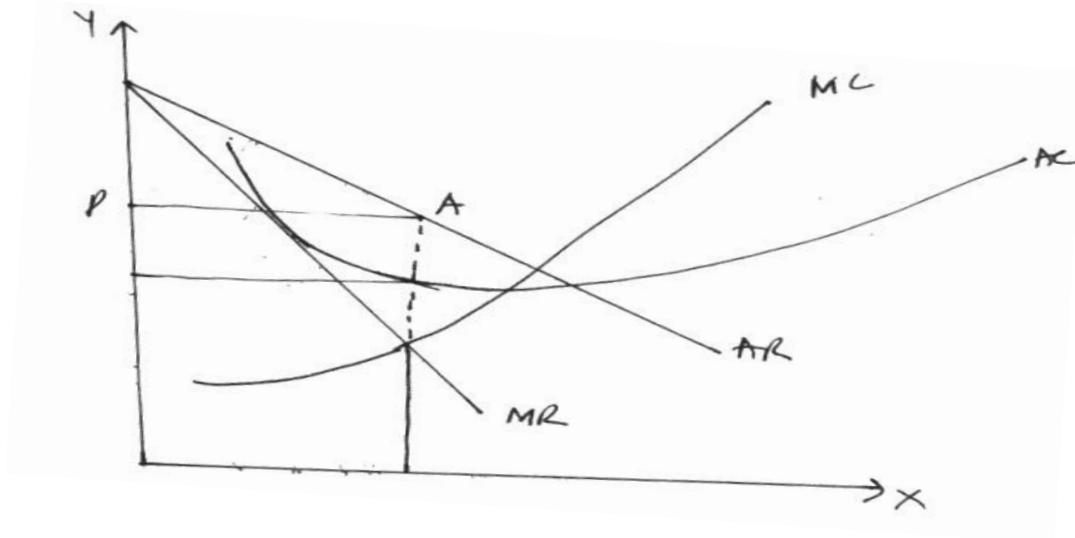
In perfect competitive market the difference between price and marginal cost at equilibrium point is zero. So the monopoly power is also zero, but in monopoly price may be more than marginal cost at equilibrium point. As the price determined by the monopolist is more than the marginal cost as more is his monopoly power.

Elasticity of demand of a commodity is also determined the monopoly power of a monopolist. There is an inverse relationship between monopoly power and elasticity of demand of a good.

$$\text{Monopoly power} = \frac{P - MC}{P}$$

P = AR at equilibrium point

MC will be equal to MR i.e. MC = MR



$$\text{Monopoly power} = \frac{AR - MR}{AR}$$

$$E_p = \frac{AR}{AR - MR}$$

$$E_p (AR - MR) = AR$$

$$E_p AR - AR = E_p MR$$

$$AR (E_p - 1) = E_p MR$$

$$MR = \frac{AR (E_p - 1)}{E_p}$$

$$\text{Now monopoly power} = \frac{AR - MR}{AR}$$

After putting the value of MR

$$M_p = \frac{AR - AR \frac{(E_p - 1)}{E_p}}{AR}$$

$$M_p = \frac{E_p AR - E_p AR + AR}{\frac{E_p}{AR}}$$

$$M_p = \frac{1}{E_p}$$

10.4.4 Bain's Method to Measure the Monopoly Power:

Prof. Bain measured monopoly power on the basis of difference between price and average cost. The difference between price and average cost is known as abnormal profit. More will be this difference more will be the abnormal profit and more will be the monopoly power.

In brief we can say that there is no appropriate method to measure the monopoly power. It is based on many factors as elasticity of demand, possibility of competition or the possibility of substitutions etc.

10.4.5 Monopoly and Price Discrimination

When a monopolist charges different prices from different consumers of the same product. Such a situation is described as a discriminating monopoly situation. For example Barbers who do hair cutting charges different prices from different clients. In the same way electricity department also charges different prices from industrialist and households.

10.4.5.1 Types of Price Discrimination

Price discrimination is of three types mainly-

1. Discrimination of First Degree- It is said to exist when the monopolist or the monopoly firm charges a separate price for each separate unit of the commodity from the same consumers of the product. Consumers are charged according to their demand functions. The maximum price they are willing to pay for each unit rather than doing without it. There is no consumer surplus here according to Joan Robinson this type of price discrimination is known as perfect price discrimination.

2. Second Degree Price Discrimination

In this discrimination consumption of a good is divided into various blocks, a separate price is charged from each separate block but for each block a uniform price is charged. This type of pricing rule is adopted by public utility concerns like electricity, telephones, waterworks, gas supplies etc.

3. Third Degree Discrimination- This is the most commonly observed discrimination. In this discrimination consumers are divided into various groups. According to their price elasticities and different prices are charged from different consumer groups. The market for a good is split into submarkets with differential prices charged from sub-markets.

10.4.5.2 Conditions of Price Discrimination

Price discrimination means to charge different prices from different consumers. But this is possible only when there prevail these conditions in the market.

1. There should be monopoly in the market.
2. Different markets.

For price discrimination it is necessary for the monopolist that he can differentiate the markets from each other. It is possible only when the commodities can not transferred from cheap market to costly market nor the buyers can go from cheap to costlier market.

3. Difference in Price Elasticity of Demand-

Price discrimination is possible only when the price elasticity of demand is different in different submarkets.

4. The expenditure on division and sub-division of markets should be minimum.
5. Recognition by law.
6. Commodity differentiation
7. Behaviour of the consumers.

10.4.5.3 When the Price Discrimination is Beneficial

Price discrimination is beneficial only when the price elasticity of demand is different in one market from other. If the price elasticity is equal in both the markets than the marginal revenue acquired from the commodity unit in both the markets will be same. So there will be no benefit to the monopolist. On the other hand if the price elasticity is different in two markets than the marginal revenue acquired from these two markets will be different than the monopolist will be profitable only when

he sells commodity in the market where he get more marginal revenue. We can explain it as-

$$MR = \frac{AR (E_p - 1)}{E_p}$$

There are two markets i.e. market (A) and market (B). The AR in both the markets is equal to 10 E_p is 2 in market (A) and 5 in market B. Now the MR acquired by the monopolist in these two markets will be as-

Market (A)

$$MR = \frac{10 (2 - 1)}{2} = 5/-$$

Market (B)

$$MR = \frac{10 (5 - 1)}{5} = 8/-$$

The monopolist will be beneficial if he sells his products in market B. He should do it till the (MR) in both the markets does not become equal.

Determination of Price and Output under Price Discrimination

A monopolist adopts price discrimination so that he can increase his total revenue or profit. In this situation to maximise his profit a monopolist will continue its production till his $MC = MR$.

Let a monopolist sell his production in two different markets, where the price elasticity of demand is different. Now the monopolist will have to decide

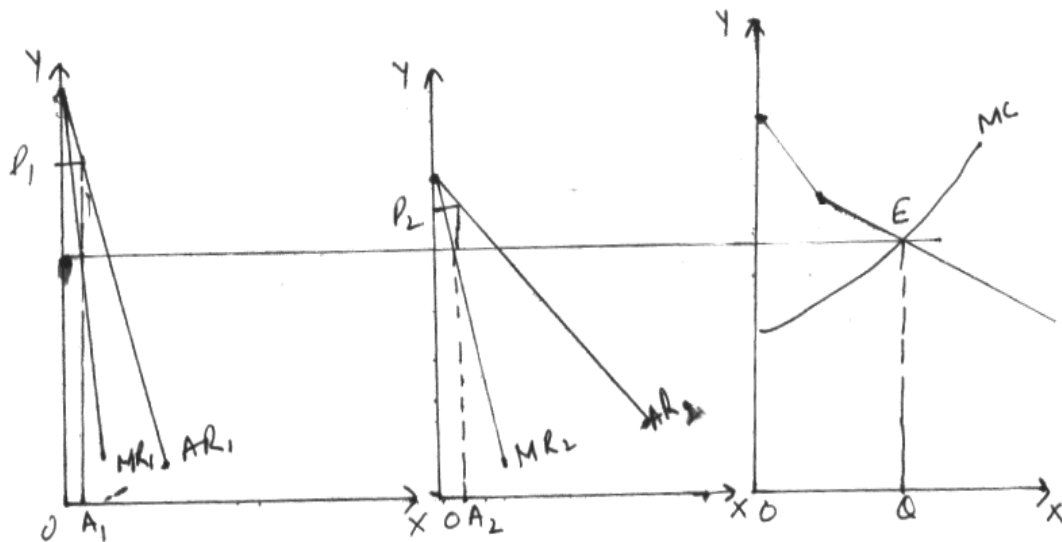
1. What will be his total production?
2. How many production will be sold in each market?
3. What will be the price at which he will get maximum profit?

To acquire maximum profit the monopolist has to follow following two conditions.

1. The marginal revenue of the commodity should be equal in both the markets. i.e. $MR_1 = MR_2$.
2. The marginal revenue acquired from each market should be equal to MC of total revenue.

i.e. $MR_1 = MR_2 = MC$

We can show it as under



In the above diagram it is seen that the revenue curves of market A are less elastic than the revenue curves of the market B. Point N is the equilibrium point of the monopolist at this point the marginal cost of the total production is equal to $\square MR$. The total production of the monopolist is equal to OQ. The monopolist will divide this production into two markets. He will divide this production on the basis of equality of MR of each market to the marginal cost of the total production. The monopolist will get maximum profit if he sells OQ_1 amount of production in market A at price OP_1 and OQ_2 amount of production in market B at price OP_2 and the total output is

$$OQ = OQ_1 + OQ_2$$

10.4.5.4 Social Effects of Price Discrimination

Price discrimination is both beneficial and harmful for society.

Beneficial Effects of Price Discrimination

1. **Beneficial for the Backward Section of the Society-** If the price of a commodity is decided low so that the backward section of the society can also

consume it and the losses which are beared so are be compensated by charging high price from the rich people than the price discrimination will be beneficial for the society.

2. Public Services- There are so many public services which can not be provided without price discrimination for example- Train services or electricity etc.

3. Total Utilization of the Factors of Production- With the help of price discrimination producers can sell their products in the foreign market and the factors of production of a country can be utilized perfectly in this way.

10.4.5.5 Harmful Effects of the Price Discrimination

1. Imperfect Utilization of the Sources of Production- In price discrimination factors of production are not fully utilized because the monopolist tempts to produce luxury goods as price discrimination is easily possible in luxury goods. The necessary goods are produced less and the poor people will have to face problem.

2. Low Production- The price discrimination is also harmful when the monopolist produces less to maximise its profit and to charge high price.

Dumping- Dumping is a special type of price discrimination here the monopolist sell its production on less price in the foreign market. In this situation these are two markets for the monopolist.

1. Home market
2. Foreign market

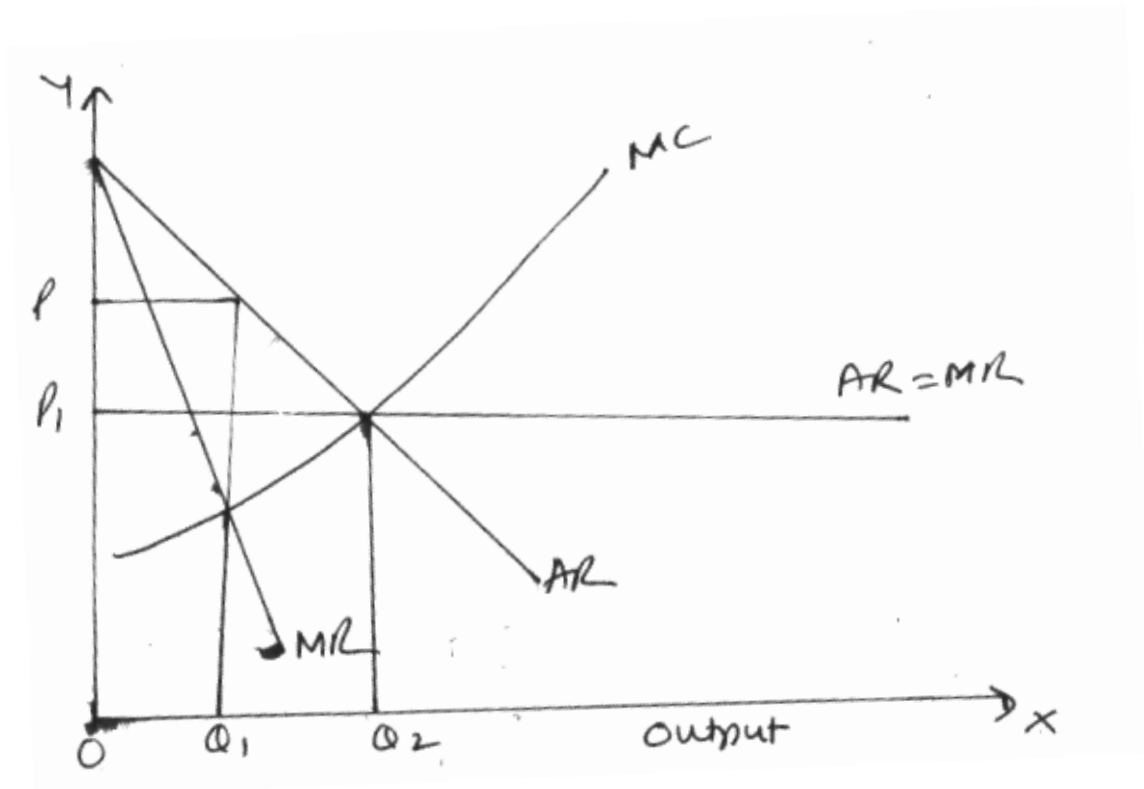
He will be perfect monopolist in the home market but in the foreign market he has to face perfect competition. So in the home market he charges high price and in foreign market he charges less price.

Motives of Dumping

1. To destroy the competitors in the foreign market.
2. To get benefits of increasing returns.
3. To increase the demand of the commodity in the foreign market.
4. To dispose the extra storage of the commodity.

5. To acquire the benefit of difference in elasticities in demand.

Determination of Price and Output during Dumping: In the foreign market there is perfect competition and the monopolist will sell OQ_1



Production on price P_1 and in the home market he is monopolist he is selling OQ production on price OP , which is more than OP_1 .

10.5 Check Your Progress

Answer the following questions on the basis of your knowledge regarding this chapter:

- 2- In which market form are there no close substitutes of the product?
- 3- Under which market form, a firm is a price-taker?

- 4- In which market form can a firm not influence the price of the product?
- 5- How many firms are there in a monopoly market?
- 6- In which market form, are there restrictions on the entry of new firms?

10.6 Summary

Markets are focal point for economic activity as it plays important role in pricing and allocating resources in a competitive economy. A market is a group of economic agents (individuals/or firms) that interact with each other in a buyer-seller relationship. This interaction results in transactions between the demand (buyer) side of the market and the supply side of the market. The determination of output and the price of a commodity in a market depend upon the number of buyers, sellers and the characteristics of the product which are also the determinants of market structure. Further, equilibrium in market is also based on the large number of factors discussed in this chapter. This theoretical knowledge regarding market is necessary whether it is practically used or not. Like, we mostly observe perfect competition in the market but still knowledge regarding monopoly, monopolistic, dumping, transfer pricing, etc. is necessary.

10.7 Keyword

Industry: In the perfect competitive market there are so many firms which produce homogeneous product. The group of these firms is known as industry.

Marginal Revenue: The change in total revenue due to addition of revenue by selling one more unit by a firm is known as the marginal revenue.

Equilibrium conditions: Marginal revenue should be equal to marginal cost is the necessary condition for a firm's equilibrium but not the sufficient condition. So the second condition of the firm's equilibrium is that the marginal cost (MC) curve

should cut the marginal revenue (MR) curve from below. Because it may be possible that at the point where $MR = MC$ firm is not acquiring maximum profit

Monopoly- It is a market where there is only one producer of a good or services. There is also no substitute of the good or service.

Discrimination of First Degree- It is said to exist when the monopolist or the monopoly firm charges a separate price for each separate unit of the commodity from the same consumers of the product.

Second Degree Price Discrimination: In this discrimination consumption of a good is divided into various blocks, a separate price is charged from each separate block but for each block a uniform price is charged.

Third Degree Discrimination- This is the most commonly observed discrimination. In this discrimination consumers are divided into various groups. According to their price elasticities and different prices are charged from different consumer groups.

10.7 Self-Assessment Test

1. State and show in diagrams the conditions of long-run equilibrium of the firm and industry under perfect competition.
2. “No producer can be in equilibrium unless his marginal revenue and marginal cost are equal”. Comment on this.
3. Explain with the help of a diagram price is determined in a perfectly competitive market.
4. How does a monopolist fix the price of the product? Is it inevitable that the monopoly price is higher than the competitive price?
5. Explain discriminatory pricing under monopoly. Is price discrimination economically justifiable?
6. What conditions must be present for price discrimination to be possible under monopoly? Under what circumstances might price discrimination be possible, but not profitable?

7. What is meant by ‘the degree of monopoly power’? How is it sought to be measured?
8. State and appraise the various criteria to measure the ‘degree of monopoly power’.

10.9 Answers to Check Your Progress

- 1- Monopoly.
- 2- Perfect competition.
- 3- Perfect competition.
- 4- Single seller.
- 5- Monopoly.

10.10 References/Suggested Readings

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Lesson -11 Price Determination: Monopolistic Competition and Oligopoly

Structure

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 - 11.3.1 Short run Equilibrium of a Monopolistic Firm
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- 11.4 Price Determination under Oligopoly
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 - 11.4.3 Price and Output Determination under Oligopoly
 - 11.4.3.1 Price Leadership
 - 11.4.3.2 Price Output Determination under Price Leadership to Lower Cost
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- 11.5 Check Your Progress
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- 11.8 Self- Assessment Test
- 11.9 Answers to Check Your Progress
- 11.10 References/Suggested Readings

11.1 Learning Objectives

After reading this chapter you will be able to understand the concept of monopolistic market and oligopoly market. We will discuss about price determination and equilibrium in both the markets. This chapter will provide you deep understanding of these markets and their characteristics.

11.2 Introduction Monopolistic Competition

We have studied about perfect competitive and monopoly markets in previous chapters but these markets hardly exist in real world. In the economic world the firms are taking benefits of internal economies of scale. In the perfect competitive market it is not possible to achieve the benefits of internal economies of scale. So it is a great need to take the price theory close to the real world.

The monopolistic market is a market which prevails in between the both markets i.e. between perfect competitive and monopoly, and has the elements both the markets. In this market there are large numbers of firms which are selling close substitutes of each other. The individual revenue curves in this market are downward slopes like monopoly market but are more elastic than it. According to Prof. Chamberlin monopolistic competitive market is a blending of the elements of perfect competition and monopoly.

11.2.1 Characteristics of Monopolistic Competition

1. Large number of sellers.
2. Product differentiation.
3. No entry ban with product differentiation.
4. Importance of selling costs.
5. Group behaviour.
6. There is no difference in firm and industry in this market.

11.3. Price-output Equilibrium of a Firm under Monopolistic Competition

A monopolistic firm faces more problems than a perfect competitive market. The equilibrium of a monopolistic firm depends upon three areas or we can say that in this market the firm has to take following three decisions.

1. Price decision.
2. about the production quantity.
3. Advertisement costs.

But here we are explaining the equilibrium of a monopolistic firm in relation of its price and output keeping its production costs and advertisement costs constant.

11.3.1 Short run Equilibrium of a Monopolistic Firm

The individual demands curve of a monopolistic firm slopes downward. Although different firms in this market produces close substitutes of each other. The position, level and elasticity of demand faced by a firm depends upon the availability of substitutes and their prices, so in this market the equilibrium of an individual firm can not be explained separately. But for convenience we suppose that the availability of substitutes and their prices are constant. If we take the types and prices of substitute's constant than the firms under monopolistic competition face an identical downward sloping demand curves. Although monopolistic competition is characteristically close to perfect competition, pricing and output decisions under this kind of market are similar to those under monopoly. The reason is that a firm under monopolistic competition, like a monopolist, faces a downward sloping demand curve. This kind of demand curve is the result of (i) a strong preference of a section of consumers for the product and (ii) the quasi-monopoly of the seller over the supply. The strong preference or brand loyalty of the consumers gives the seller an opportunity to raise the price and yet retain some customers.

The conditions of equilibrium in this market are as under:

1. The marginal cost of the firm should be equal to its marginal revenue.

2. Marginal cost curve should cut marginal revenue curve from below.

The firm may be in three positions under equilibrium in the short-run.

Abnormal Profit- As shown in the figure-1 given the prices and types of the substitutes DD is the demand curve of an individual firm. AC is the average cost curve and MC is the marginal cost curve of it. E is the equilibrium point of the firm where MC cuts MR from below. OM is firms equilibrium output and its price cost is equal to OP at the equilibrium point firm is taking abnormal profit equal to PQRS. Because at equilibrium point the price determined by the firm is more than its average cost.

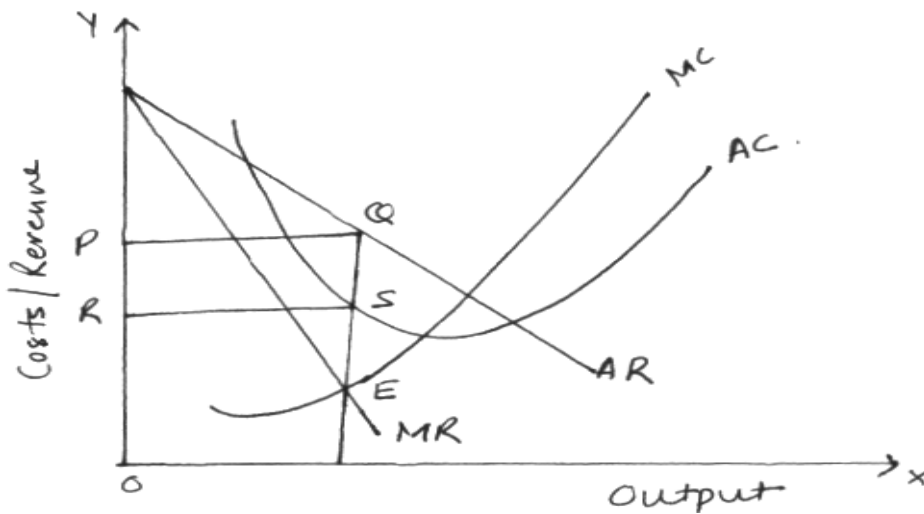
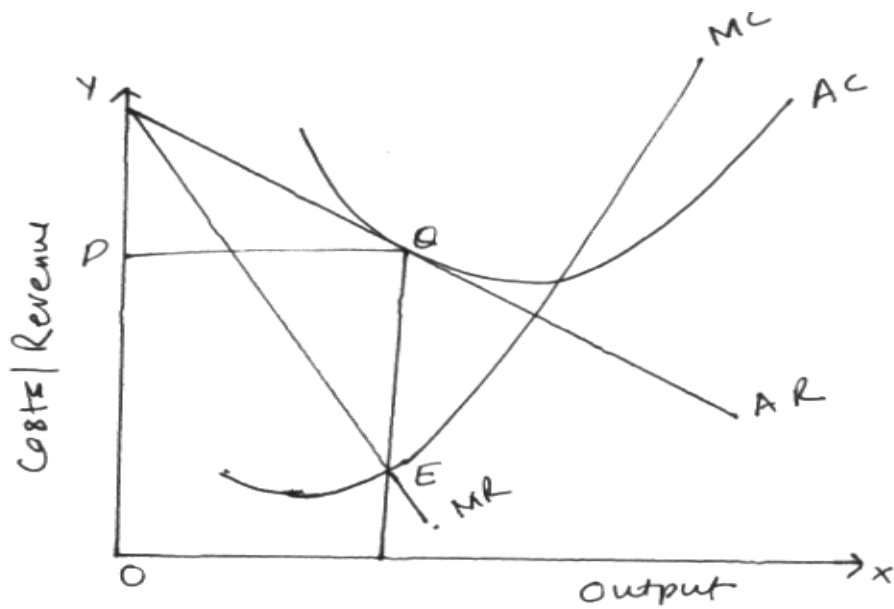


Fig-1

(a) **Normal profit-** The firm will get normal profit in the short run when the equilibrium price determined by it is equal to its average cost as shown in the figure-2



- (c) **Minimum Losses-** If the demand conditions of the firm are not good in comparison to cost conditions then in the short run the firm may have to bear losses also. But the firm will bear equal to its fixed costs only. If the price or average revenue which the firm gets is less than its AVC than the firm will stop production.

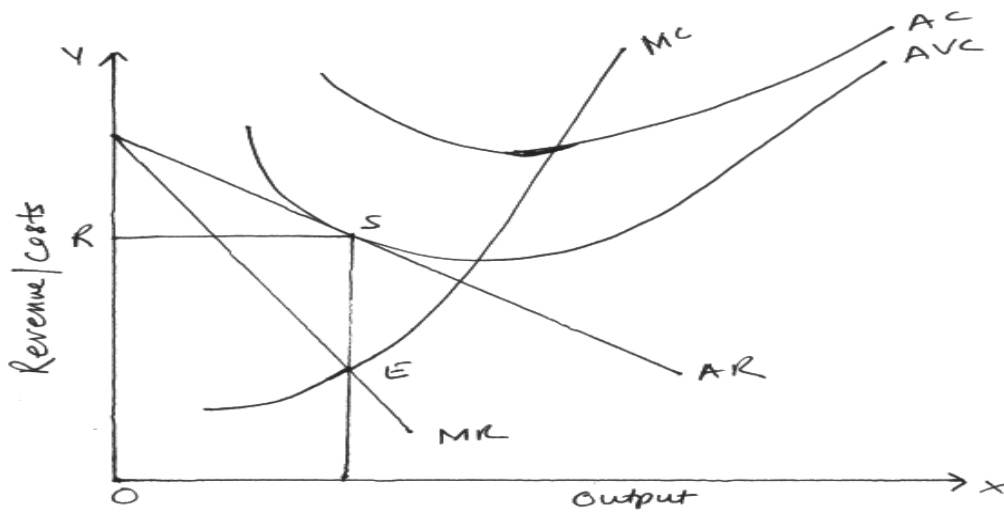


Fig.-3

In the above Fig.-3 E is the equilibrium point of the firm, where price is equal to AVC of the firm and the firm bears losses equal to RSPQ which are the minimum losses of the firm because below this price the firm will stop its production.

11.3.2 Long run Equilibrium under Monopolistic Competition

Interdependence is the main characteristic of the monopolistic competitive firms. Now the problem is to know the nature of interdependence and inter-relationships between the firms of a monopolistic group. In the long-run as the number of firms is very large and there is free entry abnormal profits cannot be earned by any firm, which is possible only when $AR=AC$, along with $MR=MC$. But the situation is not exactly the same as that under perfect competition. Let us first consider, and distinguish between two types of demand curves. In perfect competition we have the negatively sloped industry demand curve and the horizontal demand curve facing each seller. In the theory of monopolistic competition also there are two types of demand curves, as shown in the figure-4

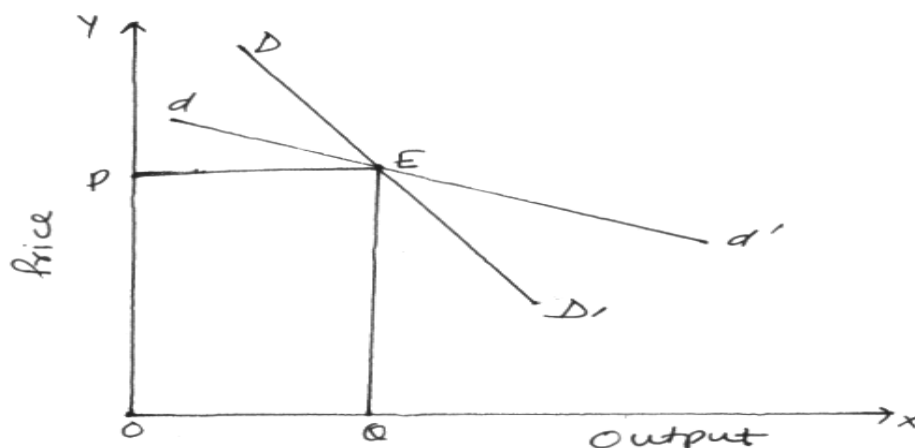


Fig.-4

Initially the firm is at point E, with output OQ and price OP per unit. In case of large-group with differentiated product, if the producer wants to reduce price from OP, he will expect a substantial expansion in sales. First, sales to his existing

customers will expand and, secondly, if his competitors do not react (do not reduce price), he will capture a part of their markets. On the other hand, if he increases his price he can expect a substantial loss in sales, as his competitors may not follow him (increase price). Consequently, assuming such a large number of sellers in the market that each expects his actions to go unnoticed by his rivals, every producer expect his demand curve to be very elastic. The producer's expected or anticipated demand curve is shown by the relatively elastic curve.

If every producer under monopolistic competition thinks individually this way and reduces his price (on the assumption that none of his rivals will react) and, therefore, if all the prices are reduced simultaneously, each producer will gain only that increment in sales attributable to the general price reduction. He will not be able to capture portions of his rivals' markets. Thus the "group-effect" or "group-behaviour" will give the actual, less elastic, demand curve DD' to the firm. The DD' curve shows the actual sales to be gained or lost when all firms change price simultaneously.

The long-run equilibrium of the firm in the context of the whole "group" of firms may be discussed under two sets of assumptions: (a) when fresh entry into the group is not necessary, and (b) when entry is permitted. Meanwhile, in order to make the analysis simple, some heroic assumptions have been made. We know that in monopolistic competition there is heterogeneity of prices and variations over a wide range in outputs and in profits. Many such variations are temporary, but many persist for a long time. It defies comprehensive description as a "group" problem. In other words, as Chamberlin says: "Imperfection of competition is not uniform. It is not imperfect knowledge or immobility of production factors here. But here, the differentiation of product is not uniformly spaced." He further observes: "We, therefore, proceed under the heroic assumption that both supply and demand curves for all the products are uniform throughout the group. The product is different. Only that consumers' preferences be evenly distributed among the different varieties, and

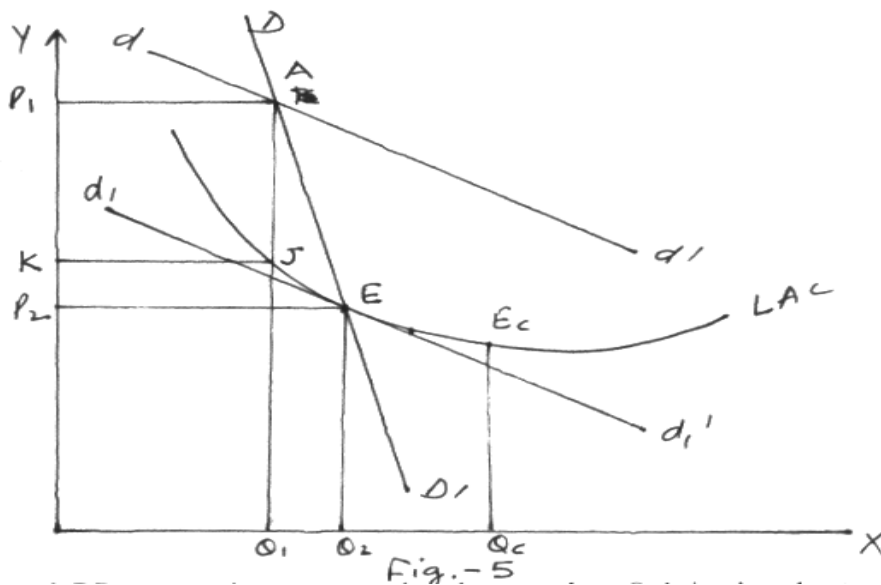
that differences between them be not such as to give rise to differences in cost.”

As the number of producers is very large, it is further assumed that any adjustment of price or of product by a single producer spreads its influence over so many of his competitors that the impact felt by any one is negligible and does not lead him to any readjustment of his own situation.

In the long-run due to external economies and diseconomies, costs of firms may decrease or increase. Chamberlin has assumed constant costs, for two reasons: (a) the theory in this form is widely applicable to facts, and (b) where it is not applicable, its extension to cover cases of increasing and decreasing costs for the group is easily made.

11.3.3 Long runs Equilibrium with Entry Closed:

Figure-5 represents the long run equilibrium of the group under monopolistic competition on the assumption that no new firm can enter the group. Adjustment of long run equilibrium start from point A where d and DD curves intersect each other so that Q_1A is the short run

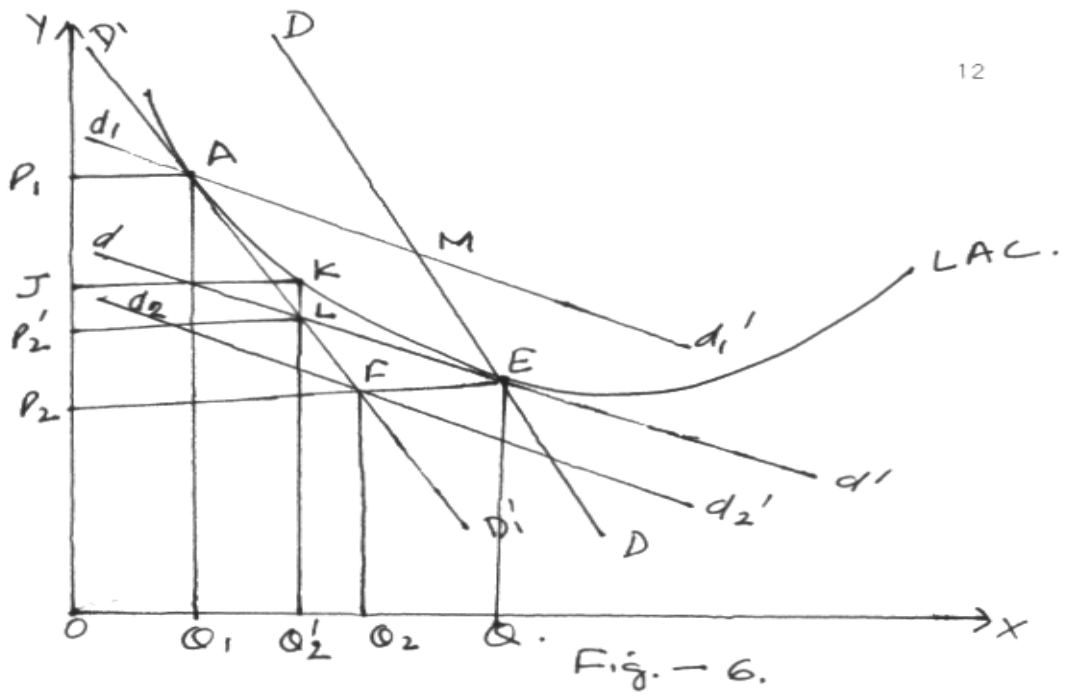


equilibrium price level at which each firm sells OQ_1 quantities of the product and short-run total profit is represented by rectangle P_1AJK . Every producer, regarding dd' as his demand curve, believes he can increase his total profit by reducing price and expanding output. But when others also think and do the same, this producer instead of expanding along dd' , actually moves along DD' . Ultimately he comes to the point E on LAC , below which only losses are incurred. At E his expected demand curve is d_1d_1' . The position of long-run equilibrium is E , where the d_1d_1' curve is tangent to LAC . At this point there are no abnormal profits.

The position of DD' depends upon the number of producer-sellers in the field. It will lie further to the left if there are more of them, since the share of each in the total will then be smaller; and further to the right if there are fewer of them. It is drawn through E , the point of tangency of dd' (dashed one) with LAC curve, since the number of producer-sellers is assumed to be that consistent with the final equilibrium adjustment.

11.3.4 Long-Run Equilibrium when Entry Permitted

It is given in Figure-6. In this case before the existence of profits induces the existing firms to expand, new firms selling slightly differentiated products enter this product group. The greater variety of available products causes the demand for each seller's product to contract. In the process DD' shifts to the left and becomes tangent to LAC at A through which passes the producer's expected dd' curve. Though at G (with output OQ_1 and price OP_1) all profits are eliminated, if one typical firm increases output along its dd' curve, it can make profits. But, as we have seen, when all the producers do the same, the dd' slides down the instantaneously existing DD' .



The transition from the initial DD' to D_1D_1' , as new firms enter, and finally to the ultimate long-run equilibrium point at E is long, and can come about in a number of ways. When the producer comes to point A on $D_1 D_1'$ (with output OQ_2) the total loss is shown by rectangle $JKLP_2$. However, if he can still travel along its imagined dd' curve passing through M , he can hope to reach E on LAC and eliminate the losses altogether (with output OQ_E and price OP_2). But as his rivals also act in the same fashion, he further stumbles down along $D_1 D_1'$ to point F : here his output will be OQ_2 and price OP_2 . But the situation is unstable.

Now, even when he can hope to travel along his expected demand curve d_2d_2' passing through F , there are losses. Ultimately some firms must leave the group. As marginal firms leave the group the proportional demand curve DD shifts to the right, together with the anticipated individual demand curve. The exit of firms must continue until the DD curve is DD' and the anticipated curve dd' . The long-run equilibrium is attained at E .

Equilibrium, then, is defined, by two conditions: (a) dd' must be tangent to LAC , (b)

DD' must intersect both dd' and LAC at the point of tangency. The final equilibrium point, with all the relevant curves, is shown as under

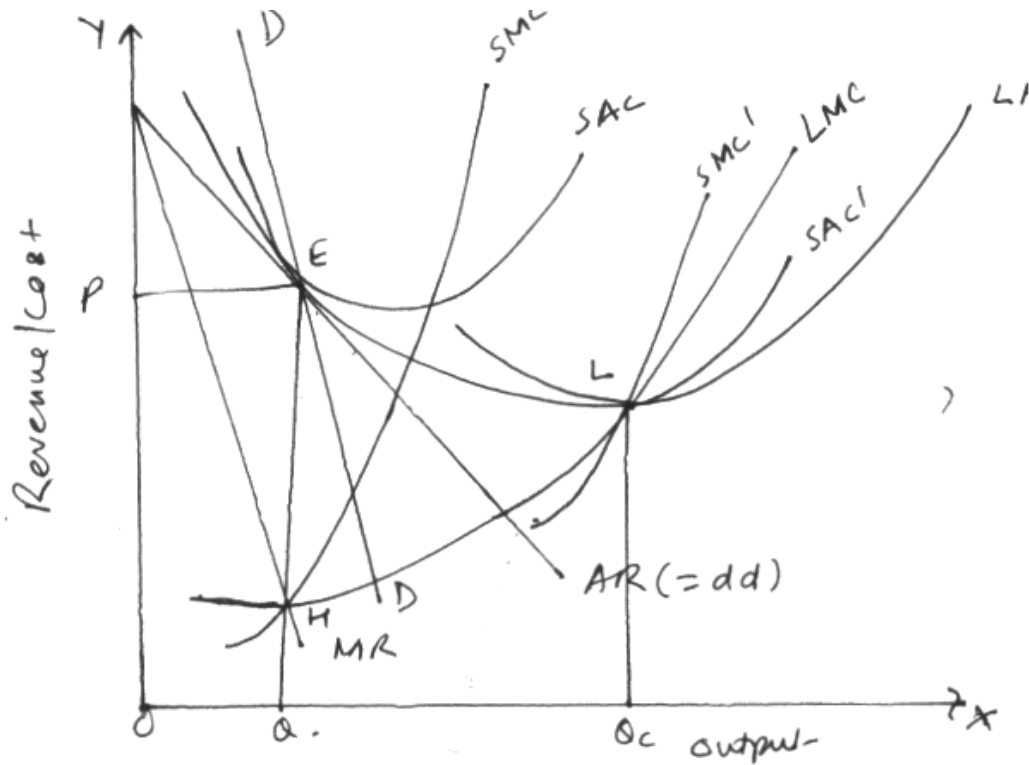


Fig. - 7

11.4 Price Determination under Oligopoly

Oligopoly is an important type of imperfect competition. Oligopoly is a market position where the producers or sellers of the good are few and having strong rivalry. So it is also called many times as competition among the few. Although the number of firms in the oligopoly is not certain but if the number of firms is more than two and equal to or less than ten than it is known as oligopoly. When all the firms in the oligopoly are producing homogenous product than it is known as oligopoly without product differentiation. If the product of the firms are different than it is known as oligopoly with product differentiation.

11.4.1 Characteristics of Oligopoly

- 1. Interdependence-** Interdependence in decision making is the main characteristics of oligopoly. Because the number of firms in this market is small so the changes done by a firm in production and prices etc. will put pressure on the price and production policies of the competitors.
- 2. Importance of advertising and selling costs-** The main effect of interdependence in oligopoly is seen when the firms have to use market saving weapons to save their existing market share or to increase it. For this the different firms have to bear many selling costs as advertising cost.
- 3. Group behaviour-** The oligopoly theory is not a theory of an individual and not a theory of large number of individuals but it is a group behaviour theory and the assumption that firms want to maximize their profit is not so fit for oligopoly market. The numbers of firms in a group are few and all of them are interdependent on each other. At present there is no general accepted theory to explain group behaviour. We have to face numbers of questions while understanding group behaviour such as whether the different members of the group cooperate to each other to achieve common benefits or otherwise they compete to each other for their personal benefits? Is there any leader of the group? If there is any leader then how he prepares others to follow him, etc.

11.4.2 Indeterminateness of Demand curve facing by an Oligopolistic

The demand curve which is faced by the oligopolist is not certain. The demand curve tells how many goods or commodities a firm can sell at different prices. The demand curve faced by the firm in perfect competition, monopoly and in monopolistic competition is certain but in the oligopoly market due to interdependence the position is different. An oligopolist firm can not assume that the rivals will not change their prices when the firm itself will change its price and

production policy so his demand curve becomes uncertain because it depends upon the uncertain behaviour of the competitors under different circumstances.

11.4.3 Price and Output Determination under Oligopoly-

There is no specific formula to determine the price and output in oligopoly market. The economist has developed various models on the basis of various assumptions to explain price and output determination under oligopoly. Some of them are as-

11.4.3.1 Price Leadership- It is impossible to decide price independently in oligopoly market. In specific industries the oligopolist takes collective decisions on the basis of written guidelines decided by them or either on the basis of their oral commitments. One example of their oral commitment is price leadership.

In price leaderships, firms take collective decisions without any specific agency to control the activities of the different firms. In this way they are also able to save them from the penalties they have to bear to break anti-trust laws which are imposed by the government. Price leadership may of many types-

Dominant Firm Price Leadership- In this leadership model a dominant firm captures a large share of the market and the other firms are so small that they can not change market conditions or environment by themselves. So the dominant firm decides the price of the good at which its profit becomes maximum according to its demand curve and the other firms will have to accept this price and should decide their production according to that price.

To determine price and output we assume here that-

- (a) The dominant firm has the full knowledge of the market demand of the commodity.
- (b) The dominant firm also knows the marginal cost (MC) curves of the small firms by the lateral summation of which the demand of the small firms can be known at different prices.

On the basis of above assumptions the dominant firm can estimate about the quantity supplied by the small firms and also know about its own demands.

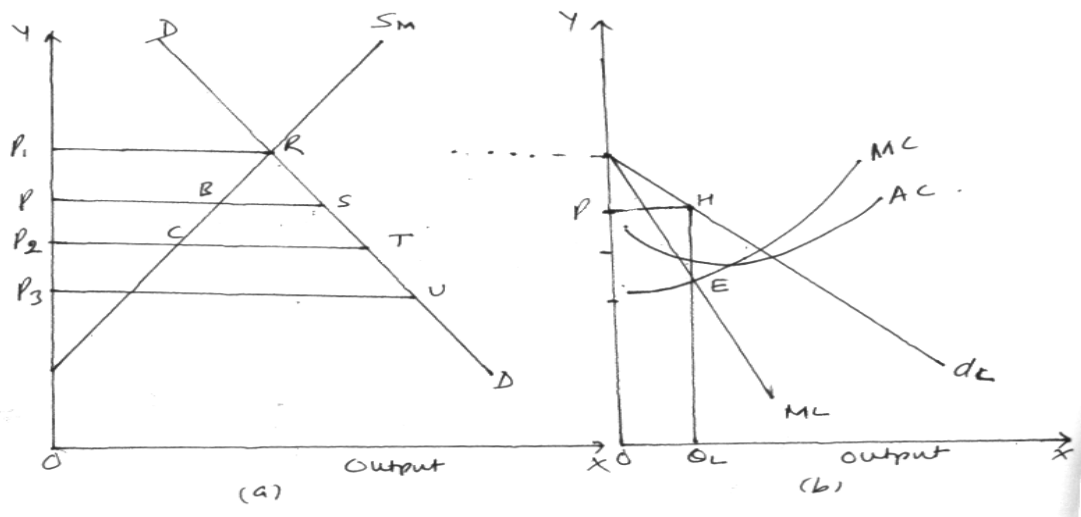
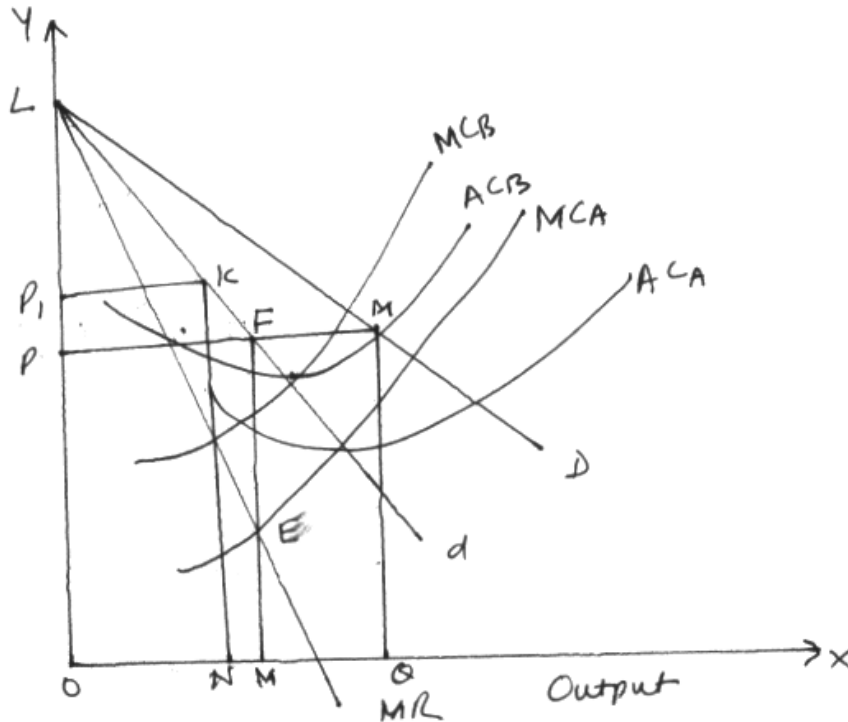


Fig.-8

Above fig-8 shows that at price P_1 the small firms are supplying P_1R amount of the commodity produced. So on price P_1 the demand of the dominant firm is zero. At price P the small firms are supplying equal to PB and the total demand of the market is equal to PS so the dominant firm can supply equal to BS amount at this price. At price P_2 the small firms will supply equal to P_2C and the dominant firm will supply equal to CT and at price P_3 the small firms will supply amount equal to (zero). With market demand (DD) of the commodity at different prices and the supply (S_M) supplied by small firms the demand curve d_L of the dominant firm can be drawn as in fig-8(b).

In fig.-8(b) d_L is the average demand curve and M_L is the marginal demand curve of the dominant firm. AC and MC are its average and marginal cost curves. The dominant firm will produce OQ output at price OP because at this output the dominant firm is acquiring maximum profit. At this price all the small firms collectively will supply PB amount of the commodity.

11.4.3.2 Price Output Determination under Price Leadership to Lower Cost



It is given in figure -9 which is based on assumptions as under

1. There are two firms A and B. The production cost of firm A is less than firm B.
2. Goods produced by both the firms are same so there is no preference in the mind of consumers.
3. Both the firms have equal share in the market. So in the above diagram each firm has demand curve dd which is equal to half of the market demand curve i.e. LD . MR is the marginal revenue curve of each firm. In the equilibrium position firm A will produce OM quantity of the good and determines price equal to OP . But the firm B will be in equilibrium when it produces quantity equal to ON at this position the price will be equal to OH . From the diagram it is clear that the price (OP) on which the firm A is getting maximum profit

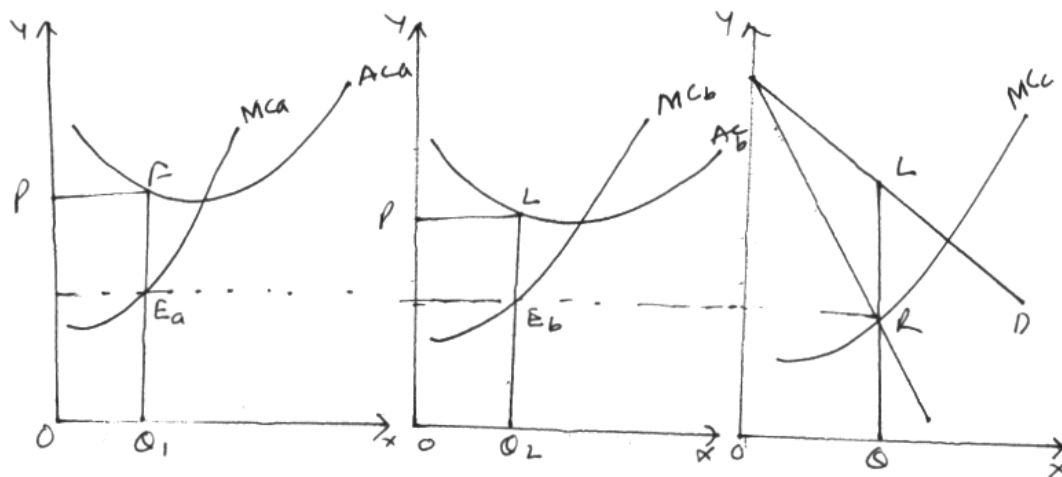
is less than the price (OH) at which the firm B is getting maximum profit. Because both the firms are producing homogenous product so cannot charge different prices. So the firm B has to determine or fix its price equal to OP in the other words firm A will be the price leader and the firm B will be price follower.

11.4.4 Collusive Oligopoly- When all the oligopolists make a formal agreement about price and output then it is said that they have formed collusive oligopoly. At first the cartel word is used for those agreements where a common selling agency is elected to so the selling activities of all the firms. The chief motive of cartel is to stop competition among the firms. So in many countries rules are framed to stop these.

The collusive oligopoly can take many forms. But its highest position and where when all the partner firms give the wake of their all price and production decisions to a common administrative agency. This type of collusive oligopoly is known as perfect cartel.

In the perfect cartel the central officer decides about the different partners of the cartel. All the profits of the industry are divided among the partners on the basis of the pre-defined rules and not on the basis of their production shares.

To know how the cartel works it is assumed that two firms make a cartel on the basis of a formal agreement. It is also assumed that the motive of the cartel is to acquire the maximum joint profit for the firms. First of all the cartel estimates the demand curve of the industry. The demand curve which the cartel faces will be the total demand curve of the consumers. It is equal to DD in the figure-10. The marginal revenue curve which is equal to MR in the diagram is telling about the increase in the revenue of the cartel due to a small increase in the sale of the cartel. The marginal cost curve of the cartel ($MC_{a+b} = MC_a + MC_b$) is acquired by the horizontal summation of the marginal cost curves of both the firms.



To maximise the industries profit the cartel will fix the industries profit where the (MR) of the cartel will cut its (MC) in the above diagram both of these curves are cut to each other at point R at this point the top total production is equal to OQ and the price is equal to OP. After knowing the total production of the industry the cartel will have to divide this production among different forms of the industry. This can be done by stretching a straight line from point R towards Y-axis. From the above diagram it can be seen that when firm A produces OQ_1 and firm B produces OQ_2 quantity then the cost of both the firms is equal. So the production quota of the firm A and B will be equal to OQ_1 and OQ_2 and $OQ = OQ_1 + OQ_2$.

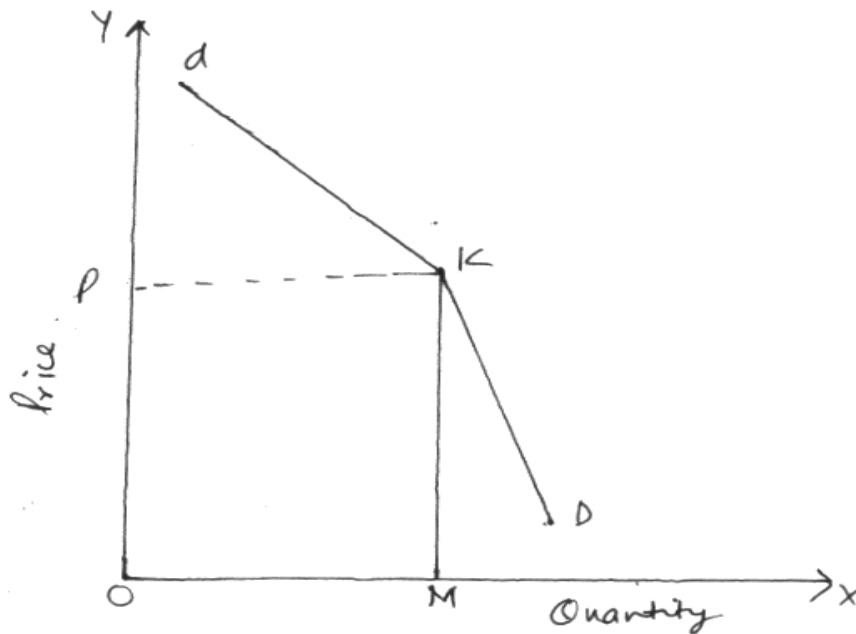
11.4.5 Kinked Demand Curve Oligopoly Theory and Price Rigidity

Generally it is observed that the oligopoly industries shows price rigidity i.e. oligopolist do not want to change their price even after the change in the economic conditions. The kinked demand curve theory is propounded by P.M. Sweezy and Hall and Hitch. This theory tells us only about the rigidity of the price in oligopoly

markets after price determination, it does not tell us about the determination of price under these markets.

According to this theory there is a kink in the demand curve which is faced by the oligopolist at present price.

The kink in the demand curve is found at the present price because the part of the curve which is above the present price is more elastic and part of the curve which is below this price is less elastic or inelastic.



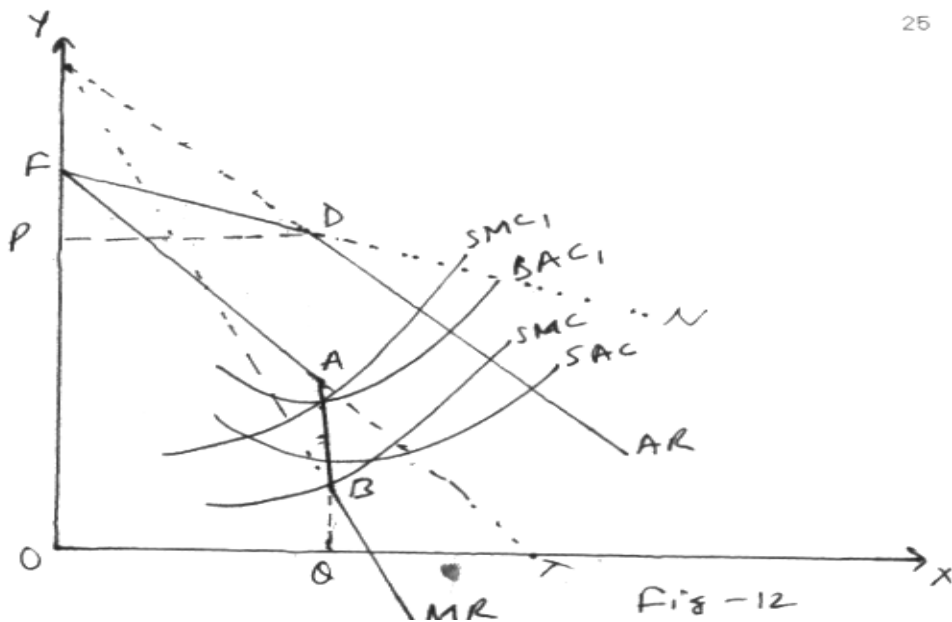
In the above diagram dD is the kinked demand curve. It is kinked at the point k . where firm is producing OM output at price OP . The upper part dk of the demand curve is more elastic than lower part kD . The reason of it is the special relation pattern assumed in this theory which is as-

Each oligopolist believes that if he lowers the price below the prevailing level, his competitors will follow him and will accordingly lower their prices, whereas if he raises the price above the prevailing level, his competitors will not follow his increase in price.

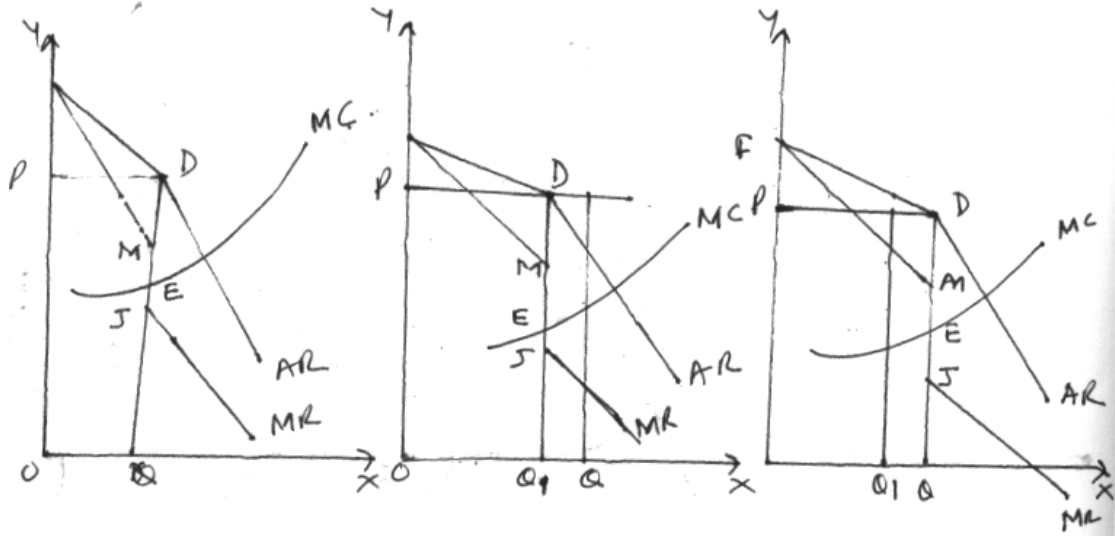
On the basis of above analysis it is easy to understand that why an oligopolist who is facing kinked demand curve is rigid about the change in price. Because in the same way after increasing the price above this level he can not increase his revenue due to so much fall of in his demand. On the basis of above analysis it is easy to understand that why an oligopolist who is facing kinked demand curve is rigid about the change in price.

The kinky demand curve has important implications for the MR curve of the firm; it is FABC and is discontinuous at the output OQ. This is due to a sudden change in the elasticity of AR curve at point D. As the $MR = P(1 - 1/e)$, it drops sharply at output OQ.

One important reason for a fairly rigid price policy on the part of individual firms of the industry now becomes apparent. Even if the MC curve goes up or down, so long as it cuts the discontinuous MR curve, AB, the output and the price will not change. Thus, there is enough room for the cost curves to shift up or down without affecting the oligopolies' profit-maximizing price and output.



Even if the costs are constant, but demand conditions change, the price may be rigid at the price UP , though now output may vary. Such variations in output 'with a kink at price OP ' are shown in figure-13



11.5 Check Your Progress

Answer the following questions on the basis of your knowledge regarding this chapter:

1. At which price demand and supply equate to each other?
2. A group of large number of firms which explicitly and openly agree to work together is called?
3. In which market form are products differentiated?
4. Where an attempt is made to persuade a consumer to buy products of the firm?
5. The minimum profit which a firm must earn to continue to remain in business.

11.6 Summary

The *monopolistic market* is a market which prevails in between the both markets i.e. between perfect competitive and monopoly, and has the elements both the markets.

In this market there are large numbers of firms which are selling close substitutes of each other. Monopolistic firm, like a monopolist, faces a *downward sloping demand curve*. This kind of demand curve is the result of (i) a strong preference of a section of consumers for the product and (ii) the quasi-monopoly of the seller over the supply. The strong preference or brand loyalty of the consumers gives the seller an opportunity to raise the price and yet retain some customers. *Oligopoly* is an important type of imperfect competition. Oligopoly is a market position where the producers or sellers of the good are few and having strong rivalry. An oligopolist firm can not assume that the rivals will not change their prices when the firm itself will change its price and production policy so *his demand curve becomes uncertain* because it depends upon the uncertain behaviour of the competitors under different circumstances. When all the oligopolists make a formal agreement about price and output then it is said that they have formed *collusive oligopoly*. Generally it is observed that the oligopoly industries shows *price rigidity* i.e. oligopolist do not want to change their price even after the change in the economic conditions

11.7 Keywords

Oligopoly - Oligopoly is a market position where the producers or sellers of the good are few and having strong rivalry. So it is also called many times as competition among the few.

Monopolistic Market- The monopolistic market is a market which prevails in between the both markets i.e. between perfect competitive and monopoly, and has the elements both the markets. In this market there are large numbers of firms which are selling close substitutes of each other.

Normal profit- The firm will get normal profit in the short run when the equilibrium price determined by it is equal to its average cost.

Collusive Oligopoly- When all the oligopolistic make a formal agreement about price and output then it is said that they have formed collusive oligopoly.

Dominant Firm Price Leadership- In this leadership model a dominant firm captures a large share of the market and the other firms are so small that they cannot change market conditions or environment by themselves.

11.8 Self -Assessment Test

1. Discuss and illustrate with diagrams the equilibrium of the firm and industry under monopolistic competition.
2. Evaluate critically Chamberlin's model of monopolistic competition.
3. Explain with diagrams the main characteristics of an oligopolistic market and equilibrium of a firm facing kinked demand curve.
4. Explain price and output determination under price leadership by a dominant firm.
5. Explain price determination under conditions of price leadership in an oligopolistic market.

11.9 Answers to Check Your Progress

- 6- Equilibrium Price
- 7- Cartel
- 8- Monopolistic competition.
- 9- Persuasive advertising.
- 10- Normal profit.

11.10 References/ Suggested Readings

- | | |
|----------------------|---|
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| Salvatore S. | : Managerial Economics, McGraw |

Subject: Economics Analysis	
Course Code: MC-104	Author: Dr. Mandeep Kaur
Lesson No.: 12	Vetter: Prof. Anil Kumar
Macroeconomics: Concept, Nature and Scope	

STRUCTURE

- 12.1 Learning Objectives
- 12.2 Introduction
- 12.3 Meaning of Macro Economics
 - 12.3.1 Major Concepts of Macro Economics
 - 12.3.2 Nature of Macro Economics
 - 12.3.3 Scope of Macro Economics
 - 12.3.4 Significance / Importance of Macro Economics
 - 12.3.5 Limitations of Macro Economics
- 12.4 Check Your Progress
- 12.5 Summary
- 12.6 Key words
- 12.7 Self-Assessment Test
- 12.8 Answers to Check Your Process
- 12.9 References/Suggested readings

12.1 LEARNING OBJECTIVES

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

- Understand the meaning of Macro Economics
- Explain different concepts of Macro Economics
- Explain the nature of Macro Economics
- Explain the Scope of Macro Economics

- Elaborate the Importance and Limitations of Macro Economics

12.2 INTRODUCTION

The word Economics is combination of two Greek words “Okio” (a house) and “nomos” (to manage). So economics word means home management with limited funds available. Economics as separate stream born in 1776 with the publication of Adam Smith’s book “An Inquiry into the nature and cause of Wealth of Nations.” At that time economics was popular as Political Economy. So, economics is allocation of scarce resources among alternative uses to get maximum satisfaction .It deals with allocation of limited funds among alternative investment projects in production decision. It also deals with distribution of scarce resources among unlimited and competing needs in case of consumption decision. Economics was a single branch or subject until 1930 .It was further classified into two branches *Micro* and *Macro* Economics by Rangar Frish. The word Micro is derived from Greek word ‘Mikros’ means small. Microeconomics deals with small segment of society. It deals with study of behaviour of individual consumer, individual producer and firms. It is also known as Price theory as it deals with determination of price of commodities and factors of production. On the other hand, macroeconomics deals with aggregative economics. It takes and deals with different concepts and problems of economics while taking the economy as a whole. Macroeconomics concepts, nature and scope are the subject matter of this chapter.

12.3 MEANING OF MACROECONOMICS

The word Macro is derived from Greek word ‘Makro’s’ means large. Macroeconomics deals with aggregative economics. Macroeconomics is the study of overall economic phenomena, such as different problems of economy as a whole including full employment, Gross National Product, Savings, Investment, aggregate consumption, aggregate production and growth. Concepts of macroeconomics are used to solve various economic problems such as economic fluctuations, unemployment, poverty, inflation, disequilibrium in balance of payment etc.

Macroeconomics is the study of major economic aggregate. The different economic aggregate includes such as total output, total employment, total savings, total investment, and total consumption. These are also called aggregate economics.

According to Shapero, " Macro Economics deals with the functioning of Economy as a whole."

According to Fellner, " Macro Economics or Aggregative Economics studies aggregates of individual decision making units particularly economy as a whole."

According to Gardener Ackley, "Macroeconomics concerns with such an economy, with the extent to which its resources are employed , variables as the aggregate volume of the output of an economy, with the extent to which its resources are employed with the size of national income and with the general price level."

According to Boulding, " Macroeconomics deals not with individual quantities as such but with the aggregate of these quantities; not with individual incomes but with the national income; not with individual prices but with general price level; not with individual output but with the national output."

12.3.1 MAJOR CONCEPTS OF MACROECONOMICS

Macroeconomic seeks to analyze those problems that affect the economy as a whole; such problems cannot be adequately studied with reference to an individual product, firm or industry. For example, the effect of introduction of new technology (say computers) is not limited to a single product or industry also, it will affect the structure of economic activity in the economy as a whole; it will affect the rate of economic growth; it will affect the level of employment (or unemployment); it will affect the general price level; it will affect the country's balance of payments, etc. All those problems and issues that affect the economy as a whole are studied in macroeconomics. Macroeconomics is the study of major economic problems also such as:

- Problem of Recession

- Problem of Fall in Rupee Value
- Problem of Inflation
- Standard of Living Problem
- Problem of Poverty, Inequality and Unemployment

The major concepts of Macroeconomics can be discussed below:

1. Income and Output: One of the most important concepts of macroeconomics is income and output. The national output is the total amount of all goods and services produced in a country during a specific period. We can measure output by calculating the total income from the sale of all goods and services. In relation to macroeconomics, economists usually measure national income or output by gross domestic product or GDP. By measuring GDP, economists can understand the market swings and changes. They can identify what measures to take to improve the GDP of the country. With technological advances, capital increase, and acquisition of state-of-art equipment, production units and organizations can increase national output and income. However, income and output can be affected by the recession and other market factors.

2. Unemployment: The unemployment rate is the number of person's unemployed i.e. jobless individuals who are actively looking for work or are on temporary layoff divided by the total of those employed and unemployed. Unemployment categories include classic unemployment, frictional unemployment, and structural unemployment. Classical unemployment is when wages are too high for employers to consider hiring more workers. Frictional unemployment occurs when the time taken to search for an appropriate employee is too long. Structural unemployment occurs when there is a mismatch between a worker's skills and the actual skill required for a job. Another important category of unemployment is cyclical unemployment that occurs when an economy's growth is stagnant. Unemployment has direct relation with major problems like rising rate of crime, suicide etc.

3. The Inflation Rate: The inflation rate is the percentage rate of increase in the economy's average level of prices. The study of inflation and deflation is another

important aspect of macroeconomics. The term inflation refers to an increase in the prices of goods and services across the country. The term deflation refers to a decrease in the prices of goods and services. Economists measure inflation and deflation by studying price index. A price index is the weighted average of price for a class of products and services. Inflation occurs when an economy grows too quickly. Deflation, on the other hand, occurs when an economy declines over a period of time. By studying the inflation and deflation trends, economists can help curb inflation rates by taking appropriate measures. Too much inflation can lead to negative consequences and continuous deflation can cause low economic output.

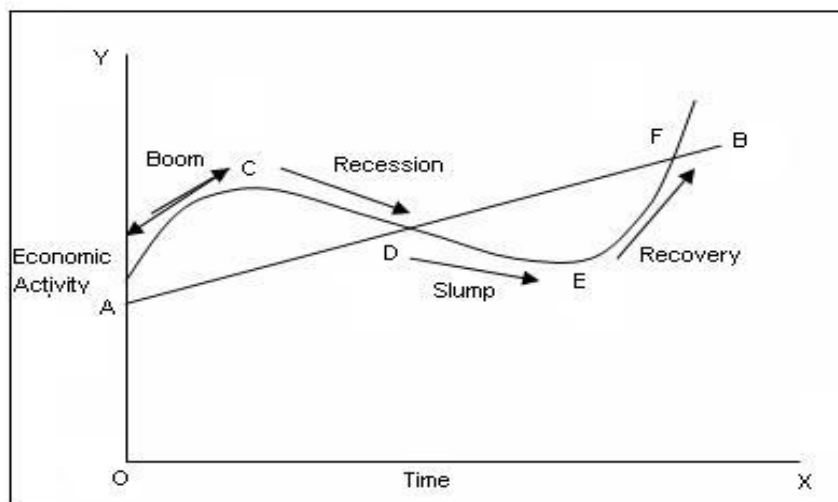
4. Macroeconomic Policies: The two main macroeconomic policies that a government may apply to bring about stability are the monetary policy and the fiscal policy. The monetary policy is an important process, which is under the control of the monetary authority of a country. This monetary authority is usually the central bank or the currency board. The monetary policy is usually implemented by the central bank to stabilize prices and to increase the strength of a country's currency. The monetary policy also aims to reduce unemployment rates and stabilize GDP. It also controls the supply of money in an economy. For example, the central bank of a country can pump money into an economy by issuing money to buy bonds and other assets. On the other hand, the central bank of a country can also sell bonds and take money out of circulation. The fiscal policy is a process that makes use of a government's revenue generation and expenditure as tools to control economic windfalls. The government uses the fiscal policy to stabilize the economy during a business cycle. For instance, if production in an economy does not match the required output, the government can spend on idle resources and help in increasing output. Usually, economists prefer the monetary policy over the fiscal policy. This is because the monetary policy is under the control of the central bank of a country, which is an independent organization. The fiscal policy is under the control of the government, which can be affected by political intentions.

5. Aggregate Demand–Aggregate supply: The macroeconomics does not deal with individual demand and supply rather it determines total demand and supply which is called Aggregate Demand (AD) and Aggregate Supply (AS) of an economy. The AD-AS model has become the standard textbook model for explaining the macro economy. This model shows the price level and level of real output given the equilibrium in aggregate demand and aggregate supply. The AD refers to the total sale proceeds which are expected from the sale of output produced from the given level of employment in an economy. So it depends upon level of employment in an economy. The major determinants of AD are Household consumption demand, Private Investment Demand, Government Demand for goods and services and net exports. AS Shows the minimum sale proceeds which are just necessary to induce the entrepreneurs to provide various level of employment. AS remains constant in short time period. The intersection of AD and AS determines the equilibrium position in an economy.

6. Economic Growth: Although traditionally macroeconomics has focused on output gap and has sought to explain the factors that cause divergence between potential GDP and actual GDP (i.e. GDP gap), in more recent times, macroeconomics has also sought to identify the forces that help an economy raise the level of potential output. Increase in the level of potential output constitutes economies growth, and forms an important issue in macroeconomics.

7. Business Cycle: Macroeconomic activity, in the long history of nations, has never followed a smooth trend; economic activity faces uptrends and downtrends, almost in a cyclical regularity. These cyclical uptrends and downtrends are known as business cycles. The various phases of a business cycle are identified as (1) boom, (2) recession, (3) depression, and (4) slump. The various phases have been illustrated in Graph 12.1. AB line shows the normal trend line. A movement from A to C takes the economy away from its normal trend. This constitutes boom. When recession sets in, economy moves down-hill (from C to D); if the downtrend is not

arrested, economy may get caught in slump (or what is also called depression). E to F represents the recovery phase. This cyclical behavior of economic activity has always attracted the attention of practitioners of macroeconomics. As a matter of fact, it was the great depression of 1930s that gave birth to modern macroeconomics, in a form that came to be known the Keynesian Revolution.



Graph 12.1 Phases of Business Cycle

12.4 NATURE OF MACRO ECONOMICS

The meaning and concepts of macroeconomics clarifies the following characteristics of macroeconomics:

1. Study of Economy as a whole: Macroeconomics is the study of economy as a whole .It does not deal with study of individual customer, individual producer or individual firm. Macroeconomics is the study of aggregates or averages covering the entire economy, such as total employment, national income, national output, total

investment, total consumption, total savings, aggregate supply, aggregate demand, and general price level, wage level, and cost structure.

2. A systematic and comprehensive body of thought: Macroeconomics is systematic and comprehensive body of thought. It is related to study of aggregate variables. The study of macroeconomic variables is indispensable for understanding the working of the economy. Our main economic problems are related to the behavior of total income, output, employment and the general price level in the economy. These variables are statistically measurable, thereby facilitating the possibilities of analyzing the effects on the functioning of the economy. As Tinbergen observes, macroeconomic concepts help in “making the elimination process understandable and transparent”. For instance, one may not agree on the best method of measuring different prices, but the general price level is helpful in understanding the nature of the economy.

3. Theory of National income and employment: Macroeconomics studies the concept of national income, its different elements, methods of measurement and social accounting.

Macroeconomics deals with aggregate demand and aggregate supply that determines the equilibrium level of income, output and employment in the economy. It explains the causes of fluctuations in the national income, that leads to business cycles i.e. inflation and deflation.

4. Theory of Money and Interest: Changes in demand for and supply of money have considerable effect on the level of employment. Macroeconomics therefore, studies functions of money and theories relating to it. Banks and financial institutions, rates of interest are also studied under macroeconomics. Monetary and fiscal policies of government are also studied under therein.

5. Lumping Method: There are two methods of economic analysis which are lumping method and slicing method. We can differentiate between Slicing method & Lumping method. In slicing method, we are concerned with small individual

Slices of the entire object whereas Lumping method concerned with the object as a whole. What is “true of parts is not necessarily true of the whole” To recall the example given by Prof. Bounding “forest is an aggregation of trees but it does not reveal the same properties and behavior patterns of the individual trees to generalize the behavior of the forest” there is therefore a need to have a Lumping approach to deal with the problems of the whole Economy. Macro-Economic analysis does this job.

6. A Bird’s eye view of the Economy: Macro Economy gives an overall view of the economy. It summaries and connects various aggregates so as to show the interrelationship between them.

7. Theory of general price level: Determination of and changes in general price level and what is the importance of various factors which influence general price level are also studied under macroeconomics. Problems concerning inflation or general rise in prices and deflation or general fall in prices are also studied under macroeconomics.

8. A more realistic approach: Although macroeconomics is difficult to study and is complicated; yet it tends to be more realistic because the entire economy is taken into consideration and thus helps in Policy decision taking.

9. Based on interdependence – A General Equilibrium Analysis: Macro-Economic analysis deals with the behavior of large aggregates and their functional relationship. It is a General Equilibrium approach in which everything depends on everything else and therefore there is an element of interdependency among the Macro-Economic variables for e.g. changes in the level of investment will finally result in changes the levels of Income, levels of output, employment and eventually the level of economic growth.

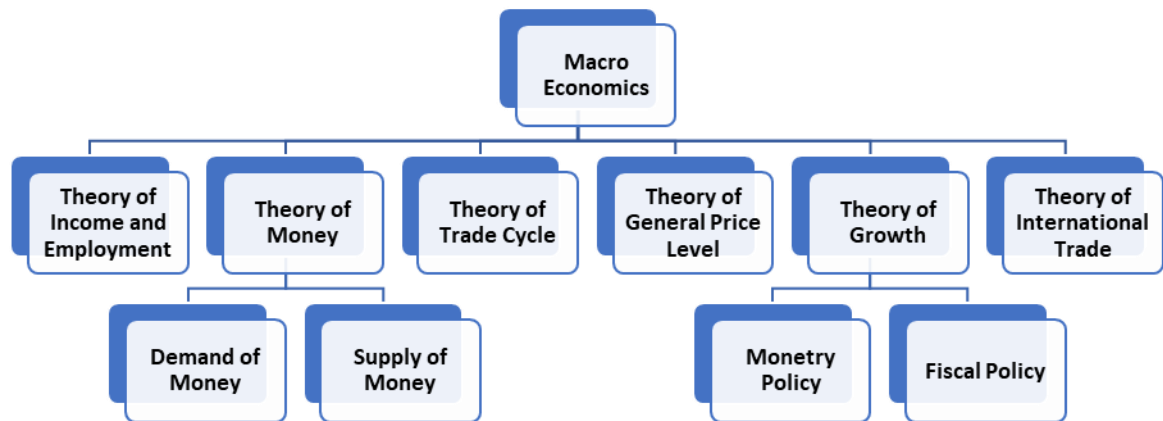
10. Special Growth Models: Study of problems relating to economic growth and development [increase in per capita real income] forms part of macroeconomics. It studies various factors that contribute to economic growth and development.

Macroeconomics has been useful in developing special growth models. These growth models are applied for economic development because the economics of growth is, in essence, the study of macroeconomics.

11. Neglect of Heterogeneity: The Macro Economy approach overlooks the facts that there exist differences in individual units. The conclusions based on aggregates are not uniformly applicable to different individual units for e.g. when we say that the National Income is increasing it does not necessarily implied that Income of every individual to increasing.

12.5 SCOPE OF MACRO ECONOMICS

The scope of macroeconomics deals with the determination of general price level. The quantity theory of money given by classical economists and Keynesian theory of money and prices are studied in macroeconomics. The concepts related to increase and decrease in prices, inflation and deflation come under the purview of macroeconomics. The economic fluctuations, depression and boom conditions are also the subject matter of macroeconomics. Theories of economic growth and development are also studied in macroeconomics economics can be presented with the help of chart drawn below:



1. Theory of Income and Employment: Investment Function: The study of macroeconomics is very important for evaluating the overall performance of the economy in terms of national income. With the advent of the Great Depression of the 1930s, it became necessary to analyse the causes of general overproduction and general unemployment. This led to the construction of the data on national income. National income data help in forecasting the level of economic activity and to understand the distribution of income among different groups of people in the economy. The Keynesian theory of employment is an exercise in macroeconomics. The general level of employment in an economy depends upon effective demand which in turn depends on aggregate demand and aggregate supply functions. Unemployment is thus caused by deficiency of effective demand. In order to eliminate it, effective demand should be raised by increasing total investment, total output, total income and total consumption. Thus, macroeconomics has special significance in studying the causes, effects and remedies of general unemployment.

2. Theory of Money: Theory of Money is part of macroeconomic analysis in which it is studied that how the demand for money and supply of money affects the level of income, output and employment in the economy. Money is the most important commodity in a market economy. A sum of money is at least one side of every market transaction. Sums of money are both sides of many transactions. In all transactions involving annuities, life

insurance, bank accounts, bond buying, and other loans of money, a sum of money is on each side of each transaction. Therefore, anything that affects the value of money affects every market transaction. The value of money affects not only the transactions of the moment but also all transactions over periods of time.

3. Theory of Trade Cycles: Macroeconomics is also an approach to economic problems started after the Great Depression. Thus, the scope of macroeconomics lies in analyzing the causes of economic fluctuations and in providing remedies. A trade cycle refers to fluctuations in economic activities especially in employment, output and income, prices, profits etc. It has been defined differently by different economists. According to Mitchell, “Business cycles are of fluctuations in the economic activities of organized communities. The adjective ‘business’ restricts the concept of fluctuations in activities which are systematically conducted on commercial basis. The noun ‘cycle’ bars out fluctuations which do not occur with a measure of regularity”. Thus the macroeconomic analysis also deals with analyzing the different phases of economic cycle and its impact upon the economy.

4. Theory of General Price Level: Macroeconomics also covers the study of general price level i.e. the impact of inflation and deflation on income, output and employment. One primary macroeconomic concern in market economies is the maintenance of stable prices, or the control of inflation. Inflation is a situation where prices are persistently rising, thereby reducing the value of money. It refers to a situation of constantly rising prices of commodities and factors of production. The opposite situation is known as deflation—a situation of constantly falling prices of commodities and factors of production. Thus the macroeconomics deals with both the problems of inflation and deflation to control the impact of both rise and fall in prices on economy.

12.6 SIGNIFICANCE / IMPORTANCE OF MACROECONOMICS

After the publication of Prof. Keynes "The General Theory of Employment, Interest and Money" in 1936, the revolutionary changes in economic thought have taken place and importance of macroeconomics has increased. The main benefits of macroeconomics are given below:

1. Helpful in Understanding Functioning of Economy: Modern economic system has become very complex and complicated. Its functioning is affected by many complex facts which cannot be studied in the form of individual units. For these macroeconomics study is useful. For proper understanding of the functioning of an economy, the macroeconomics has special importance.

2. Formulation of Economic Policies: Macroeconomics is very important and useful for the formulation of economic policies and their implementation. In the modern era, Government interfere in economic activities. Government is not concerned with any special activity of a man, but is concerned with the whole society. To solve the problems of unemployment, inflation, economic instability etc. the formulation of economic policies by the government is based on the macro study.

3. Study of National Income: In the present period, the importance of national income and its related aggregates are increasing. The economic policies in economic planning are based on the figures of national income .With the figures of national incomes of the different countries, we can compare the economic conditions of these countries. To study national income, macroeconomics has special importance.

4. Changes in General Price Level: The changes in prices affect adversely the different classes in the economy. To save the economy from the adverse effect of inflation and deflation, the study of macroeconomics has special importance.

5. Study of Trade Cycle: The trade cycles or the economic fluctuations affect the economy adversely. To control these or to bring stability macroeconomics is helpful.

6. Study of Economic Growth: The developed countries want to stabilize the growth rate and under- developed countries want to accelerate the rate of

development. The increase in national income, production and standard of living is the sign of development and for their study macroeconomics is needed.

7. Study of Micro Economics: The study of micro economics is not possible with macroeconomics. In reality the laws related to micro units are based on the behavior of their aggregates. For example, the law of demand is the subject matter of micro economics. The law conveys that the demand expands and contracts with the fall or rise in price. This law which is concerned with the behavior of an individual could be evolved when the behavior of a group of individuals was studied. In the same manner the study of the causes of increase in price of a commodity will be incomplete till the conditions of general price are not studied.

12.7 LIMITATIONS OF MACROECONOMICS

The main limitations of macroeconomics are as given under:

1. Macro Paradoxes: The main drawback or limitation of macroeconomics is that the macro conclusions when applied to micro units don't prove to be true; these are known as macro paradoxes. Whatever is true for an individual may not be true for the economy as a whole. If one person withdraws his deposits from the bank, it is of no harm to bank. But if all deposits are withdrawn from the bank then the bank can fail.

2. Heterogeneous Units: In macroeconomics, it is assumed that all the units are homogeneous in nature whereas these are heterogeneous in reality. Sometimes the homogeneous units cannot be collectively measured and aggregated. The examples given by Prof. Boulding clarify the difference. According to him $6 \text{ Apples} + 7 \text{ Apples} = 13 \text{ Apples}$ is a meaningful aggregate. On the other hand $6 \text{ Apples} + 7 \text{ Oranges} = 13 \text{ fruits}$ and this aggregate is also meaningful. But $6 \text{ Apples} + 7 \text{ Houses}$ is absolutely meaningless combination.

3. Wrong Policies: Thus we arrive at a conclusion from the study of aggregates that economy has not changed at all and there is no need to change the policy. For example, we assume that during 1990-91 in India, there is no change in the prices. It

is because of the fact that prices of industrial goods have gone high whereas the prices of agricultural goods have gone down with the same proportion. According to this, if the Government of India does not change the price policy it will be wrong on the part of government and policy will be wrong. The right step will be to check the rise in the prices of industrial goods and to raise the prices of agricultural goods.

4. Difficulty in Measurement: Another limitation in macroeconomics is that it is difficult to measure the aggregates such as total consumption, total production, total income, total investment etc. For their measurement, we have money as measuring rod but the value of money goes on changing.

12.4 CHECK YOUR PROGRESS

Answer the following fill in the blanks on the basis of your knowledge regarding this chapter:

- 1) The credit of development of macroeconomic approach must go to _____.
- 2) _____ economics studies the problem of inflation in an economy.
- 3) Macroeconomics studies the effect on _____.
- 4) _____ is the subject matter of Macroeconomics.
- 5) Micro and Macro approaches are _____.

12.5 SUMMARY

The word economics is combination of two Greek words “Okio” (a house) and “nomos” (to manage). So economics word means home management with limited funds available. Economics as separate stream born in 1776 with the publication of Adam Smith’s book “An Inquiry into the nature and cause of Wealth of Nations.” At that time economics was popular as Political Economy. So, economics is allocation of scarce resources among alternative uses to get maximum satisfaction .It deals with allocation of limited funds among alternative investment projects in production decision. It also deals with distribution of scarce resources among unlimited and

competing needs in case of consumption decision. Economics was a single branch or subject until 1930. It was further classified into two branches *Micro* and *Macro* Economics by Rangar Frish. The word Micro is derived from Greek word 'Micros' means small. Microeconomics deals with small segment of economy. It deals with study of behaviour of individual consumer, individual producer and firms. It is also known as Price theory as it deals with determination of price of commodities and factors of production. On the other hand, macroeconomics deals with aggregates. It takes and deals with different concepts and problems of the economy as a whole. Macroeconomics concepts, nature and scope are the subject matter of this chapter. The word Macro is derived from Greek word 'macros' means large. Macroeconomics deals with aggregative economics. Macroeconomics is the study of overall economic phenomena, such as different problems of economy as a whole including full employment, Gross National Product, Savings, Investment, aggregate consumption, aggregate production and growth. Concepts of macroeconomics are used to solve various economic problems such as economic fluctuations, unemployment, poverty, inflation, disequilibrium in balance of payment etc. Macroeconomics is the study of major economics totals or aggregate. The different economic aggregate includes such as total output, total employment, total savings, total investment, and total consumption. These are also called the aggregate economics. Macroeconomic seeks to analyze those problems that affect economy as a whole; such problems cannot be adequately studied with reference to an individual product, firm or industry. For example, the effect of introduction of new technology (say computers) is not limited to a single product or industry also, it will affect the structure of economic activity in the economy as a whole; it will affect the rate of economic growth; it will affect the level of employment (or unemployment); it will affect the general price level; it will affect the country's balance of payments, etc. All those problems and issues that affect the economy as a whole are studied in macroeconomics. The macroeconomics deals with the determination of general price

level. The quantity theory of money given by classical economists and Keynesian theory of money and prices are studied in macroeconomics. The concepts related to increase and decrease in prices, inflation and deflation come under the purview of macroeconomics. The economic fluctuations, depression and boom conditions are also the subject matter of macroeconomics. Theories of economic growth and development are also studied in macro economics

12.6 KEYWORDS

National Income and Output is the total amount of all goods and services produced in a country during a specific period. We can measure output by calculating the total income from the sale of all goods and services.

Unemployment rate is the number of person's unemployed i.e. jobless individuals who are actively looking for work or are on temporary layoff divided by the total of those employed and unemployed.

The Inflation Rate is the percentage rate of increase in the economy's average level of prices. Economists measure inflation and deflation by studying price index. A price index is the weighted average of price for a class of products and services. Inflation occurs when an economy grows too quickly.

Monetary policy is an important process, which is under the control of the monetary authority of a country to control money demand and money supply. This monetary authority is usually the central bank or the currency board. The monetary policy is usually implemented by the central bank to stabilize prices and to increase the strength of a country's currency.

Fiscal policy is a process that makes use of a government's revenue generation and expenditure as tools to control economic windfalls. The government uses the fiscal policy to stabilize the economy during a business cycle.

Aggregate Demand–Aggregate supply determines total demand and supply of an Economy. The AD-AS model has become the standard textbook model for

explaining the macro economy. This model shows the price level and level of real output given the equilibrium in aggregate demand and aggregate supply.

Economic Growth is the increase in the level of potential output constitutes economies growth, and forms an important issue in macroeconomics.

Business Cycle studies the cyclical uptrends and downtrends are known as business cycles. The various phases of a business cycle are identified as (1) boom, (2) recession, (3) depression, and (4) slump.

12.7 SELF-ASSESSMENT TEST

- 1) Explain the meaning and nature of macroeconomics.
- 2) Elaborate the different problems and concepts of macroeconomics.
- 3) Explain the scope of macroeconomics.
- 4) Explain in detail limitations of macroeconomics.

12.8 ANSWERS TO CHECK YOUR PROGRESS

- 1- Lord Keynes.
- 2- Macro.
- 3- Whole economy
- 4- Growth theory
- 5- Complementary

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Lesson No.: 13	Vetter: Prof. Anil Kumar
Measurement of Aggregate Demand and Aggregate Supply	

STRUCTURE

- 13.1 Learning Objectives
- 13.2 Introduction
- 13.3 Aggregate Demand and Aggregate Supply: Classical Version
- 13.4 Aggregate Demand and Aggregate Supply: Keynesian Version
 - 13.4.1 Effective Demand: Meaning
 - 13.4.2 Determinants of Effective Demand
 - 13.4.3 Determination of Effective Demand through Aggregate Demand and Aggregate Supply
 - 13.4.4 Importance of Aggregate Demand and Aggregate Supply
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13.1 LEARNING OBJECTIVES

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

- Understand the meaning of Aggregate Demand
- Explain the concept of Aggregate Supply
- Understand the concept of Effective Demand

- Explain the determinants of Effective demand
- Elaborate the Importance and Limitations of Effective Demand

13.2 INTRODUCTION

Aggregate Demand and aggregate supply have an important role in macroeconomics as per Keynesian model of income, output and employment. In Marshall's Price Theory, price of the commodity depends upon demand for and supply of that commodity and is determined at a point where demand and supply are equal. Similarly in Keynesian Theory, level of income and employment in an economy depends upon aggregate demand and supply in that economy and is determined at a point where aggregate demand is equal to aggregate supply. The level of aggregate demand which on becoming equal to aggregate supply determines the level of income and employment in the economy has been called as aggregate demand in Keynesian Theory. Classical Authors were of the opinion that aggregate demand and aggregate supply are always equal. Therefore, they have not provided much importance to these two forces. The opinion of classical scholars was based upon famous Say's Law of Market. The Concept of Aggregate Demand and Aggregate Supply as explained by classical theory and Keynesian theory are subject matter of this chapter.

13.3 AGGREGATE DEMAND AND AGGREGATE SUPPLY: CLASSICAL VERSION

The version of classical theory regarding aggregate demand and aggregate supply is based upon the Say's Law of Market. This law assumes that whatever part of income is saved in the economy is automatically invested. Money acts as a medium of exchange only. Thus, as per this version Aggregate Demand is always equal to Aggregate Supply in the Economy.

This Principle has been explained by Prof. Oskar Lange as identity Symbol (\equiv) represent by three parallel lines and signifies the equality of demand and supply.

This symbol says “Equal at all times under all conditions. “According to Prof Lange to find aggregate demand in the economy the volume of Goods and services demand must be multiplied with price. Similarly to find out aggregate supply volume of goods and services supplied in the market must be multiplied with price. Mathematically, if there are total "n" goods and services:

$$\sum_{i=1}^n P_i D_i = \sum_{i=1}^n P_i S_i$$

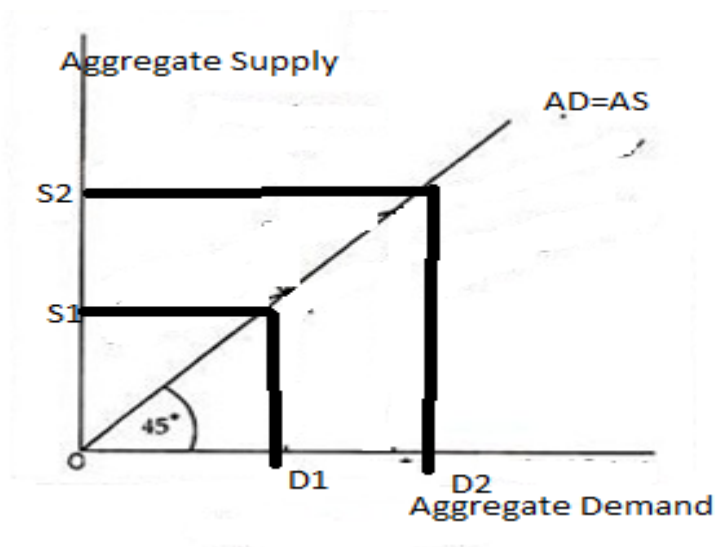
This is

$$P_1D_1+P_2D_2+P_3D_3.....+P_nD_n=P_1S_1+P_2S_2+P_3S_3.....+P_nS_n$$

Sum Total of Demand=Sum Total of Supply

Aggregate Demand=Aggregate Supply

The classical view of Aggregate Demand and Aggregate Supply can be presented with the help of following diagram:



Graph 13.1 Equality of Aggregate Demand and Aggregate Supply

The diagram 13.1 shows that aggregate demand has been taken along X axis and Aggregate Supply has been taken along with Y axis. When Aggregate Demand is equal to OD1, aggregate supply is equal to OS1. Both are equal i.e. $OD1=OS1$. Similarly, when aggregate demand is equal to OD2 aggregate supply become equal to OS2. Again both are i.e. $OD2=OS2$. Point A and B are on 45° line suggesting that AD and AS are always equal.

13.4 AGGREGATE DEMAND AND AGGREGATE SUPPLY: KEYNESIAN VERSION

Prof. Keynes criticized classical views regarding aggregate demand and aggregate supply. Great depression of 1929-33 proved classical views wrong. At this time Prof. Keynes wrote a book called General Theory. In this book Keynes suggests that aggregate demand and aggregate supply are not always equal, they are equal only in equilibrium. This equilibrium may be at full employment level, before the full employment level or after the full employment level. Prof. Keynes termed that level of aggregate Demand as effective demand, which on becoming equal to aggregate supply determines the level of income in an economy. The concept of effective demand is very important in Keynesian theory and is considered as starting point.

13.4.1 EFFECTIVE DEMAND: MEANING:

The effective demand has been defined as follows:

According to J.M. Keynes," The value of aggregate demand at the point of aggregate demand function where it is intersected by Aggregate Supply Function will be called effective demand."

According to Dillard," The adjective effective demand is used to designate the point on the aggregate demand curve where it is intersected by aggregate supply curve."

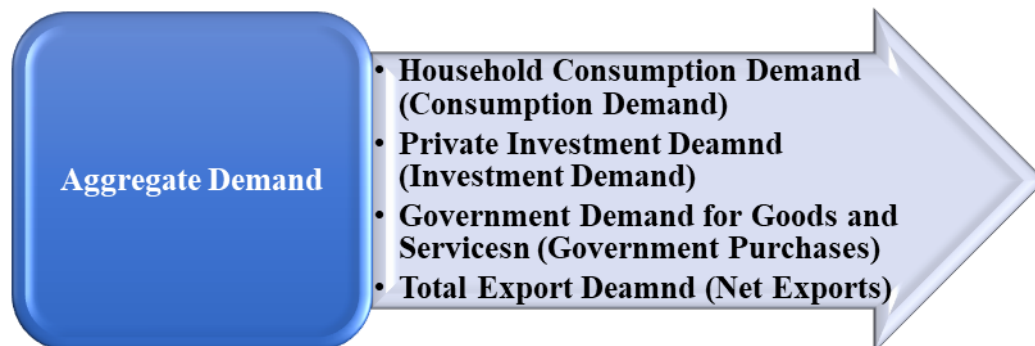
According to Davision, " The value of total spending as given by aggregate demand function where it is intersected by the aggregate supply function will be called effective demand."

So it can be concluded that Effective demand is that level of aggregate demand which is equal to aggregate supply. It is called effective since it determines the level of income, output and employment in the economy.

13.4.2 DETERMINANTS OF EFFECTIVE DEMAND

There are two determinants of Effective Demand:

1. Aggregate Demand: By aggregate demand, we mean, the total value that the household, firms, government and rest of the world sector are willing to pay for the output of the economy during a given period of time. Aggregate Demand has following four determinants:



Aggregate Demand

C=Consumption by Household (Value of Final Goods and services produced in a Year and consumed by Household Sector)	I=Gross Investment (Value of New Capital goods produced and addition in inventories produced but not sold during the year)	G=Government Consumption (Purchases of Goods and services by Government)	X-M=Net Export (Export-Import)
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Symbolically Aggregate Demand (AD)

$$AD=C+I+G+X$$

Where

C=Consumption Demand

I=Investment Demand

X=Net Exports

In Keynesian Theory Economy is assumed to be closed and role of Government as a spender or a taxpayer is ignored. In such model therefore Aggregate Demand is also called aggregate demand price. A schedule showing aggregate demand at various levels of income and employment is called aggregate demand function or aggregate demand schedule. The following table shows hypothetically aggregate demand function for any economy:

Table 13.1

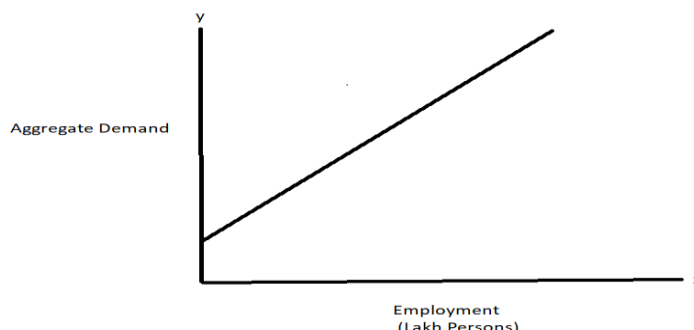
Hypothetical Aggregate Demand Function

Level	of Level	of Consumption	Savings	Investment	AD=C+I
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Employment (Lakh Persons)	Income or Output (Y) (Rs. Crores)	(C) (Rs. Crores)	S=Y-C (Rs. Crores)	I (Rs. Crores)	(Rs. Crores)
0	0	100	-100	100	200
N1	100	150	-50	100	250
N2	200	200	0	100	300
N3	300	250	50	100	350
N4	400	300	100	100	400
N5	500	350	150	100	450
N6=Nf	600	400	200	100	500
Nf	700	450	250	100	550

Table 13.1 shows the level of income or output corresponding to the different level of employment .It shows that level of income increases, consumption also increases. Investment in the economy is assumed to be Rs.100 crores irrespective of the level of income. Employment increases up to N6 i.e. situation is of full employment. After this it becomes constant. Full employment means further increase in output in real terms is impossible. Further increase in output in real terms is impossible. Further increase in income beyond this limit reflects only increase in money income i.e. rise in prices. In other words, goods worth Rs.600 crores are being sold for Rs.700 crores.

The above table can be presented in the form of aggregate demand curve. This curve showing the aggregate demand at different level of income and employment can be presented as below:



Graph 13.2 Hypothetical Aggregate Demand Curve

Graph 13.2 shows that Income and employment is measured along X axis and aggregate demand is measured along Y axis. Aggregate Demand is the summation of consumption and demand. The graph shows that AD curve is sloping upward.

2. Aggregate Supply: By aggregate supply we mean the total value of output available for purchases by the economy in the given year. Thus aggregate supply is nothing but the national income of the country. It can also be defined as the aggregate cost of producing the output which goes to the factors as income in the form of wages, rent, interest and profit. Now the producer must receive what it has cost them in the purchase of factors of production to produce the output, otherwise they will have tendency to contract their production activity.

Aggregate supply can be defined in another way also. It is the total amount of money which all the producers in the economy must expect to receive from the sale of output produced by given number of workers and other factors, if it is to be just worth employing them. So Aggregate Supply in any economy is nothing but national income. During any period, some part of national income is spent on consumption, some part kept as savings, some part is spent on paying taxes to

Government and remaining part is spent on imports of Goods and services from the rest of the world sector. Hence, Aggregate Supply is the sum of four components. Mathematically it can be expressed as follows:

Aggregate Supply = Consumption + Saving + Taxes + Imports

Symbolically it is:

$$AS = Y = C + S + T + M$$

Where

C stand for consumption

S stands for savings

T stands for Tax Payments

M stands for Imports

In Keynesian Model Economy assumed to be closed without any interference of Government. In such Economy:

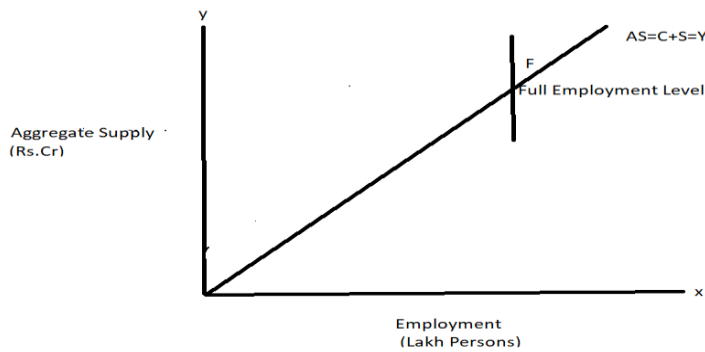
$$AS = C + S$$

Aggregate Supply is also called as aggregate supply price. A schedule showing aggregate supply at various levels of income and employment is called aggregate supply function or aggregate supply schedule. The following table shows hypothetical aggregate supply function for an economy. The table 13.2 shows level of income corresponding to various level of employment. As evident from the table aggregate supply is always equal to income. After the full employment level of output is obtained, further rise in aggregate supply in real terms is impossible. Further increase in aggregate supply beyond this limit reflects increase in aggregate supply only in terms of money i.e. rise in prices.

Table 13.2
Hypothetical Aggregate Supply Function

Level of Employment (Lakh Persons)	Level of Income (Y) (Rs. Crores)	Consumption (C) (Rs. Crore)	Savings S=Y-C (Rs. Crore)	AS=C+S (Rs. Crore)
0	0	100	-100	0
N1	100	150	-50	100
N2	200	200	0	200
N3	300	250	50	300
N4	400	300	100	500
N5	500	350	150	500
N6=Nf	600	400	200	600
Nf	700	450	250	700

A curve showing aggregate supply in the economy at various levels of income and employment is called Aggregate Supply Curve. The above hypothetical data when presented in the form of graph will give us Aggregate Supply Curve as below:



Graph 13.3 Hypothetical Aggregate Supply Curve

The graph 13.3 shows that Aggregate Supply is always equal to income; Aggregate supply curve is at 45 degree angle. After the level of full employment F is achieved, further increase in aggregate supply or income is not possible. However in money terms aggregate supply may increase because of rise in prices. It means aggregate supply or income may go on increasing because of rise in prices.

13.4.3 DETERMINATION OF EFFECTIVE DEMAND THROUGH AGGREGATE DEMAND AND AGGREGATE SUPPLY

Aggregate Demand determination as above depends upon the four sectors which are household sector, private business sector, government sector and foreign sector. For determination of effective demand through aggregate demand and aggregate supply below ignores the foreign sector for simplified analysis. In other words, here it is assumed that the economy is closed without government intervention. In such economy aggregate demand will be equal to consumption demand and investment demand. Mathematically:

$$AD= C+I$$

In such system the entire income will either be consumed or saved. Mathematically:

$$AS = Y = C + S$$

The following schedule shows how equilibrium level is determined in such a system:

Table 13.3

Hypothetical Aggregate Demand and Aggregate Supply Schedule of Closed Economy

Level of Employment (Lakh Persons)	Level of Income (Y) on AS (Rs. Crores)	Consumption (C) (Rs. Crore)	Savings S=Y-C (Rs. Crore)	Investment I (Rs. Crore)	AD=C+I (Rs. Crore)	Result
0	0	100	-100	100	200	AD>AS
N1	100	150	-50	100	250	Income has tendency to increase
N2	200	200	0	100	300	
N3	300	250	50	100	350	
N4	400	300	100	100	400	AD=AS
N5	500	350	150	100	450	AD<AS
N6=Nf	600	400	200	100	500	Income has tendency to decrease
Nf	700	450	250	100	550	

The schedule shows that when level of income in the economy is 100 Cr. Level of employment is N1 lakh persons. Similarly corresponding to level of Rs.200 Cr. N2 lakh persons are employed. N6 represent the level of full employment in the economy. Further increase in employment is not possible .Hence real output cannot be increased beyond this limit. Increase in income beyond this limits any increases prices. Further it is clear from the schedule that Aggregate Demand is equal to aggregate supply at income level of Rs.400 Cr. and employment level of N4 lakh persons.

Prof Keynes has called this level of Aggregate demand and aggregate supply as effective demand.

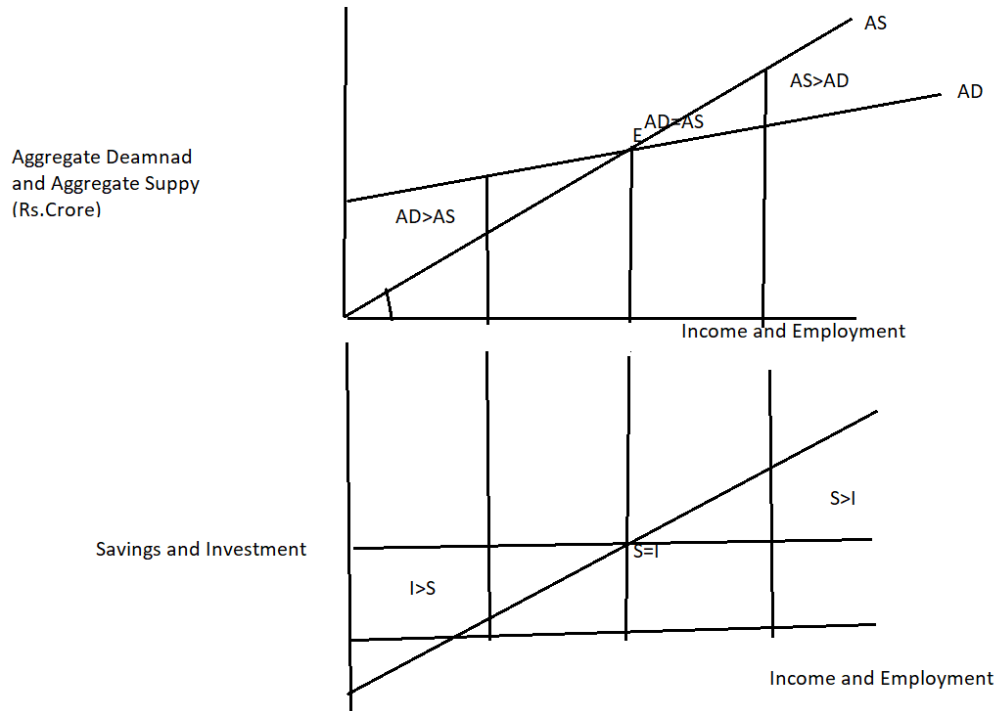
In other words, effective demand is that level of Aggregate demand where it is equal to aggregate supply. Thus equilibrium level of income in the economy will be Rs.400 Cr. and equilibrium level of employment will be N4 lakh persons. When level of income is Rs.200 Crores and level of employment is N2 lakh persons, aggregate demand is Rs.300 Crores, aggregate supply is Rs.200 crores.

Aggregate Demand is more than aggregate supply. It means the total value that the different sectors are willing to pay for the output of the economy is more than the minimum expected receipts of the businessmen. Therefore, economy will have tendency to expand. Income and employment level will have tendency to increase.

Similarly, as shown in schedule when level of income is Rs.600 Cr. and level of employment is N6 lakh persons, Aggregate demand is Rs.500 crores and aggregate supply is Rs.600 crores. Aggregate Demand is less than aggregate supply.

It means total value that the different sectors are willing to pay for output is less than the minimum expected receipts of businessmen. Therefore, economy will have

tendency to contract. Income and employment will have tendency to decrease. The same is depicted in the following Diagram:



Graph 13.4 Determination of Effective Demand

Graph 13.4 shows that $AD=AS$ at point E which is the point of equilibrium and effective demand is determined here. Before this point $AD>AS$ and economy has capacity to expand. Beyond E point $AS>AD$. The equilibrium can also be shown with the help of saving and investment equality. As shown in Diagram:

$$AD = C + I$$

$$AS = Y = C + S$$

For Equilibrium:

$$AD = AS$$

$$C + I = C + S$$

$$I = S$$

Thus for equilibrium as shown in diagram investment must be equal to savings. This equality is shown in the lower part of diagram.

13.4.4 IMPORTANCE OF AGGREGATE DEMAND AND AGGREGATE SUPPLY

The concept of Effective demand has an important place in Keynesian analysis. It is the basis of Keynesian model. With the help of this concept, Prof. Keynes rejected Say's Law and explained the great depression of 1929-33. He also suggested measures to check depression using this concept.

According to Prof. Keynes, "The true law relating the AD and AS function is vitally important chapter in economic theory, without which all discussion regarding the volume of aggregate employment is failure."

Prof. Dillard explained the importance of effective demand as, "The logical starting point of Keynes theory of employment is the principle of effective demand."

The different points of importance of aggregate demand and aggregate supply function can be explained below:

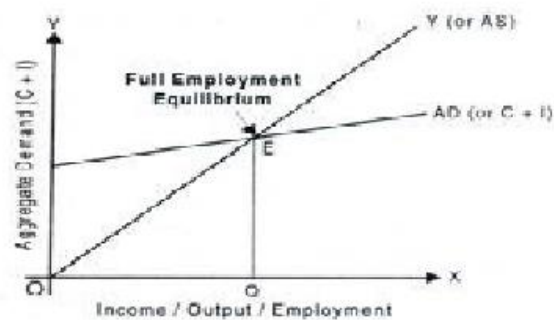
1. Determination of level of employment and output: As we have already studied the level of effective demand determines the level of output and employment in any economy. Higher the level of effective demand more will be employment and output in the economy. On the other hand, lower level of effective demand, smaller will be output and employment in the economy.

2. Aggregate demand is not always equal to aggregate supply: Classical Economists suggested that aggregate demand would always be equal to aggregate supply. Overproduction would never prevail in the economy. Prof. Keynes opposed this view in his effective demand model. He suggested that these two variables may be equal or may not be equal. However, if these are equal economy will be in equilibrium situation.

3. Full Employment not a General Condition of the Economy: Classical authors opined that there would always be full employment in the economy if because of one reason or the other, economy deviated from the situation, it would prove temporary. Prof. Keynes with the help of his effective demand model proves that the equilibrium of the economy is possible before full employment, at full employment and after full employment.

a. Full employment level and Equilibrium:

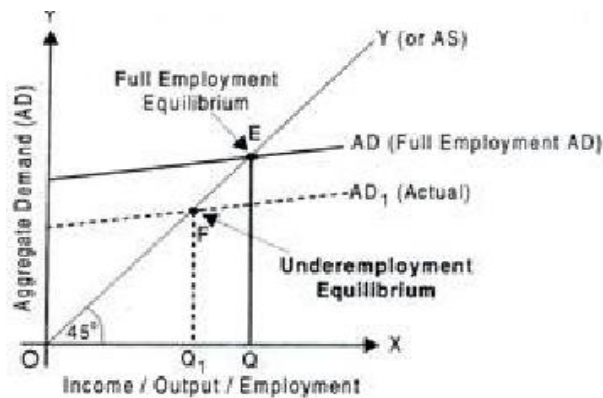
It refers to a situation when the aggregate demand is equal to the aggregate supply at full employment level. In Fig. 13.5, E is the full employment equilibrium because aggregate demand 'EQ' is equal to full employment level of output 'OQ'. At OQ level of output, all those who are willing to work at the prevailing wage' rate, are able to find employment, i.e. there is no involuntary unemployment.



Graph 13.5 Full Employment Equilibrium

b. Underemployment level, i.e. less than full employment level and Equilibrium:

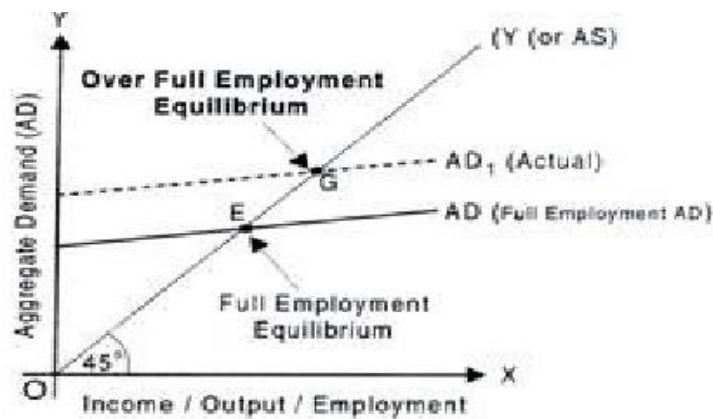
It refers to a situation when the aggregate demand is equal to the aggregate supply when the resources are not fully employed. It occurs prior to the full employment level. In Fig. 13.6 , $AD_1 = AS$ at point 'F' which is lower than full employment level. As OQ_1 is less than OQ point 'F' signifies the under employment equilibrium.



Graph 13.6 under Employment Equilibrium

C. Over full employment level, i.e. more than full employment equilibrium:

It refers to a situation when AD is equal to AS beyond the full employment level. It occurs after the full employment level. In Fig.13.7 , $AD, = AS$ at point 'G' which is higher than the full employment level. Point 'G' signifies the over full employment equilibrium.



Graph 13.7 over Full Employment Equilibrium

4. Repudiation of Pigou's Statement: The principle of effective demand proves that Pigou's argument that unemployment can be checked by reduction in wages is incorrect. Level of employment in the economy depends upon level of aggregate demand and can be raised only through rise in the level of aggregate demand.

Cut in the wage rate of workers will work in the opposite direction. In place of raising the level of employment, it will affect negatively. Cut in the wage rate means less income for workers. Less income of workers means less consumption resulting in less aggregate demand in the economy. As a result of less aggregate demand, level of employment will fall and not rise.

5. Economic Policy during Depression: Depression or deflation is a situation which is caused by deficiency in demand. This can be checked by increasing the demand. The increase in Aggregate Demand will shift the Aggregate Demand Curve in the upward direction and thus will raise the level of income and output in the economy. Aggregate Demand can be increased in depression with the help of increase in the Government expenditure in the economy. This increase in public expenditure should not be financed through increase in taxation as it may affect

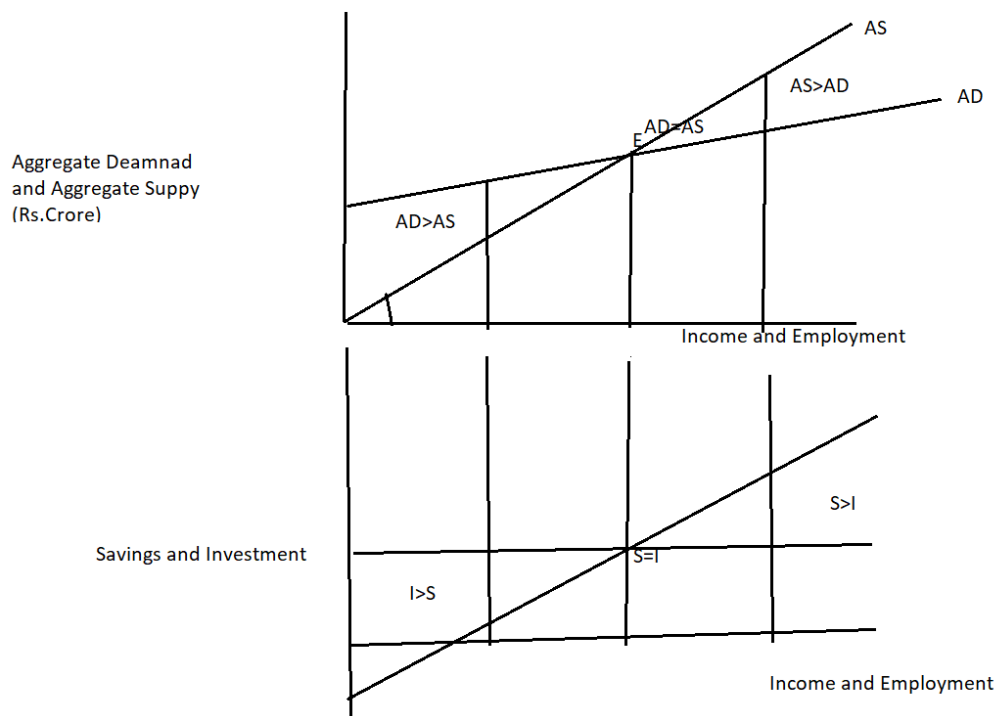
consumption negatively. The increase in the government expenditure will have multiple effects in the economy. This policy is called Pump Priming.

6. Economic Policy during Inflation: Inflation in the economy is caused by Excess of Demand. This can be checked by reducing the level of demand. This will shift the aggregate demand function in the downward direction and will check inflation. To reduce the level of Aggregate Demand Government should reduce the level of expenditure in the economy. Policy of heavy taxation should be followed to discourage consumption and investment in the economy.

7. Government Intervention Must: According to Effective Demand concept problems of overproduction and unemployment arising in any economy are not solved automatically. For solving these problems, Government intervention in economic activities is must. During depression period, Government should follow the policy of deficit budget to promote aggregate demand and during inflation government should follow the policy of surplus budget to check aggregate demand in the economy.

8. Saving and Investment Equality: In Keynesian Model saving and investment are equal at the point of equilibrium. This equality is brought by changes in the level of income.

This can be shown with the help of figure 13.8. In this diagram, saving and investment are equal at point E. Before this level investment is more than savings and after this level savings is more than investment. Thus, savings and investment equality is brought by changes in the level of income.



Graph 13.8 Saving and Investment Equality

9. Importance of Demand: Classical authors did not pay much importance to demand. They assumed that supply created its own demand. Hence only supply was important. With the help of the concept of effective demand, Prof. Keynes highlighted the importance of demand in the economy.

According to the concept of effective demand, level of employment and output in any economy depends upon level of effective demand. Level of effective demand is determined by aggregate demand and aggregate supply. It is because of reason that in the short run techniques of production, equipment and organization cannot be changed. Hence in the short run, aggregate demand is all important in determining the level of output and employment in the economy.

10. Importance of Investment: From the concept of effective demand, it is clear that there remains a gap between consumption and income which if not filled through investment causes unemployment in the economy. Hence the concept of

effective demand highlights the importance of investment. Moreover, consumption and investment are the two components of aggregate demand which determine the level of income employment and output in the economy. Out of these, consumption depends upon human psychology and remains static in short period. Hence, in short period the level of income and employment can be changed by changes in investment only.

11. Poverty amidst Plenty: Developed capitalist countries of the world face a typical problem. In these countries, with increase in the income and output, there starts arising a fear of overproduction and unemployment. Keynes suggests that it is because of the reason that that as income increases consumption also increases but less than increase in income. Hence arises the fear of over production.

13.4.5 CRITICISM OF AGGREGATE DEMAND AND AGGREGATE SUPPLY MODEL

One cannot deny the fact that the concept of effective demand is very important in modern Macro Economics. But it has been severely criticized by Economists such as Prof. Hazlitt and Prof. Hutt on the following grounds:

1. Effective Demand is a Misnomer: According to Prof. Hazlitt Demand is always effective. Therefore, there is no need for adding effective word before demand as has been done by Keynes. He argues that any demand which is not effective will be called as desire and will not be taken as demand.

2. Effective Demand does not determine Employment Level: Prof. Hazlitt has criticized the Keynes view that level of income and employment in any economy is determined by level of effective demand. He argues that level of employment and hence the level of output and income in any economy depends upon wage level and not upon level of effective demand .He is of the opinion that if wages are flexible there will be full employment in the economy even if there is shortage of effective demand.

3. Expected Demand cannot be effective: Prof. Keynes regards aggregate demand as the expected receipts of the producers in the economy. Critics say that expected receipts or demand cannot be effective.

4. Aggregate Demand depends upon level of employment: Prof. Keynes suggested that level of employment in any economy depends upon aggregate demand. Prof. Hutt says that the case is reverse i.e. Aggregate demand depends upon the level of employment. As level of employment increases aggregate demand also increases.

5. Not Applicable to Underdeveloped Countries: In rich developed countries the cause of unemployment is the shortage of demand but in less developed countries the cause of unemployment is the shortage of capital. Keynesian opinion that unemployment can be checked by raising the level of aggregate demand is not true for underdeveloped countries. In these countries unemployment can be checked by raising the level of capital formation. In any policy tries to raise the level of aggregate demand, it will lead to rise in prices and not rise in the level of employment.

13.5 CHECK YOUR PROGRESS

Answer the following fill in the blanks on the basis of your knowledge regarding this chapter:

1. A shift in aggregate supply is likely to reduce the _____ and increase National income.
2. An increase in aggregate demand will have most effect on prices if aggregate supply is _____.
3. An increase in investment will increase _____.
4. Improved training of employees would increase productivity and should increase the _____.
5. An _____ in aggregate demand, if aggregate supply is totally inelastic, will _____ prices but not change output.

13.6 SUMMARY

Aggregate Demand and aggregate supply have an important role in macroeconomics as per Keynesian Model of Income, Output and Employment. In Marshall's Price Theory, price of the commodity depends upon demand for and supply of that commodity and is determined at a point where demand and supply are equal. Similarly, in Keynesian Theory, level of Income and employment in an economy depends upon aggregate demand and supply in that economy and is determined at a point where aggregate demand is equal to aggregate supply. The level of aggregate demand which on becoming equal to aggregate supply determines the level of income and employment in the economy has been called as aggregate demand in Keynesian Theory. Classical Authors were of the opinion that aggregate demand and aggregate supply are always equal. Therefore, they have not provided much importance to these two forces. The opinion of classical scholars was based upon famous Say's Law of Market. The version of classical theory regarding aggregate demand and aggregate supply is based upon the Say's Law of Market. This law assumes that whatever part of income is saved in the economy is automatically invested. Money acts as a medium of Exchange only. Thus as per this version Aggregate Demand is always equal to Aggregate Supply in the economy. This principle has been explained by Prof. Oskar Lange as identity Symbol (\equiv) represent by three parallel lines and signifies the equality of demand and supply. This symbol says "Equal at all times under all conditions." Prof. Keynes criticized classical views regarding aggregate demand and aggregate supply. Great depression of 1929-33 proved classical views wrong. At this time Prof. Keynes wrote a book called General Theory. In this book Keynes suggests that aggregate demand and aggregate supply are not always equal, they are equal only in equilibrium. This equilibrium may be at full employment level, before the full employment level or after the full employment level. Prof. Keynes has that level of aggregate Demand as effective demand, which on becoming equal to aggregate supply determines the level of income in an

economy. The concept of effective demand is very important in Keynesian theory and is considered as starting point. By aggregate supply we mean the total value of output available for purchases by the economy in the given year. Thus aggregate supply is nothing but the national income of the country. It can also be defined as the aggregate cost of producing the output which goes to the factors as income in the form of wages, rent, interest and profit. Now the producer must receive what it has cost them in the purchase of factors of production to produce the output, otherwise they will have tendency to contract their production activity. The model of aggregate demand and supply helps in policy formation during depression and inflation. It establishes that Government intervention is must. Inspire of several limitations the concept of effective demand is very useful in macroeconomics analysis.

13.7 KEYWORDS

Aggregate Demand we mean the total value that the household, firms, government and rest of the world sector are willing to pay for the output of the economy during a given period of time.

Aggregate Supply we mean the total value of output available for purchases by the economy in the given year. Thus aggregate supply is nothing but the national income of the country. It can also be defined as the aggregate cost of producing the output which goes to the factors as income in the form of wages, rent, interest and profit. Now the producer must receive what it has cost them in the purchase of factors of production to produce the output, otherwise they will have tendency to contract their production activity.

Effective Demand is the value of aggregate demand at the point of aggregate demand function where it is intersected by Aggregate Supply Function will be called effective demand

13.8 SELF-ASSESSMENT QUESTIONS

1) Define Effective Demand. What are its determinants?

- 2) What is effective demand? Explain how it determines the level of employment.
- 3) Keynesian theory of effective demand is the heart of modern macro-economic analysis. Discuss
- 4) The logical starting point of Keynesian theory of employment is the principle of effective demand.
- 5) State and explain principle of effective demand. Give the importance of law. Explain the various points of criticism of effective demand.

13.9 ANSWERS TO CHECK YOUR PROGRESS

1. General price level
2. Price inelastic
3. Aggregate demand
4. Aggregate supply
5. Increase, Increase

13.10 REFERENCES/SUGGESTED READINGS

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Course Code: MC-104	Author: Dr. Mandeep Kaur
Lesson No.: 14	Vetter: Prof. Anil Kumar
MODELS OF GDP DETERMINATION	

STRUCTURE

- 14.1 Learning Objectives
- 14.1 Introduction
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 - 14.3.5 Items Excluded from Calculation of Gross National Product and Gross Domestic Product
 - 14.3.6 Process of Generation of Gross National Product: Circular Flow of Income
- 14.4 Measurement Models of Gross National Product
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14.1 LEARNING OBJECTIVES

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

- Understand the concept of Gross National Product
- Differentiate between income, expenditure and value added models
- Explain the income method model of measuring gross national product
- Explain the expenditure method of measuring gross national product
- Explain the value added model of measuring gross national product
- Understand the circular flow process of generation of gross national product

14.2 INTRODUCTION

Macro Economics is the study of major economics totals or aggregate. Unemployment, Inflation and productivity are regarded as three major concepts of macroeconomics. Third concept of Macroeconomics which is productivity deals with generation of output in any economy. Growth of any economy depends upon output. Output leads to generation of Gross National Product (GNP). GNP is one of the macroeconomic variables that measures the total amount of money earned within a country within a year. It is the sum total of aggregate income of any country in particular year. It is the basic indicator of monetary growth of any country. It is the base for drafting as well as evaluation of Economic planning and different economic policies such as fiscal policy, monetary policy and other. This chapter deals with GNP which is one of the Concept of National Income. GNP is one of the concept of National Income. National income or national product can be described as the money value of all final goods and services produced within the domestic territory of a country in an accounting year plus net factor income from abroad. National income or national product is the value of production by the national residents of a country (within or outside the domestic territory). On the other hand, Domestic Income is the value of production within the domestic territory of a country. The

important thing to understand about national income is how the national income of a country is related to national product. In fact, in an economy with no government and no foreign trade national income and national product is same thing from two different viewpoints. The sum of all incomes of the people in a country is called national income. The national income is greatly related to national product. In fact, in an economy without taxes and depreciation national income and national product is one and the same thing. The incomes with different people of the society are obtained by them through their contribution of labour, land, capital and entrepreneur services to the national product. Hence the income which labourer get are wages, the owner of land gets rent, capitalists get interest for their capital and entrepreneur gets profits for starting and organizing business. The Sum of incomes obtained as wages, rent, interest and profit is called national income on the other hand their respective contribution is called national product.

This chapter deals with understanding of concept of GNP along with different models of measurement of National Income. There are other concepts of national income such as Gross Domestic Product (GDP), Net Domestic Product (NDP) and Net National Product (NNP). The chapter also distinguishes these concepts of National Income from the concepts of GNP which is the major concept of this chapter. There are different ways of analyzing GNP i.e. from the income perspective, expenditure perspective or value addition perspective which are the basic models of GNP. These three models are discussed in this chapter.

14.3 CONCEPT OF GROSS NATIONAL PRODUCT (GNP)

Gross National Product is an important concept of national income. Gross National Product is defined as the total market value of all final goods and services produced by residents of country in a year. Following are the important points to be considered at the time of calculation of Gross National Product:

- Gross National Product measures the market value of annual output. In other words, GNP is monetary measure. There is no other way of adding up the different sorts of goods and services produced in a year except in terms of its monetary prices. In order to see accurately the changes in physical output over a period of time, the figure of gross national product is adjusted for price changes.
- Secondly for calculating Gross National Product accurately, all goods and services produced in a year must be counted once and not more than once. Most of the goods go through a series of production stages before reaching the market. Part of components of many goods and services are bought and sold many times. Hence to avoid double counting market value of only final goods and services are included. Transactions involving intermediate goods are excluded.

Gross National Product includes value of goods and services currently produced by normal residents of the country in a year. These residents may be national or non-national companies. Thus many foreign countries have set up plants in India. These companies owned by non-nationals but produce goods and services within the domestic territory of India and generate income for Indian residents employed in them. These foreign companies can only send back profits earned by them to their own countries.

14.3.1 COMPONENTS OF GROSS NATIONAL PRODUCT

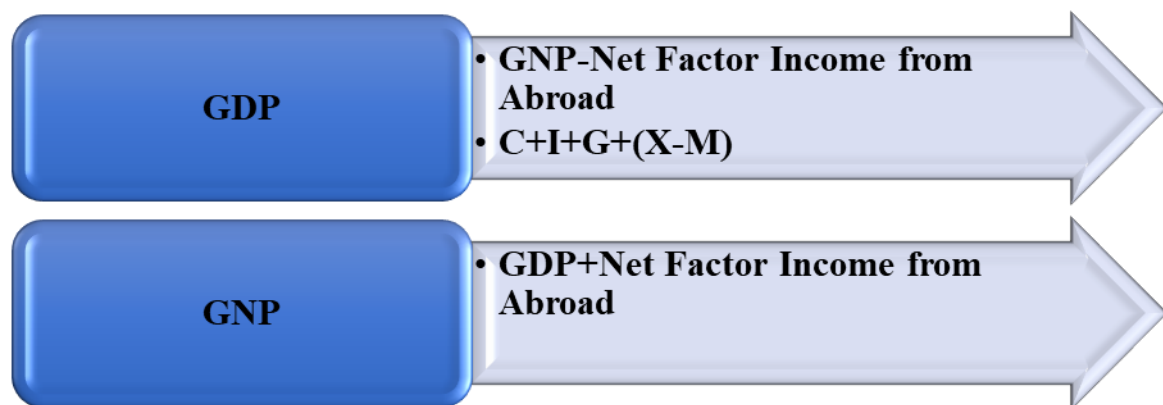
There are different components of Gross National Product such as Consumption by Household, Gross Investment, Government Consumption, Net Export and Net Factor Income from Abroad. These Components of Gross National Product can be explained as below:



- **Net Factor Income from Abroad:** The sum of factor income such as wages and salaries, rent, interest and profits generated within the domestic territory of a country is called domestic factor income. It includes factor income by both the residents and non-residents working within the domestic territory of a country. Similarly, some residents of a country go abroad and work in the territories of other countries and earn factor income. It includes both the individual residents and also the domestic companies have operation in foreign countries. Now the net factor income from abroad is the difference between the factor income such as wages, rent, interest and profits received from abroad by normal residents of India for rendering services abroad minus factor income paid to non residents for factor services rendered by them in domestic territory of India.

14.3.2 GROSS NATIONAL PRODUCT VS GROSS DOMESTIC PRODUCT:

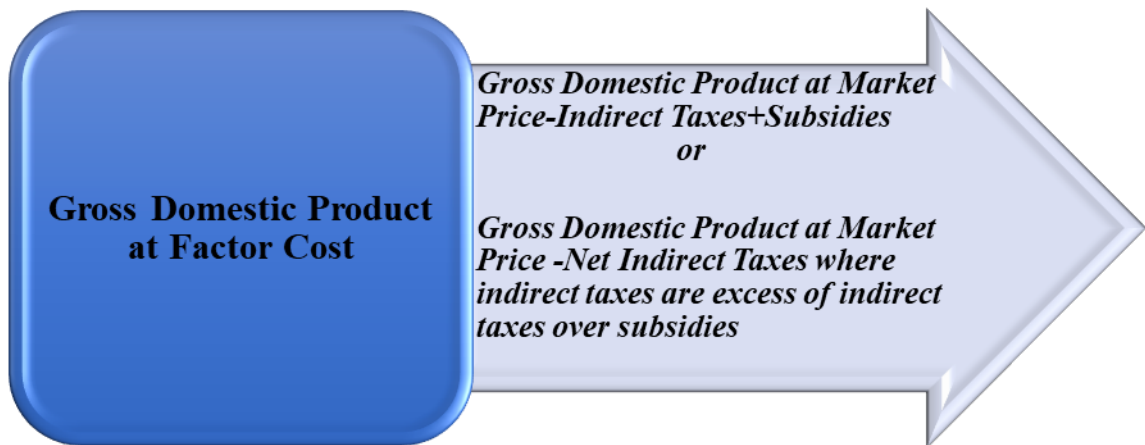
Gross Domestic product is the money value of all final goods and a service produced by all normal residents working in the domestic territory of a country but does not include net factor income earned from abroad. Thus the difference between the gross national product and a gross domestic product arises due to the existence of net factor income from abroad. Therefore:



It should be noted that net factor income from abroad should never be confused with net exports. Net Exports i.e. Export – Import are part of both GDP as well as GNP. But Net Factor Income from abroad is excluded while calculating GDP.

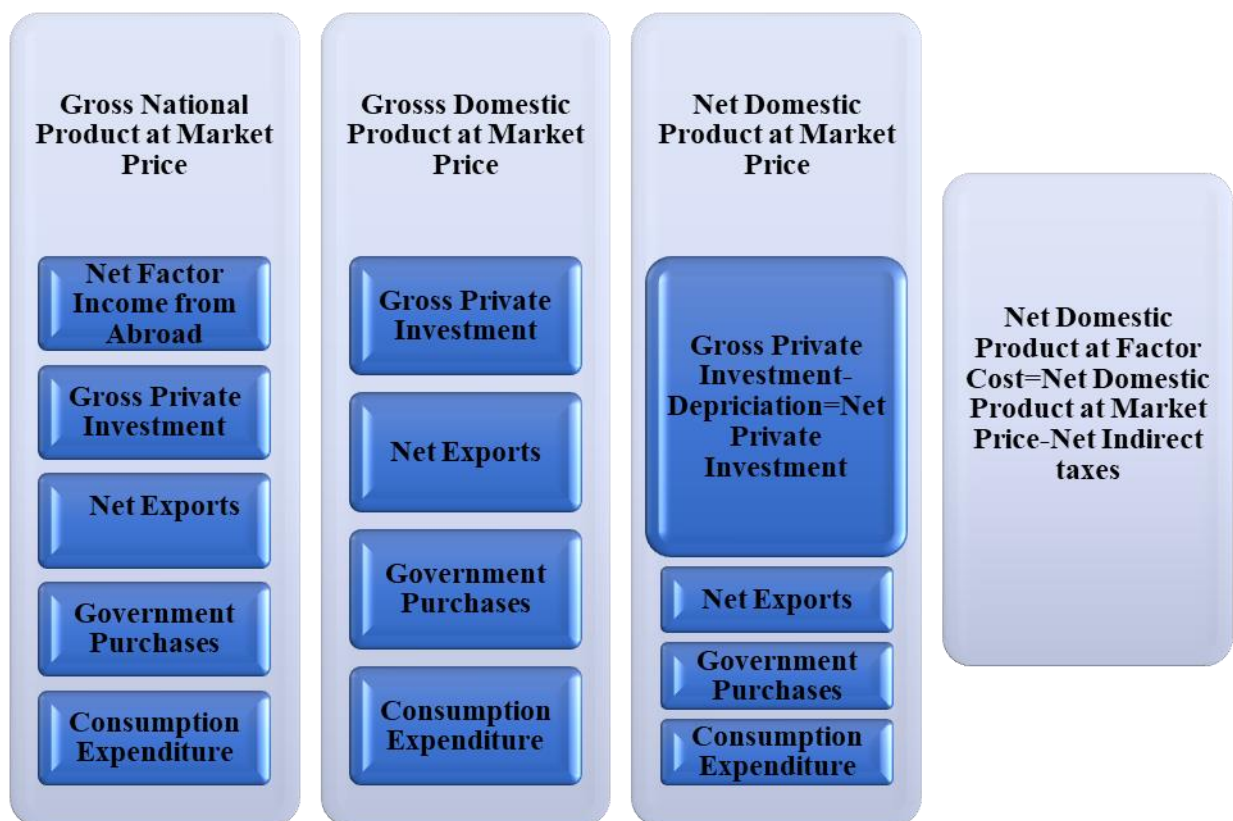
14.3.3 GROSS NATIONAL PRODUCT AND GROSS DOMESTIC PRODUCT AT MARKET PRICE VS AT FACTOR COST:

Gross Domestic Product at market price is distinguished from gross domestic product at factor cost. The difference is of the market price and factor cost. The market price of goods and services are raised by inclusion of indirect taxes such as excise duty, Goods and Services Tax etc. Levied by government. Similarly, price is reduced by the subsidies provided by government on certain goods and services. Therefore, to derive Gross Domestic Product at factor cost, gross domestic product at market price need to be adjusted for taxes and subsidies. Therefore:



14.3.4 DIFFERENCE BETWEEN GROSS NATIONAL PRODUCT AT MARKET PRICE, GROSS DOMESTIC PRODUCT AT MARKET PRICE, NET DOMESTIC PRODUCT AT MARKET PRICE AND NET DOMESTIC PRODUCT AT FACTOR COST:

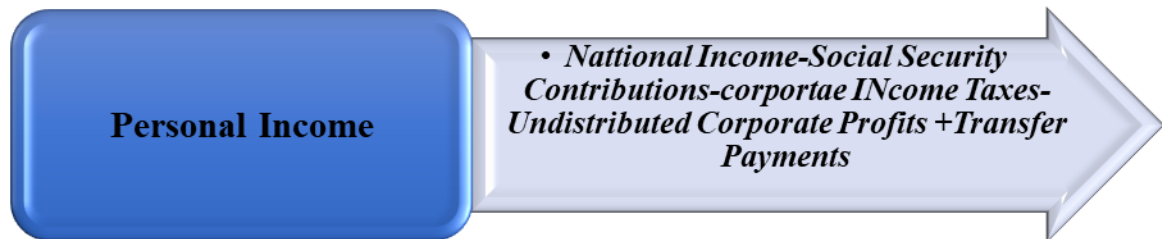
The difference in Gross National Product at Market Price, Gross Domestic Product at Market Price, Net Domestic Product at Market Price and Net Domestic Product at factor Cost as discussed above can be summarised as below:



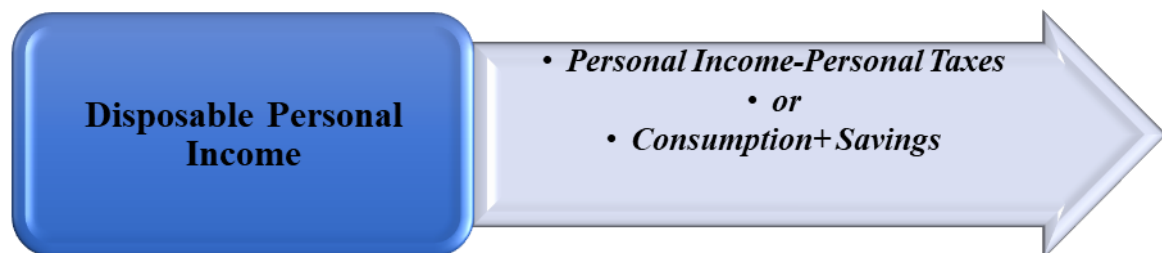
The explanation above as well as the diagram explained the difference between Gross National product and Gross domestic product is of net factor income from abroad. On the other hand the difference between Gross Domestic Product and Net Domestic Product is of Depreciation i.e. for gross domestic product gross investment is added while for net domestic product net private investment added after deducting depreciation. Similarly, the difference between market price for any concept and factor cost is of taxes and subsidies i.e. to reach at the concept of factor cost the market price must be added for subsidies and deducted for taxes.

- **Personal Income:** Personal Income is the sum of all incomes actually received by all individuals or households during a year. In order to calculate personal income from the national income we have to add those incomes which are received by household but not actually earned by the households. Similarly, there is need to subtract those incomes which are earned but not

actually received. For Example, Social Security Contributions, Corporate Income Taxes and undistributed corporate profits are earned but not actually received need to be deducted. Similarly transfer payments such as old age pension, unemployment compensation, relief payments etc. are received but not actually earned need to be added in national income in order to calculate personal income.



- **Disposable Personal Income:** Disposable personal income refers to income available for consumption. Whole of the income which are actually received by people are not available to them for consumption. This is because government levy some personal taxes such as income tax; property tax etc. Therefore disposable personal income is the personal income after deduction of personal taxes. Disposable personal income need not to be wholly consumed. A part of disposable personal income is consumed and other part is saved.



14.3.5 ITEMS EXCLUDED FROM CALCULATION OF GROSS NATIONAL PRODUCT AND GROSS DOMESTIC PRODUCT

It is clear from the above explanation that Gross national Product and Gross Domestic Product is the total market value of all final goods and services produced in a year. In the real world many transactions occur which although involve final goods and services but are excluded from the measurement of gross national product and gross domestic product. These transactions or items can be discussed as below:

1. Buying and Selling of Securities: The sale and purchase of shares and bonds of a corporate house are not included in the measurement of national income, as these involve only transfer of ownership rights of the assets. No new assets are created in this transaction and hence excluded from the calculation of national income.

2. Government transfer payments: Transfer payments by government such as unemployment benefits, interest on public debt, old age pension etc. for which no goods or services are provided in exchange by the recipient in the current year are excluded from the calculation of national income.

3. Private Transfer Payments: Private transfer payments such as pocket money given by parent to children, gifts by elders to young ones etc. involve only transfer of money from one individual to another individual and not results in the production of any new goods or services. These are excluded from the calculation of national income.

4. Sale of Second Hand Goods: in the calculation of national income sale and purchase of old used goods such as sale of old car, sale of old house etc. are excluded from the calculation. The reason is national income measures the market value of final goods and services produced in year. Old second hand goods were produced in earlier years not in current year and hence excluded while measuring the value of output for the current year.

5. Non Market Goods and Services: National income measures the value of those goods and services which are bought and sold in the market. There are certain goods and services which are not coming in the market for sale and purchase and hence excluded from the calculation of national income. For example, vegetables grown by

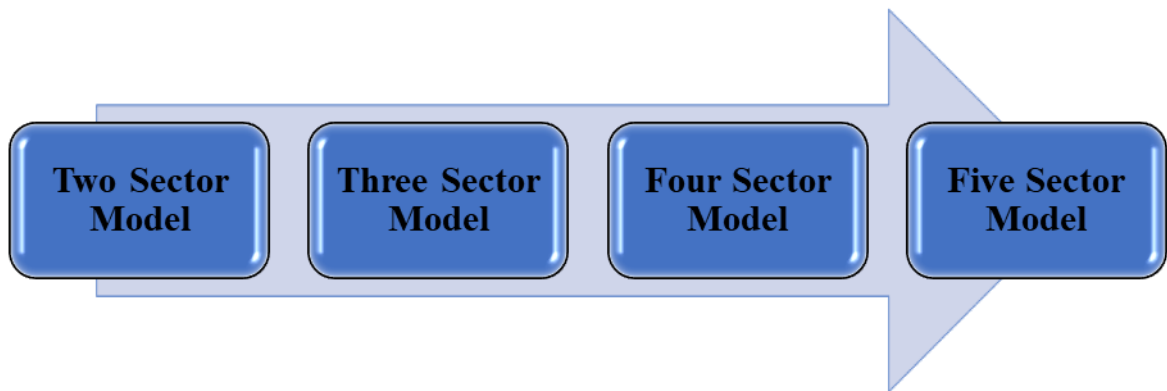
some households in their own farm instead of buying them from the market, the work related to repairing electricity fault by house owner himself are not included in the measurement of national income. Similarly, services rendered by housewife to her husband, children and other family members are not included in the measurement of national income as housewife services are not paid and hence not has market value.

6. Illegal Activities and Transactions: Incomes earned from illegal activities such as smuggling, gambling, drug trafficking, prostitution, sale of illegal arms etc. are not counted in the calculation of national income. It is because of the reason that it is difficult to know the exact value of transactions involving these illegal activities. These illegal activities are part of underground economy and are unaccounted because these are unlawful.

7. The Value of Leisure: Leisure is regarded as a normal economic good. The more leisure to an individual lead to greater amount of satisfaction, although more leisure leads to greater amount of satisfaction and happiness but it is difficult to measure the market value of such leisure. So the value of leisure although affects the generation of income but are excluded from the calculation of national income.

14.3.6 PROCESS OF GENERATION OF GROSS NATIONAL PRODUCT: (CIRCULAR FLOW OF INCOME)

The process of generation of Gross National Product can be explained with the help of circular flow of national income. Understanding the basic concepts of national income requires the understanding of circular flow of generation of national income. Circular flow of national income describes that production generates income, income give rise to demand for goods and services and demand in turn gives rise to expenditure. Expenditure leads to further production. The flow of production, income and expenditure are interlinked with each other in circular flow. The circular flow of national income has following four types:



Circular Flow of National Income Models

1. Two Sector Model of Circular Flow of Gross National Product: The two sector model of generation of national income assumes that there are two sectors in the economy which are household sector and business sector. There is equilibrium in the economy in which

$$\text{Income}(Y) = \text{Expenditure}(E) = \text{Output}(O)$$

The Model takes further these assumptions:

- The household sector spends whole of their income on purchase of goods and services as there is no savings.
- All output produced by Business sector is purchased by household sector.
- There is no financial sector.
- There is no government sector.
- There is no foreign sector.

The model is shown in the figure 14.1. It shows that expenditure of buyers or household sector becomes income for the seller or business sector. The business sector spends whole of this income on different factors of production such as Labour, capital and raw material. This in turn becomes income of factors of production that spends this income to buy goods and services.

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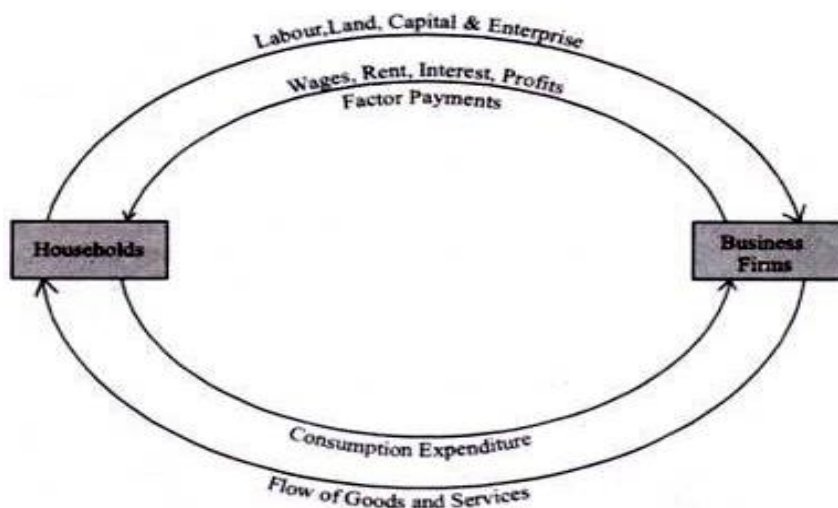


Figure 14.1 Two Sector Model of Circular Flow of Gross National Product

2. Three Sector Model of Circular Flow of National Income: The three sector model of generation of national income assumes that there are three sectors in the economy which are household sector, business sector and Government Sector..There is equilibrium in the economy in which

$$\text{Income}(Y) = \text{Expenditure} (E) = \text{Output} (O)$$

Here the household sector and business sector pays taxes to government. The government has income and spends it in the circular flow in the form of that government also purchases goods and services. Secondly government makes payment to household sector in the form of subsidies and transfer payments. As a result of this income always remains equal to expenditure and makes this circular flow unending. The model is shown in figure 14.2:

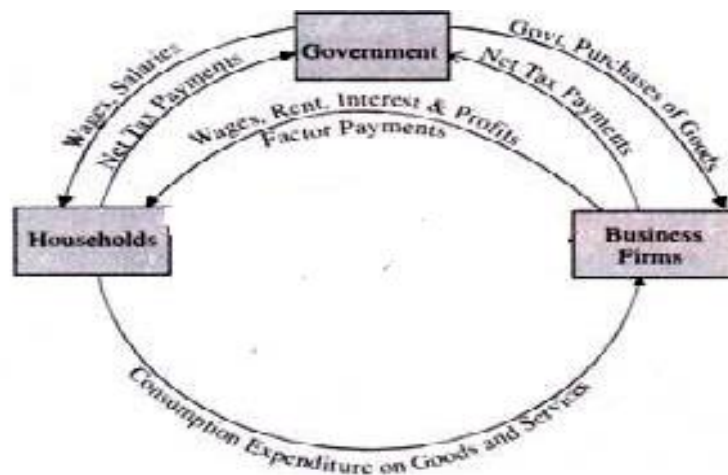


Figure 14.2 Three Sector Model of Circular Flow of Gross National Product

The Model takes further these assumptions:

- The household sector spends whole of their income on purchase of goods and services as there is no savings.
- All output produced by Business sector is purchased by household sector and government sector.
- Government has income and also makes expenditure.
- There is no financial sector.
- There is no foreign sector and economy is closed.

3. Four Sector Model of Circular Flow of National Income: The four sector model of generation of national income assumes that there are four sectors in the economy which are household sector, business sector and Government Sector and Financial Sector. There is equilibrium in the economy in which
 $\text{Income}(Y) = \text{Expenditure}(E) = \text{Output}(O)$

This is shown in figure 14.3. Here each of the above sectors receives some payments from the other in lieu of goods and services which makes a regular flow of goods and physical services. Money facilitates such an exchange smoothly. A residual of each market comes in capital market as saving which in turn is invested in firms and government sector. Technically speaking, so long as lending is equal to the borrowing i.e. leakage is equal to injections, the circular flow will continue indefinitely. However, this job is done by financial institutions in the economy.

The Model takes further these assumptions:

- The household sector spends whole of their income on purchase of goods and services as there is no savings.
- All output produced by Business sector is purchased by household sector and government sector.
- Government has income and also makes expenditure.
- There is financial sector.
- A residual of each market comes in capital market as saving which in turn is invested in firms and government sector. Technically speaking, so long as lending is equal to the borrowing i.e. leakage is equal to injections
- There is no foreign sector and economy is closed.

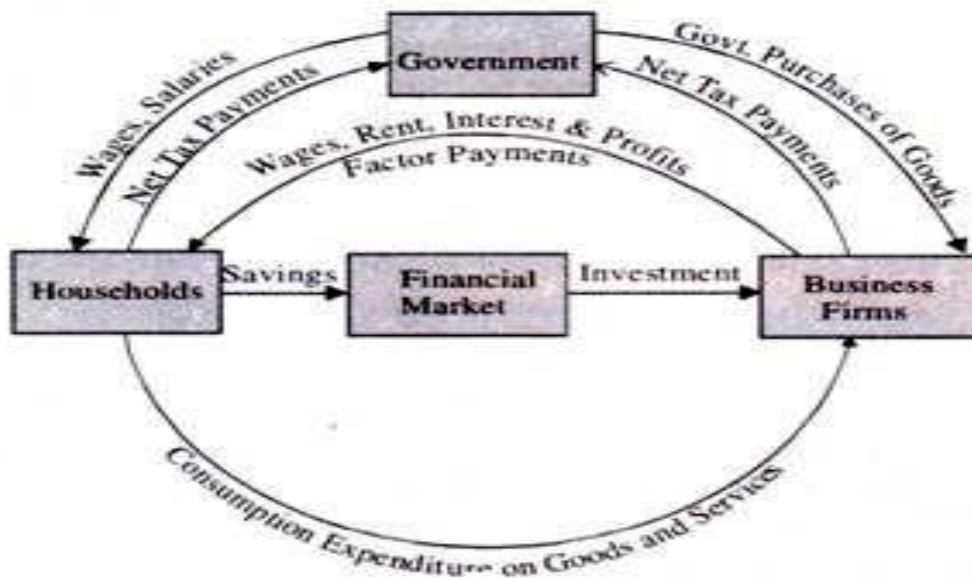


Figure 14.3 Four Sector Model of Circular Flow of Gross National Product

4. Five Sector Model of Circular Flow of National Income: The five sector model of generation of national income assumes that there are five sectors in the economy which are household sector, business sector and Government Sector, Financial Sector and Foreign Sector. There is equilibrium in the economy in which
 $\text{Income}(Y) = \text{Expenditure}(E) = \text{Output}(O)$

This is shown in figure 14.5. Here the each of the above sectors receives some payments from the other in lieu of goods and services which makes a regular flow of goods and physical services. Due to open economy there is interaction with the foreign sector in the form of purchase and sale of goods and services. In the following diagram purchase and sale from foreign countries are done by business sector through import and exports.

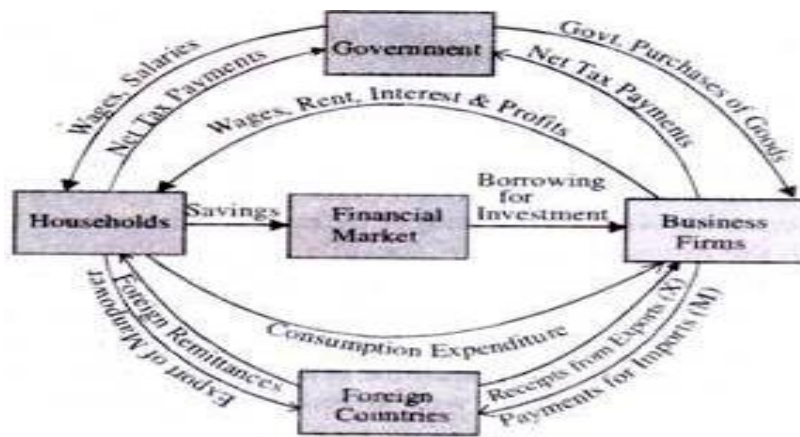


Figure 14.5 Five Sector Model of Circular Flow of Gross National Product

Thus from the above explanation it is clear that national income generates through interaction between different economic sectors. The process of receipts and payments leads to flow of income in the economy from one sector to another sector.

14.4 MEASUREMENT MODELS OF GROSS NATIONAL PRODUCT:

The Gross National Product can be measured from the point of view of Expenditure, Income or value addition of production. So there are following three models of measurement of Gross National Product:

14.4.1 Income Method

14.4.2 Expenditure Method

14.4.3 Value Added Method

14.4.1 INCOME METHOD:

This method measures the national income from the point of distribution of income to the different factors of production. National Income generated is paid or received by different factors of production. Thus under this method the national income is calculated by summing up the incomes of all individuals in the country. The individuals earn income by contributing their own services or the services of their resources. Thus under this method national income is calculated by adding up the rent of land, wages and salaries of employees, interest on capital and profits of entrepreneur and income of self-employed people. This method shows the distribution of national income towards different individuals such as landlords, owners of capital, worker and entrepreneur.

National Income = Sum of Factor Income paid out to residents only

According to Paul Studenski, "National income of a country can be calculated either by taking the sum of incomes paid out by producing units or by income by the factors."

National Income or NNP at Factor Cost = Compensation of Employees + Operating Surplus (Rent + Interest + Profit) + Mixed Income of Self Employed + Net Factor Income from Abroad

Steps in calculation of national income under income method:

1. The first step under this method is to identify the productive enterprises and classify them into various individual sectors such as agriculture, fishing, forestry, manufacturing, transport, trade, commerce, banking etc.

2. The second step is classifying the factor payments. The factor payments are classified into following categories:

- Components of employees which includes wages and salaries, employees contribution to social security schemes
- Rent
- Interest
- Profits including Dividends, Undistributed Profits and Corporate Income Tax
- Mixed Income of Self Employed

3. The third step is to measure factor payments. Income paid by each enterprise can be estimated by gathering information about the number of units of each factor employed and the income paid to each unit of every factor. The price paid to each factor multiplied by the number of units of each factor employed will give the factor income.

4. The next step is calculation of the factor payments by an individual sector. This is done by adding up factor payments by all enterprises belonging to an individual sector.

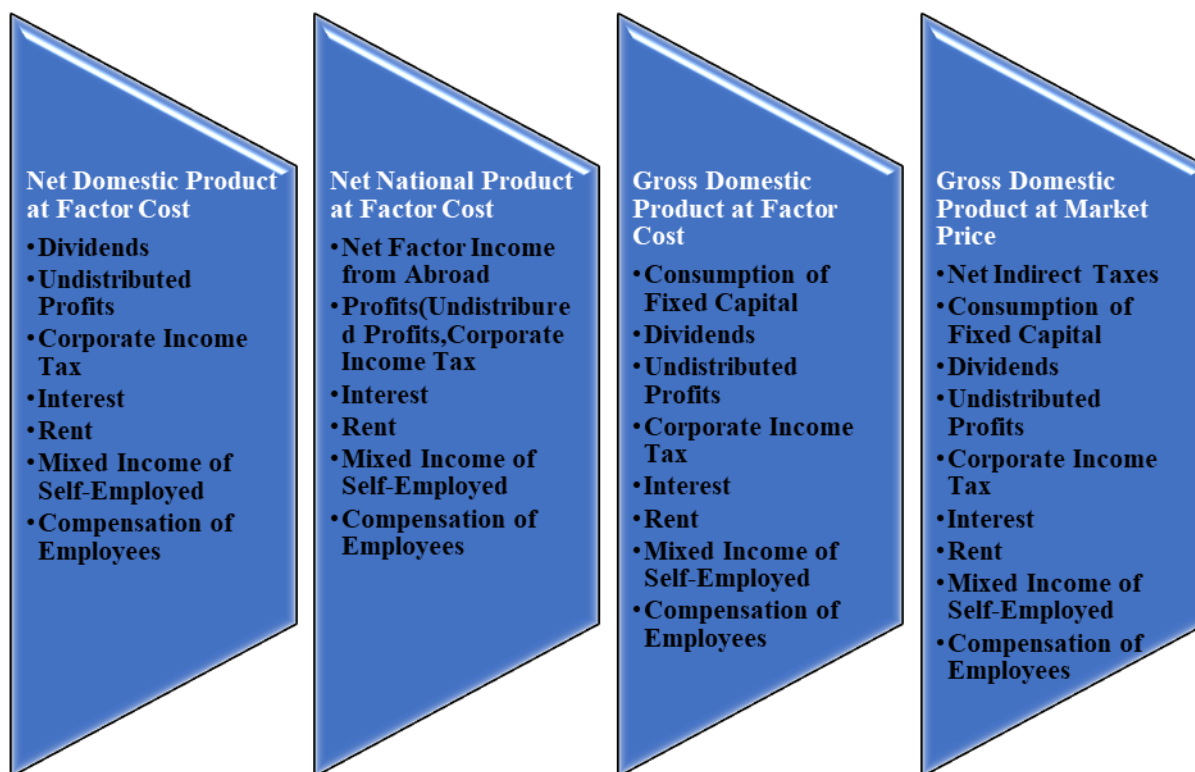
5. The next step is summing up the incomes paid out by all industrial sectors will give domestic factor income which is called Net Domestic Product at factor cost.

6. In the net domestic product at factor cost finally income earned from abroad is added to obtain net national product at factor cost or national income.

Meaning of Mixed Income of Self Employed: Mixed income of self-employed is the other category of factor income. In a country like India many people are engaged in household industries, in family farms and other unorganized enterprises. Because of self-employment nature of business, it is very difficult to separate wages for the work done by the self-employed from the surplus of profits made by them. Therefore, income earned by them are mixed of wages, rent, interest, and profits and therefore called mixed income. These mixed incomes are added in other factor incomes to calculate national income.

Calculation of National Income by Income Method:

The steps described above can be displayed in one diagram for the calculation of national income. The diagram again presents that the difference between Net Domestic Product at Factor Cost and Net National Product at factor Cost is of net factor income from abroad. On the other hand, the difference between gross domestic product at factor cost and is of gross domestic product at market price is of Net indirect taxes i.e. indirect taxes –Subsidies. The national income calculation from income perspective in all the following cases adds on the factor income paid to different factors of production.



Points to be considered for Calculation of Gross National Product by Income

Method: At the time of calculating national income through income method the following points need special consideration:

1. Transfer Payments are not considered in the calculation of national income:

Transfer payments are not included in estimating the national income through this method. This is because these payments are not received for any service provided in the current year.

2.Imputed Rent of Self Occupied House:

Imputed Rent of self-occupied house are included in the national income as these houses provide services to those who occupy them and its value can be easily estimated from the market value of the same.

3. Illegal Money not included in the calculation of National Income: Illegal Money such as money earned through smuggling is not included in the national calculation.

4. Windfall gains not included in the calculation of national income: Windfall gains such as prizes won, lotteries etc. are not included while estimating national income as they do not represent contribution to any current productive activity.

5. Corporate Profit Tax not separately included: Corporate Profit Tax i.e. tax on the profits of companies should not be separately included as it has already been included as part of profits.

6. Death duties, Gift Tax are not included in calculation of national Income: Death duties, gift tax, wealth tax, tax on lotteries etc. are paid from past savings or wealth and not from current incomes. Therefore they should not be treated as part of national income of current year.

7. Receipts from sale of second hand goods not included: The receipts from the sale of second hand goods should not be treated as part of national income. This is because second hand goods do not create in the new flow of goods and services in the current year.

8. Value of Production used for self-Consumption: Income equal to the value of production used for self-consumption used by farmers and others should be estimated and included in the measure of national income.

14.4.2 EXPENDITURE METHOD:

Expenditure method of measuring national income is also called income disposal method or consumption and investment method. Expenditure method is a method which measures the national income from the final expenditure on gross domestic product at market price during an accounting period. This method measures the national income from the point of expenditure made on goods and services during a

year. Income earned can be spent either on consumer goods or capital goods. Expenditure can be incurred by private individuals and households or by government and other enterprises. Further people of foreign countries spent on goods and services which a country exports to them. Further people of a country spend on imports of goods and services from other countries. All these expenditures are added to obtain national income by expenditure method.

Steps in calculation of national income under Expenditure method:

Following types of expenditures are added in the step by step procedure to obtain national; income by expenditure method:

1. First of all expenditure on consumer goods and services by individuals and households is considered. This is called final private consumption expenditure and is denoted by C.

2. Secondly, Government expenditure on goods and services is added. This is called government final consumption expenditure and is denoted by G.

3. The expenditure by productive enterprises on capital goods and inventories of stock. This is called gross domestic capital formation or gross domestic investment and is denoted by GDCF. GDCF is divided into two parts:

- Gross Fixed Capital Formation
- Addition to stocks or Inventories

4. In the next step Net Exports are added .Net Exports are the difference between exports and imports. Exports are expenditure made by foreigners to buy goods and services exported to other countries and are denoted by X. From this export imports are deducted to get net exports.

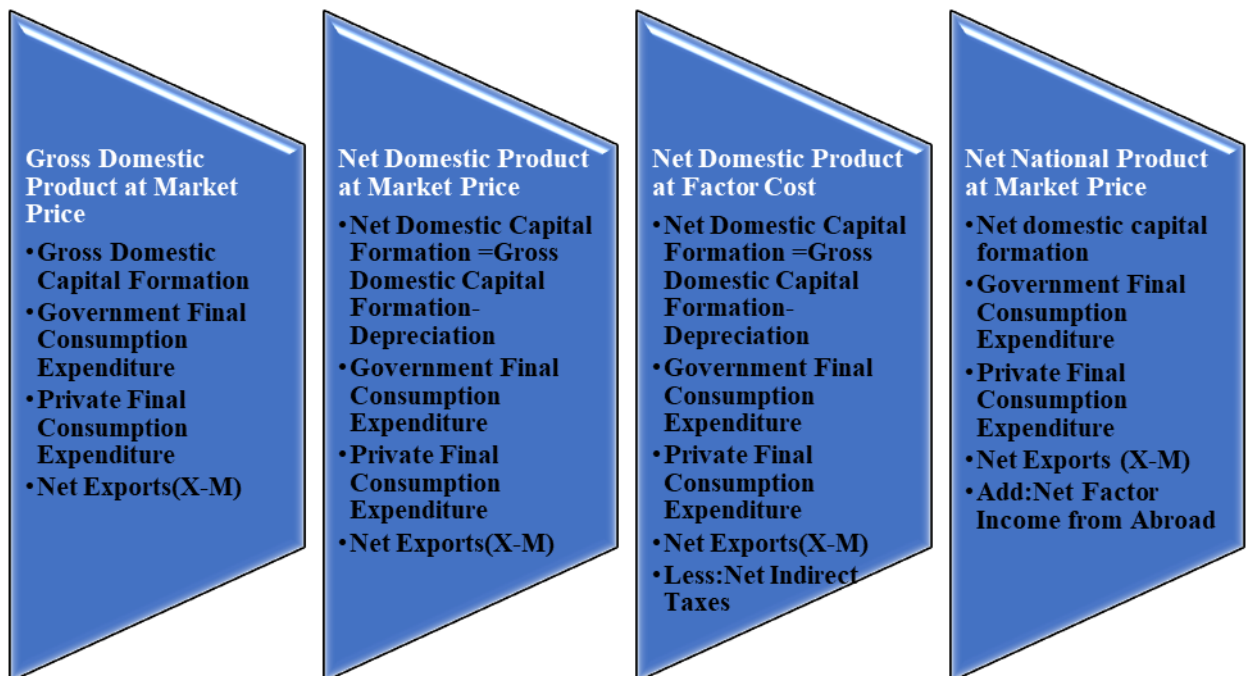
The addition of above stated four steps result into Gross Domestic Product at Market Price or GDP_{mp} .

Gross Domestic Product at Market Price=

Private final Consumption Expenditure+ Government's final consumption expenditure+ Gross Domestic Capital Formation+ Net Exports.

Calculation of National Income by Expenditure Method:

The steps described above can be displayed in one diagram for the calculation of national income. The diagram again presents that the difference between Net Domestic Product at Factor Cost and Net National Product at factor Cost is of net factor income from abroad. On the other hand, the difference between gross domestic product at factor cost and is of gross domestic product at market price is of Net indirect taxes i.e. indirect taxes –Subsidies. The national income calculation from expenditure perspective in all the following cases adds on the expenditure on goods and services by different sectors of economy.



So we can say that:

$$\begin{aligned}GDP &= C + G + I + (X - M) \\ &= C + G + I + X_n\end{aligned}$$

Points to be considered for Calculation of National Income by Expenditure

Method: At the time of calculating national income through expenditure method the following points need special consideration:

1. Second Hand Goods: The expenditure made on second hand goods should not be included because this does not contribute to the current year production of goods and services.

2. Purchase of shares and bonds: Expenditure on purchase of old shares and bonds from other people and from business enterprises should not be included while estimating gross domestic product through expenditure method. This is because of the reason that bonds and shares are just financial claims and not represent expenditure on currently produced goods and services.

3. Expenditure on Transfer Payments: Expenditure on transfer payments by government such as payment of unemployment benefits, old age pension shall not be included in the calculation of national income. The reason is that because of these payments no goods or productive services are produced in exchange by the recipients of these payments.

4. Expenditure on intermediate Goods: Expenditure on intermediate goods such as fertilizers and seeds by farmers and wool, cotton and yarn by manufacturing firms shall not be included in the calculation of national income. The reason is that the expenditure on only final goods and services is included in the calculation of national income and not the expenditure on intermediate goods.

14.4.3 Value Added Method:

Product Method or Value Added Method is also called Industrial Origin method or net output method. Value added method is defined as that method, which measures the national income by estimating the contribution of each producing enterprise to production in the domestic territory of the country in accounting year. This is also called output method or production method. In this method the contribution of each enterprise to the generation of flow of goods and services is measured. Under this method, the economy is divided into different sectors such as agriculture, industry, fishing, minning, construction, manufacturing, trade and commerce, transport, communication and other services. Then the Net Value Added at factor cost by each productive enterprise as well as by each industry or sector is estimated. Measuring Net Value Added at factor cost by each industry requires first to find out value of output. Value of output of an enterprise is found only by multiplying the physical output with market prices of the goods produced.

National Income by Value Added Method=

- 1. Gross Value Added by Primary Sector within the domestic territory***
- 2. + Gross Value Added by Secondary Sector within the domestic territory***
- 3. + Gross Value Added by Tertiary Sector within the domestic territory***
- 4. -Depreciation***
- 5. -Net Indirect Taxes***
- 6. +Net Factor Income from Abroad***

Steps in calculation of national income under Value Added Method:

Following steps are followed for the calculation of national income by value added method:

1. First of all economy is divided into different sectors such as agriculture, fishing, mining, manufacturing, construction, transport, communication etc.
2. Value of output of each enterprise and sector is calculated. This is calculated by multiplying their physical output with market prices of Goods produced.

3. Net value added at factor cost by each productive enterprise as well as by each industry sector is calculated by adding the value of their output.

4. The following items are excluded while calculating the value of output:

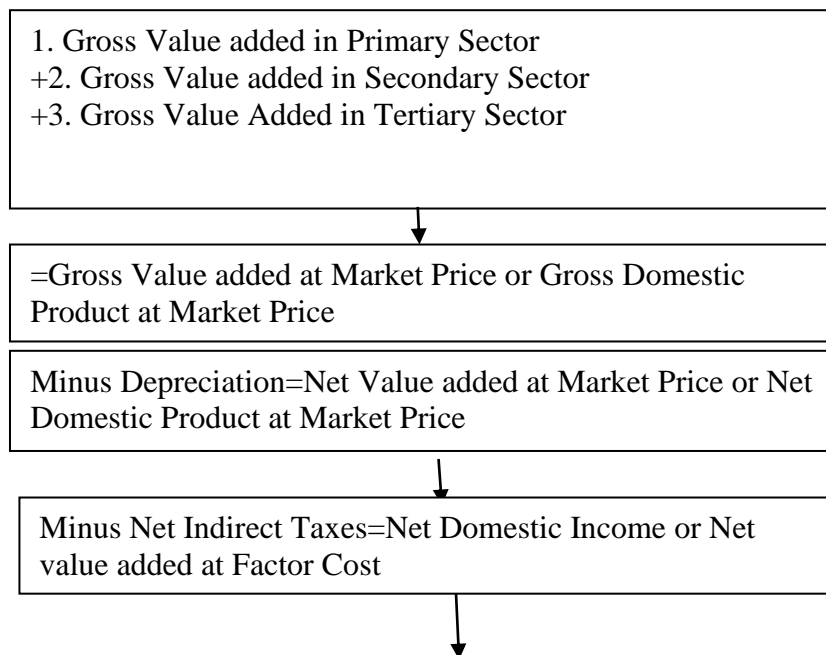
- Intermediate consumption which is the value of goods such as raw material, fuel purchased from other firms.
- Consumption of fixed capital i.e. depreciation
- Net indirect taxes

5. Summing up the net value added at factor cost by all productive enterprises of an industry or sector gives the net value added at factor cost of each industry or sector. We then add up net value added at factor cost by all industries or sectors to get net domestic product at factor cost.

6. Lastly, to the net domestic product we add the net factor income from abroad to get net national product at factor cost which is also called national income. Thus:

National Income or Net National Product at factor cost = Net Domestic Product at factor cost + Net Factor income from abroad

Calculation of Gross National Product by Value Added Method:



Add Net Factor Income from Abroad=National Income or Net National Product at Factor Cost

The above flow chart represents calculation of National Income by Value Added Method. A very important error that all statisticians often encounter while calculating national income is that of double counting. Efforts must be taken to include only final goods and services and not intermediate goods in calculating national income. By strictly saying value added at each stage and taking care to subtract expenditure on intermediate goods, double counting can be properly avoided and wages, interest, rent and profit can be recorded exactly one time.

Points to be considered for Calculation of National Income by Value Added

Method: At the time of calculating national income through value added method the following points need special consideration:

1. Value of Imputed Rent: Imputed Rent which is the value of rent of self occupied house should be included in the value of output. Although these payments are not made to others, their value can be easily determined from prevailing rental value in the market.

2. Sale and Purchase of second hand goods: Sale and purchase of second hand goods should not be included in the measurement of national income of a year because their values were considered in the year of output of their production. But commission or brokerage earned in their sale and purchase should be included because this is a new service rendered in the current year.

3. Value of Production for Self-Consumption: Value of production for self-consumption is to be counted for measuring national income. The value of self-production is determined at current market price.

4. Value of Services of Housewives: Value of services of housewives are not included because it is not easy to correctly find out the value of their services at the prevailing market price.

5. Value of Intermediate Goods: Value of intermediate goods must not be counted while measuring the value added because this will amount the double counting.

6. Census of Production: This method can be easily employed where there is census of production for the year. In many countries the data for production of only important industries are known. Hence this method is employed along with other methods to calculate national income.

14.5 CHECK YOUR PROGRESS

Answer the following Multiple Choice Questions on the basis of your knowledge regarding National Income:

1- Gross National Product equals:

- a) Net National Product adjusted for inflation
- b) Gross Domestic Product adjusted for inflation
- c) Gross Domestic Product plus net property income from abroad
- d) Net National Product plus net property income from abroad

2- The standard of living is often measured by:

- a) Real GDP per capita
- b) Real GDP
- c) Real GDP minus population
- d) Real GDP plus depreciation

3- Real national income measures:

- a) Nominal national income adjusted for population change
- b) Nominal national income adjusted for unemployment
- c) Nominal national income adjusted for inflation
- d) Nominal national income adjusted for exchange rates

4- GDP measures:

- a) A country's income
- b) A country's wealth
- c) Consumer spending
- d) Net trade income

5- Which of the following statements is true about the circular flow?

- a) Output is greater than income
- b) Income is more than expenditure
- c) Output is less than expenditure
- d) Output equals income equals expenditure

14.6 SUMMARY:

This chapter is about different methods or models related to measurement of Gross National Product. The circular flow model with different sectors explained the Gross national product generation and distribution in a simultaneous and continuous process. It means gross national product is created, then distributed, then spent and then created and so on. There are different ways of analyzing gross national product i.e. from the income perspective, expenditure perspective or value addition perspective. Each way of looking at gross national product suggests a different method of calculating national income. There are different methods of measuring gross national product out of which Income Method, Expenditure Method and Value addition method are used in India. These three methods are discussed in this chapter.

14.7 KEYWORDS

Value Added Method It is defined as a method which measures the national income by estimating the contribution of each producing enterprise to production in the domestic territory of a country in an accounting year.

Income Method is the method in which national income is measured in terms of payments made to primary factors of production.

Expenditure Method is a method which measures the final expenditure on gross domestic product at market price during an accounting year.

14.8 SELF-ASSESSMENT TEST

- 1) Explain the concept of Gross National Product. How this concept is different from the other concepts of national Income.
- 2) Explain measurement of Gross National Product by Income method. Which are different precautions should be taken at the time of measurement of national income by income method.
- 3) Explain measurement of Gross National Product by Expenditure method. Which are different precautions should be taken at the time of measurement of national income by Expenditure method.
- 4) Explain measurement of Gross National Product by Product or Value Added Method. Which are different precautions should be taken at the time of measurement of national income by Product or Value Added Method. Define Green GNP.

14.9 ANSWERS TO CHECK YOUR PROGRES

- 1- C
- 2- A
- 3- C
- 4- A
- 5- D

14.10 REFERENCES/SUGGESTED READINGS

- 1) **Salavatore, D.** Managerial Economics in a global Economy, Oxford University Press
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- 5) **H.L Ahuja,** Advanced Economic Analysis, S. Chand & Co. Ltd., New Delhi.

6) **G.S Gupta** Managerial Economics, Tata McGraw Hill.

Subject: **Economic Analysis**

Author: **Dr. N K Bishnoi**

Lesson: 15 INFLATION

Structure

- 15.1 Learning Objective
- 15.2 Introduction
- 15.3 Inflation
 - 15.3.1 Stages of Inflation
 - 15.3.2 The Economic Impacts of Inflation
 - 15.3.3 Theory of Inflation
- 15.4 Tools of Inflation Control
 - 15.4.1 Restrictive Monetary Policy
 - 15.4.2 Restrictive Fiscal Policy
- 15.5 Check Your Progress
- 15.6 Summary
- 15.7 Keywords
- 15.8 Self-Assessment Test
- 15.9 Answers to Check Your Progress
- 15.10 References/Suggesting Reading

15.1 Learning Objectives

After reading this chapter you will be able to describe inflation and different stages come of inflation in the economy. Further, you will also gain knowledge regarding different theories of inflation. At the end of the chapter we will discuss about tools used for controlling inflation.

15.2 Introduction

Inflation occurs when the general level of prices is rising consistently. We calculate inflation by using price indices. The price indices are the weighted average of the prices of thousands of individual products and services. Inflation is as old as market economy. Generally, price level will go up if the aggregate demand exceeds the aggregate supply. Seen in this perspective mild inflation is regarded as healthy by most of the economists. The only point of dispute is that how much inflation is mild. In Japan inflation rate beyond 1-2 percent per annum is politically unacceptable, in USA the inflation rate of 2-3 percent is tolerable while the policy makers in India do not bother if inflation remains below 6-7 percent. The inflation affects all segments of society. The purchasing power of money is eroded and therefore, the affected people make efforts to get compensated, organizing themselves politically. One of the costs of inflation is that the compensation process gets politicized. If the affected groups are politically powerful, the whole economic system can get distorted as happened in South America in the 1980s, where inflation reached above 1000 percent per annum. Therefore, it becomes imperative to study and understand the process of inflation in a market economy.

15.3 Inflation

A price in a market economy is the exchange value of a unit of good or service expressed in terms of money. The price of one kg of wheat, suppose is Rs. 8. It means one can buy one kg of wheat for this amount. Similarly, if the medical fee of a heart surgeon is Rs. 50,000, a patient could get operated upon for Rs. 50,000. There are as many prices as the number of goods and services. All these individual prices form the general price level. The general price implies the average price of a unit of all goods and services. The general price can be obtained as a weighted average of the individual prices. The price indexes are constituted keeping in view of the various purposes. In India there are five price index series.

- GDP deflator

- Wholesale price Index
- Consumer price index for industrial workers
- Consumer price index for urban non-manual employees
- Consumer price index for agricultural workers.

GDP Deflator

GDP (Gross Domestic Product) deflator *refers* to the index of the average price of all the goods and services produced in the economy. It is computed as the ratio of the nominal GDP in a given year to the real GDP of that year.

Wholesale Price Index

The wholesale price index is the index of the average wholesale price of the commodities produced and transacted in the economy. While constructing this, the level or stage of wholesale transaction is first identified for collecting price statistics. The weights are assigned on the basis of the relative value of wholesale transactions in various products in the economy. The WPI is generally used as a measure of inflation rate in India for various purposes.

Consumer Price Indices

A consumer price index is the index of the average retail price of the goods and services contained in the consumption basket of the target group. The consumption basket depends upon the level of income/wealth, rural-urban living, education and habits etc. In India, we have three such indices: -

- CPI for industrial workers (CPI-IW)
- CPI for urban non-manual employees (CPI-UNME)
- CPI for agricultural labours (CPI-AL)

The Labour Bureau of the ministry of Labour Compiles and publishes data on CPI-(IW) and CPI-AL. The CPI-UNME is maintained by the central statistical organization. Unlike WPI, which is prepared only at the all India level, CPI-AL is first prepared at the state level. The CPI-IW and CPI-UNME are prepared at the selected center's levels. The local indices are aggregated to prepare all India level

indices.

15.3.1 Stages of Inflation

The inflation exhibits different levels of severity. Generally, it is classified into three categories low inflation, galloping inflation and hyper inflation.

Low Inflation

Low inflation is characterized by prices that rise slowly and predictably. Generally, this is single digit annual inflation rate. People do not feel concerned about the inflation rate, economic agents internalize the expected change in future price level and the surprise element is almost absent.

Galloping Inflation

When inflation rate shoots up to 50, 100 or even more percent per year, it is called the galloping inflation. In many Latin American countries, during 1970s and 80s, rate of inflation was between 100 to 600 percent per annum.

Once, galloping inflation become entrenched, serious economic distortions creeps in. The rate of inflation is incorporated separately in future contracts to protect the real value of earnings creating in-built mechanism of spiraling inflation. Financial markets are disturbed significantly. The people keep bare minimum amount of cash. Speculation becomes more rewarding the general investment, endangering the whole edifice of economic system.

Hyperinflation

This is most serious and dangerous type of inflation. No economic system can survive, if suffering from this malice. This is basically a case of galloping inflation going out of control. The prices start rising by million or even trillion percent a year. The case of hyper inflation in Germany between 1920s and 30s was documented in great detail. From January 1922 to November 1923, the price index rose from 1 to 10,000,000,000.

Common features of hyperinflation are: real stock of money comes down significantly and velocity of circulation of money goes up much more than

proportionately.

Anticipated vs. Unanticipated Inflation

Modern economists make a distinction between inflation rate that is expected or unexpected. In fact, the economists believe that anticipated inflation will not affect the normal functioning of the economy. But inflation can be anticipated, only if the rate is consistently low over the period of time and public has trust in the intentions and capability of the monetary authorities to keep it under control.

But in reality, the inflation is generally unanticipated. An unexpected jump in prices will benefit a few at the cost of large sections and society. A general rule of the distribution of gain of inflation in general and unanticipated inflation in particular is that, where future obligations are fixed in nominal term the creditors lose and the debtors gain.

15.3.2 The Economic Impacts of Inflation

Monetary authorities are mandated to keep inflation under control. In popular perception, the index of economic performance is inversely proportional to the rise in inflation rate. The inflation is a serious economic evil. The reason is straightforward. During rising prices, all prices do not move in the same proportion. In other words, inflation disrupts the relative price structure and therefore, the allocative efficiency of the pricing mechanism.

Two major effects of inflation can be summarized as follows:

- A redistribution of income and wealth among different groups;
- Distortions in relative prices and outputs of different goods.

Impact on Income and Wealth Distribution

Inflation affects the distribution of income and wealth basically because of differences in the assets and liabilities that people hold. For debtors, the sudden decline in the value of money is an unexpected windfall. But the gain of the debtors

is exactly equal to the loss of the creditors. But if the inflation persists, over the period of time, people start incorporating the expected change in value of money into their contracts. Suppose, there is no inflation and the rate of interest is 4 percent. Suppose after initial inflationary pressures at a rate of 7 percent, the people come to believe that the rate of inflation in the next year will continue at the same rate i.e. 7 percent. In this case, the creditors will demand a nominal rate of interest at 11 percent. The *real* rate is only 4 percent, while remaining 7 percent is the hedge against inflation. The traditional understanding of adverse impact of inflation on orphan, widow is no longer valid. In fact, a basic rule is there. Those having fixed contracts in nominal terms will be the loser. However, even farmers, daily wage earners and self-employed persons are more or less insulated from the adverse impact. Interestingly, even organized sector employees invariably have their wages indexed against inflation.

The major redistributive impact of inflation comes through its effect on the real value of people's wealth.

Impact on Economic Efficiency

Inflation affects the real economy in two specific ways. One, it can harm economic efficiency. And it can also influence the aggregate output (GNP). The case of adverse impact on economic efficiency is straight forward. Inflation distorts relative price structure. Distortion in price structure emits confusing signals to the financial market with regard to allocation of resources into specific economic activity. The end result: Some sectors find difficulty in meeting the supply targets while many others might be creating excess capacities.

Similarly, inflation also distorts the use of money. The rule is simple. Higher the inflation, lower the amount of currency held by the persons. The inconvenience in holding less than desired money and increased visit to collect cash entails *real* loss to the economy.

Inflation also creates distortion in tax structure. The real value of specific taxes

expressed in terms of rupee tends to decrease with the rise in price level. Income tax and corporation taxes also erode in value with the upward movement of prices.

15.3.3 Theory of Inflation

As mentioned earlier, general price level is determined by the interaction of aggregate demand (AD) and aggregate supply (AS). Obviously, any movement in general price level can always be traced into either shift in AD or AS or a combination of both. The most important point still remains. What causes shift in AD and AS? Various economists have put forward different explanations to unravel the mystery of the phenomenon called inflation. Before we discuss the conceptual foundation of inflation, it will be pertinent to understand the concept of inertial inflation.

Inertial Inflation

In a smoothly functioning market economy, a mild rate of inflation is regarded as somewhat necessary. Reason behind this perception is that the rise in price acts as an indicator of the growing demand, signaling producers to produce more in future. The policy makers, producers, workers and consumers come to believe that this rate of inflation will keep on going. Accordingly, they start incorporating this rate into their calculations. For examples, in India, during 1980s, the rate of inflation between 6 to 7 percent was an expected norm. As a consequence, the producers, workers and consumers in general added 7 percent inflation premium into their future contracts and calculations. Since, under normal circumstances, no one expects a change in this inflation rate, it is regarded as inertial inflation rate. The inertial inflation rate will change only under unforeseen events affecting AD and AS.

Demand-Pull Inflation

Demand pull inflation occurs when the aggregate demand (AD) in the economy rises faster than the available output or aggregate supply (AS). The larger the magnitude of excess in demand over supply, the higher is the rate of inflation. The upward shift

in aggregate demand may be caused either by the rise in consumption, investment government spending or net export. One important factor behind demand pull inflation is the rapid increase in money supply. The money supply increases when government resorts to deficit financing. Central bank can also increase the money supply through expansionary monetary policy to achieve desired objectives. Inflow of foreign currency also stimulates the money supply. The case of demand-pull inflation is shown in figure-1.

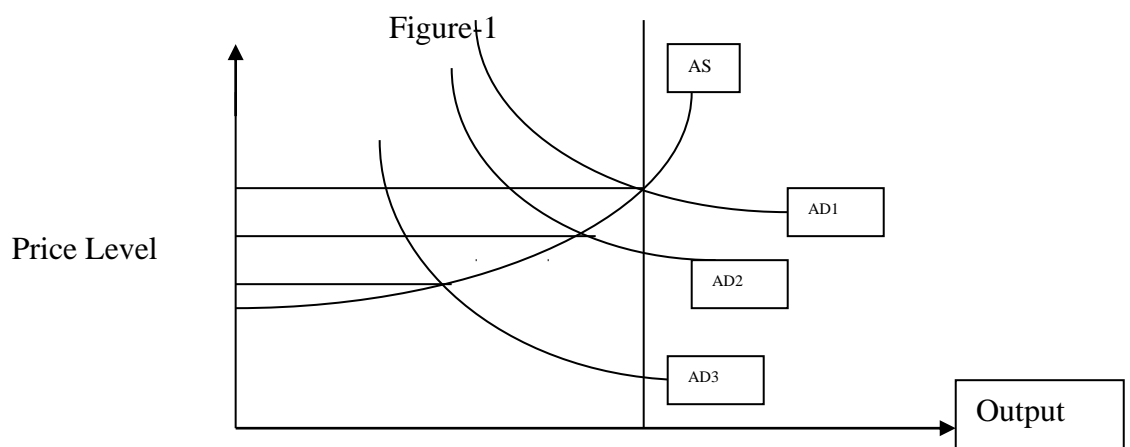


Figure-1 illustrates the case of demand-pull inflation in terms of aggregate demand and aggregate supply. Given the supply curve AS, the aggregate demand curve AD1, intersects it at point E_1 . Corresponding price level is P_1 and output level a Q_1 . Suppose, for some reason aggregate supply curve moves upward to AD2. The new point of equilibrium is E_2 with P_2 price level and Q_2 output. The point to note in this case is that the growth in demand has increased both the price level as well as the real output. The Q_p curve represents the maximum potential output. The importance of Q_p is that if the AD keeps on increasing, the output cannot go beyond this maximum limit and the impact of additional AD will be the increase in prices level only. In fact, the classical economists assumed the state of full employment and

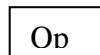
therefore, they were strongly against the monetary expansion because it would result in rise in price level without having any positive impact on output level.

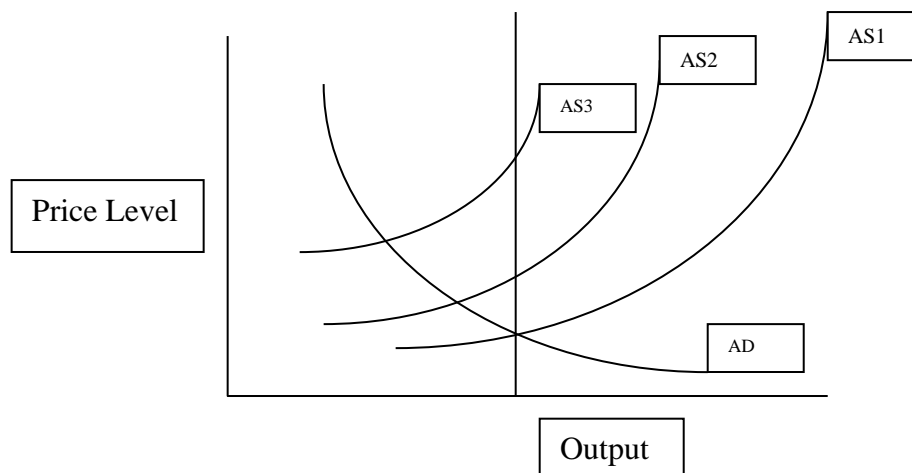
Cost-Push Inflation

As the name suggests, in this case, price level is pushed by the rise in cost of production. In fact, historically, inflation was associated with the rise in price along with output. The relationship was so much entrenched in the mind of policy makers, that wherever, they felt the need to increase the output, they adopted demand enhancement fiscal and monetary policies. The end result would invariably be on the expected line. However, during late 1960s and early 1970, a strange phenomenon took place. The prices were rising but the output was not increasing. On investigation, it was revealed that it occurred because of the fact that unionized labour succeeded in getting wage rate far in excess of their productivity. The outcome was increase in cost and unsold stock compelled the producers to cut back the output and employment. Reduction in employment level further reduced the demand. In normal circumstances, increase in unemployment would have caused a downward pressure on wage rate, but since labour was unionized, wages remained sticky in downward direction. This is called the cost-push inflation.

Another form of cost-push inflation occurred when the oil-shock in early 1970s and 1980s took place. The sudden jump in universally used commodity like crude oil pushed the price up. In this case also, higher price forced the output to cut-down. The cost push inflation is represented in figure-2.

Figure-2





In figure-2, initial equilibrium of the economy is established at point E_1 , where aggregate demand curve AD and aggregate supply curve AS_1 intersect. The output corresponding to E_1 is Q_1 and price level P_1 . As show in the figure, if for some reasons, aggregate supply curve moves upward, the new equilibrium point is E_2 reducing the output at Q_2 and increasing the price level to P_2 , This case is also called stagflation. This means, stagflation is the case when output is stagnating or decreasing while the prices are rising.

This situation is most difficult to handle as traditional fiscal and monetary policies are not of much help. The government needs to introduce competition in the labour market. Alternatively greater freedom in international trade also has a sobering effect on price level.

Expectations and Inflation

The expectations play on important role in determination of the rate of inflation and the expectations come to be formed on the basis of past experiences. For example, if the prices are rising at a mild rate, the consumers, producers, workers and other market participants will incorporate low rate of inflation into their future contracts. Alternatively, in case of rapidly rising inflation rate, future contracts will be indexed

at a much higher inflation rate. The case of Latin American countries during 1980s can be cited in this regard, where nominal interest rate went up to 200-300 percent per annum in anticipation of very high inflation rate.

In fact, the concept of inertial rate of inflation plays a crucial role in this context. As the market participant extrapolates past behaviour to continue in future, expectation gather it's their own momentum. It becomes very difficult for the policy makers to change the perception of the economic agent in the short term. The result is that, even if rate of inflation is reduced, the market takes it as an aberration and future contract continue to be indexed at the inertial rate of inflation. The markets take a note of the changed rate of inflation, only if it changes substantially from the inertial inflation rate for sufficiently long time period. In USA, to control the spiraling inflation, the government in 1982 had to hike the rate of interest up to 22 percent to convince the market about its resolve to contain inflation. In India, also during 1995-97, the rate of interest was raised up to 20 percent to dampen the inertial inflation rate running much higher above the politically acceptable level.

15.4 Tools of Inflation Control

The control of inflation is of critical importance for the successful management of the macro-economy. The tools, available in the hands of government and central banks, generally work indirectly via change in aggregate demand and aggregate supply. The policy kit of a government includes standard, traditional as well as innovative instruments to address the problem of inflation. The policy options a Government uses to contain inflation are discussed as under:

15.4.1 Restrictive Monetary Policy

The monetary policy consists of change in supply and cost of money in the economy by the central bank. The money supply can be reduced by increase in Cash Reserve Ratio (CRR) which will leave less discretionary funds with the banks for lending

purpose. Similarly, open market operation (OMO), in effect means, sale and purchase of government securities by the central banks. In case of restrictive monetary policy, the central bank resort to sale of securities at higher discount rate. This reduces the supply of money with the banks and general public. The central bank can also hike the bank rate (the rate at which it lend money to banks) and thereby increasing the cost of funds in order to dampen the growing demand of credit.

The success of monetary policy depends greatly on the sensitivity of consumption and investment to interest rates and profitability conditions in business.

Income Policy

This is a direct measure, where government controls the wage rate, interest rate and profit rate by way of direct instruction to this effect. However, in a modern market economy with external linkage, this policy has lost its effectiveness.

15.4.2 Restrictive Fiscal Policy

A restrictive fiscal policy implies the efforts of the government to reduce government expenditure and increase the tax rates to appropriate the purchase power from the hands of public. The expenditure reduction directly affects the aggregate demand. The tax hike works through reduction of disposable income. Generally, control of inflation through fiscal policy is not recommended. The reason being, it is contractionary in nature and therefore, income level falls and unemployment increases with the fall in inflation. Moreover, it interferes in the function of free market economy, leading to unnecessary inefficiency.

15.5 Check Your Progress

Answer the following Multiple Choice Questions regarding Inflation:

Q.1 Demand-pull inflation may be caused by:

- a) An increase in costs
- b) A reduction in interest rates
- c) A reduction in government spending
- d) An outward shift in aggregate supply

Q.2 Inflation:

- a) Always reduces the cost of living
- b) Always reduces the standard of living
- c) Reduces the price of products
- d) Reduces the purchasing power of a pound

Q.3 An increase in injections into the economy may lead to:

- a) An outward shift of aggregate demand and demand-pull inflation
- b) An outward shift of aggregate demand and cost-push inflation
- c) An outward shift of aggregate supply and demand-pull inflation
- d) An outward shift of aggregate supply and cost-push inflation

Q.4 The Phillips curve shows the relationship between inflation and what?

- a) The balance of trade
- b) The rate of growth in an economy
- c) The rate of price increases
- d) Unemployment

Q.5 In the short run unemployment may fall below the natural rate of unemployment if:

- a) Nominal wages have risen less than inflation
- b) Nominal wages have risen at the same rate as inflation
- c) Nominal wages have risen more than inflation
- d) Nominal wages have risen less than unemployment

15.6 Summary

The inflation affects all segments of society. The purchasing power of money is eroded and therefore, the affected people make efforts to get compensated, organizing themselves politically. One of the costs of inflation is that the compensation process gets politicized. If the affected groups are politically powerful, the whole economic system can get distorted as happened in South America in the 1980s, where inflation reached above 1000 percent per annum. Therefore, it becomes imperative to study and understand the process of inflation in a market economy. The government can control inflation, but it is not without a cost. The most delicate task to strike a balance between inflation and output lost that

accompany the lower price level.

15.7 Keywords

GDP Deflator: GDP (Gross Domestic Product) deflator *refers* to the index of the average price of all the goods and services produced in the economy. It is computed as the ratio of the nominal GDP in a given year to the real GDP of that year.

Wholesale Price Index: The wholesale price index is the index of the average wholesale price of the commodities produced and transacted in the economy.

Demand-Pull Inflation: Demand pull inflation occurs when the aggregate demand (AD) in the economy rises faster than the available output or aggregate supply (AS).

Consumer Price Indices: A consumer price index is the index of the average retail price of the goods and services contained in the consumption basket of the target group.

15.8 Self-Assessment Test

1. What is meant by inflation? Discuss its objectives? What are the instruments of inflation?
2. Define inflation. Discuss the role of inflation during inflation and deflation.
3. What are the limitations of inflation? What are the factors that determine the effectiveness of inflation?

15.9 Answers to Check Your Progress

1- B, 2- D, 3- A, 4- D, 5- A

15.10 References/Suggested readings

1. Shapiro, Edward, Macroeconomic Analysis, Galgotia Publications, New Delhi.
2. Diulio Eugene, Macroeconomic, Tata McGraw Hill Publishing Company Ltd., New Delhi.

Course Code: MC-104	Author: Dr. Mandeep Kaur
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UNEMPLOYMENT	

Structure

- 16.1 Learning Objectives
- 16.2 Introduction
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- 16.1 Learning Objectives

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

- Understand the concept of unemployment
- Understand the nature of unemployment
- Explain basic trends in unemployment
- Explain causes of unemployment

- Describe the different government programmes to remove unemployment

16.2 INTRODUCTION

In almost all underdeveloped countries where per capita income is very low poverty, income inequality and unemployment are the common features. In India in spite of all the efforts of government these three problems are still prevalent in Indian Economy. This chapter deals with the different aspects of problem of unemployment. Economic security or financial security is the condition of having stable income or other resources to support a standard of living now and in the foreseeable future. It includes factors such as continued solvency, Predictability of the future cash flow of a person and employment security or job security of the person. Financial security more often refers to individual and family money management and savings. Economic security tends to include the broader effect of a society's production levels and monetary support for non-working citizens. Unemployment is the major problem of Indian economy along with the poverty and inequality. This chapter provides elaborative picture of problem of unemployment.

16.3 CONCEPT OF UNEMPLOYMENT

Unemployment usually refers to the number of persons in any economy who do not get work. But in economics Unemployment represents the number of people in the work force who want to work but do not have a job. It means only the persons who are willing to work are considered for the purpose of calculation of percentage of unemployment. The following things are considered for the purpose of calculation of unemployment percentage.

- Unemployment is stated as a percentage and calculated by dividing the number of people who are unemployed by the total work force.

$$\text{Rate of unemployment} = \frac{\text{No. of unemployed persons} \times 100}{\text{Total labour force}}$$

- The work force is made up of those people who want to work. It means willingness of persons to work at the prevailing wage rate is an important factor in the calculation of percentage of unemployment.
- The calculation of unemployment rate excludes people who are retired, disabled, and able to work but currently not looking for a position; for instance, they may be taking care of children or going to college.

16.3.1 DEFINITIONS OF UNEMPLOYMENT

There are different definitions of unemployment. Following are some of the important definitions of unemployment:

As per classical theory of Income , Output and Employment “Unemployment is a situation in which the person is capable of working both physically and mentally at the existing wage rate, but does not get a job to work”.

Thus as per this theory unemployment means only involuntary unemployment wherein a person who is willing to work at the existing wage rate does not get a job.

In the words of International Labour Organization, “Unemployment occurs when people are without jobs and they have actively looked for work within the past four weeks. The unemployment rate is a measure of the prevalence of unemployment and it is calculated as a labour force.”

Thus as per above definition unemployment percentage is calculated on the basis of data of past one month

16.3.2 NATURE OF UNEMPLOYMENT

The above meaning and definition brings out some important features or characteristics of unemployment which can be discussed as below:

1. Willingness to do work: The willingness to do work is an important factor for the determination of rate of unemployment. The work force is made up of those people who want to work. It means willingness of persons to work at the prevailing wage rate is an important factor in the calculation of percentage of unemployment.

2. Exclusion of Certain sections of society: The calculation of unemployment rate excludes people who are retired, disabled, and able to work but currently not looking for a position; for instance, they may be taking care of children or going to college.

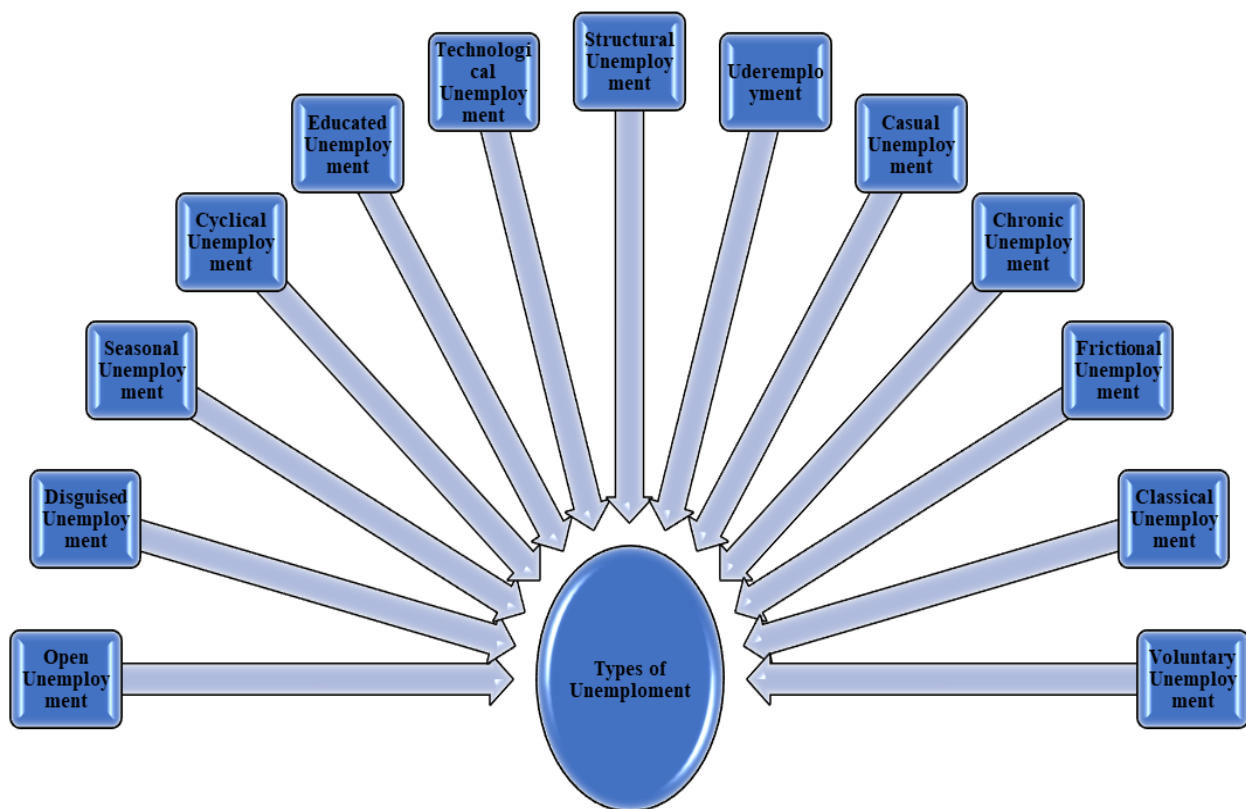
3. Self-employed people are considered employed: Generally, the notion of unemployment is one of those who do not have a job or, are paid no salary. This is partly correct but not wholly. Such a notion would apply largely to the educated people who are not able to find work or to those in urban areas who come to seek employment. We will leave out a large section of people, in fact the majority, who are engaged in agriculture and who may not be paid wages. For example, a person cultivating a small piece of land which he owns is also employed; though he is not paid a wage. He is more known as self-employed in agriculture. Similarly, there are vast numbers of people in rural and urban area who do not get wages for the work they do. These are farmers, artisans, petty shop owners, small and big industrialists, taxi drivers, mechanics etc. These people are also regarded as being employed.

4. Positions of dependent and housewives: All these people as well as those drawing salaries are regarded as being “gainfully employed” because they get some material rewards (in cash or kind) for the work they do. Those who are not gainfully employed are unemployed. The next problem is of identifying the unemployed. This is not an easy task. Normally in our country we regard those people who are between the ages 15 and 58 as being “economically active”. In other words, these people have the potential of being gainfully employed. Therefore, those who are not gainfully employed in this age group are unemployed. This supposition will again not be fully correct. There could be a large number of people in this age group who do not wish to seek employment. They could be students or people who can depend

on other people's earnings and they do not wish to be employed. Till recently women were considered in this category since a large section of women (married women mainly) do household work. However, in recent years, this has been considered economic activities. The Census of 1991 and 2001 has taken this into consideration.

16.3.3 TYPES OF UNEMPLOYMENT

Unemployment is of different types which can be described as below. Unemployment in India prevails both in rural as well as urban areas. In rural areas unemployment is usually classified as open and chronic unemployment, Seasonal unemployment and disguised unemployment. On the other hand in urban areas unemployment can be Unemployment among industrial workers, Unemployment among Urban educated people, technological unemployment and unemployment among youth. Otherwise unemployment can be classified in the following categories:



1. Open Unemployment: Open unemployment is a situation where in a large section of the labour force does not get a job that may yield them regular income. This type of unemployment can be seen and counted in terms of the number of unemployed persons. The labour force expands at a faster rate than the growth rate of economy. Therefore, all people do not get jobs.

2. Disguised Unemployment: It is a situation in which more people are doing work than actually required. Even if some are withdrawn, production does not suffer. In other words, it refers to a situation of employment with surplus manpower in which some workers have zero marginal productivity. So their removal will not affect the volume of total production. Overcrowding in agriculture due to rapid growth of

population and lack of alternative job opportunities may be cited as the main reasons for disguised unemployment in India.

3. Seasonal Unemployment: It is unemployment that occurs during certain seasons of the year. In some industries and occupations like agriculture, holiday resorts, ice factories etc., production activities take place only in some seasons. So they offer employment for only a certain period of time in a year. People engaged in such type of activities may remain unemployed during the off-season.

4. Cyclical Unemployment: It is caused by trade cycles at regular intervals. Generally, capitalist economies are subject to trade cycles. The down swing in business activities results in unemployment. Cyclical unemployment is normally a shot-run phenomenon. This is also called demand deficient unemployment and can be explained with the help of figure 16.1 below:

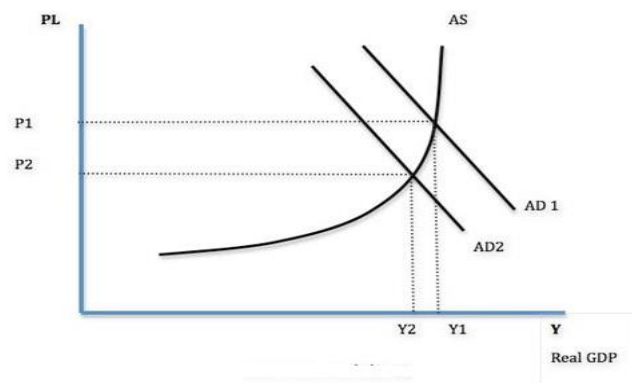


Figure 16.1 Demand Deficient Unemployment

Demand deficient unemployment occurs when the economy is below full capacity. For example, in a recession aggregate demand (AD) will fall leading to a decline in output and negative economic growth. With a fall in output, firms will employ fewer workers because they are producing fewer goods. Also, some firms will go out of business leading to large scale redundancies. In recessions, unemployment tends to rise rapidly as firms lay off workers.

5. Educated Unemployment: Among the educated people, apart from open unemployment, many are underemployed because their qualification does not match the job. Faulty education system, mass output, preference for white collar jobs, lack of employable skills and dwindling formal salaried jobs are mainly responsible for unemployment among educated youths in India. Educated unemployment may be either open or underemployment.

6. Technological Unemployment: It is the result of certain changes in the techniques of production which may not warrant much labour. Modern technology being capital intensive requires fewer workers and contributes to this kind of unemployment.

7. Structural Unemployment: This type of unemployment arises due to drastic changes in the economic structure of a country. These changes may affect either the supply of a factor or demand for a factor of production. Structural unemployment is a natural outcome of economic development and technological advancement and innovation that are taking place rapidly all over the world in every sphere.

8. Underemployment: It is a situation in which people employed contribute less than their capacity to production. In this type of unemployment people are not gainfully employed. They may be employed either on part-time basis, or undertake a job for which lesser qualification is required.

9. Casual Unemployment: When a person is employed on a day-to-day basis, casual unemployment may occur due to short-term contracts, shortage of raw materials, fall in demand, change of ownership etc.

10. Chronic Unemployment: If unemployment continues to be a long term feature of a country, it is called chronic unemployment. Rapid growth of population and inadequate level of economic development on account of vicious circle of poverty are the main causes for chronic unemployment.

11. Frictional Unemployment: Frictional unemployment is caused due to improper adjustment between supply of labour and demand for labour. This type of

unemployment is due to immobility of labour, lack of correct and timely information, seasonal nature of work. Etc. This unemployment occurs when an individual is out of his current job and looking for another job. The time period of shifting between two jobs is known as frictional unemployment. The probability of getting a job is high in a developed economy and this lowers the probability of frictional unemployment. There are employment insurance programs to tide over frictional unemployment

12. Classical Unemployment: Classical unemployment is also known as the real wage unemployment or disequilibrium unemployment. This type of unemployment occurs when trade unions and labour organization bargain for higher wages, which leads to fall in the demand for labour. This can be explained with the help of following figure:

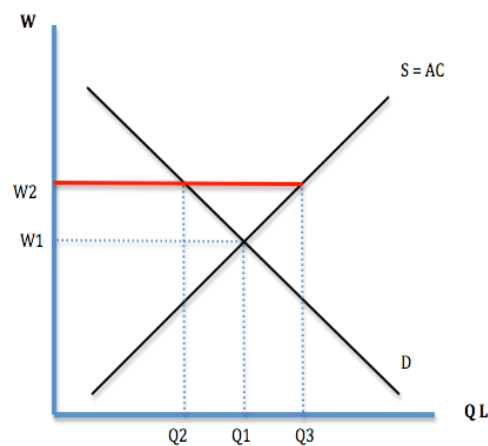


Figure 16.2 Classical or Real Wage Unemployment

Thus the figure 16.2 shows that the classical unemployment occurs when wages in a competitive labour market are pushed above the equilibrium, e.g. at W_2 the supply of labour (Q_3) is greater than the demand for labour (Q_2). Wages could be pushed

above the equilibrium level by minimum wages or trades unions. This is sometimes known as “disequilibrium” unemployment.

13. Voluntary Unemployment: This occurs when people choose to remain unemployed rather than take jobs available. For example, if benefits are generous, people may prefer to stay on benefits rather than get work. Frictional unemployment is also a type of voluntary unemployment as they are choosing to wait until they find a better job.

16.3.4 MEASUREMENT OF UNEMPLOYMENT:

There are three measures or estimates of unemployment which are used in India. These measures are developed by National Sample Survey Organisation (NSSO). These can be explained as below:



1. Usual Status Unemployment: This is also known as open unemployment or chronic unemployment. This measure estimates the number of persons who remained unemployed for a major part of the year. Thus, in this measurement the yearly status of unemployment is considered. The persons covered may be classified into those working or available for work in their principal activity sector and subsidiary sector. This measure gives the lowest estimates of unemployment. This concept is suitable to determine the usual activity status of a person as employed or unemployed or outside the labour force throughout the year.

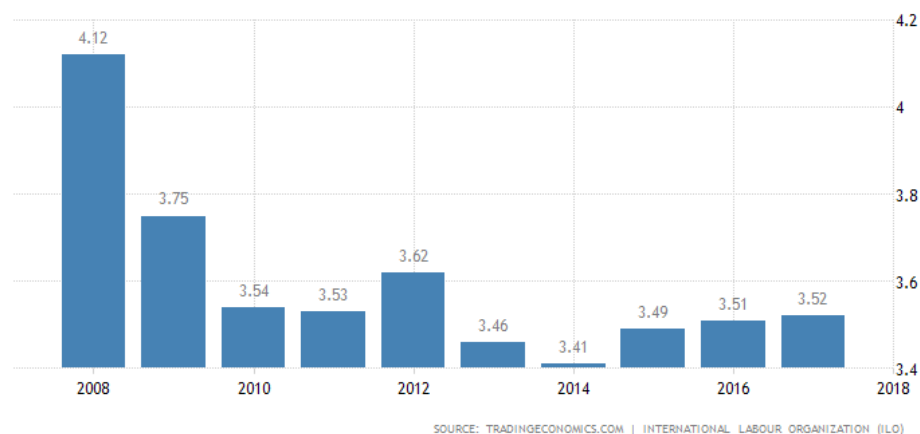
2. Weekly Status Unemployment: The estimate measures unemployment with respect to one week. Thus the time period taken for the purpose of unemployment is one week. As per this estimate a person is said to be unemployed if he is not able to work even for an hour during the survey period of the week. In other words, according to this estimate a person is said to be employed for the week even if he/she is employed only for a day during that week.

3. Current Daily Status Unemployment: It considers the activity status of a person for each day of the preceding seven days. The reference period here is a day. If a person did not find work on a day or some days during the survey week, he/she is regarded as unemployed. Normally if a person works for four hours or more during a day, he or she is considered as employed for the whole day. The daily status unemployment is considered to be a comprehensive measure of unemployment.

16.3.5 UNEMPLOYMENT IN INDIA (FACTS AND FIGURES)

The unemployment trends and percentage as prescribed by different organisations can be summarised as below:

- Unemployment Rate in India increased to 3.52 percent in 2017 from 3.51 percent in 2016. Unemployment Rate in India averaged 4.05 percent from 1983 until 2017, reaching an all-time high of 8.30 percent in 1983 and a record low of 3.41 percent in 2014.
- As per the data provided by World Bank India's Unemployment rate has increased 3.52% in December 2017 from 3.51% in December 2016. The following chart presents the rate of unemployment from 2008 to 2018 with an average rate of 3.81%. The rate was as high as 4.12 % in December 2008 and after that it has fallen. It was lowest in December 2014 as 3.41%



- Recently a Report has been given by the State of Working India 2018 (SWI) on the basis of data provided by National Sample Survey and Employment-Unemployment Survey (EUS) of the Labour Bureau. The report states that shortage of jobs in India is compounded by depressed wages, with 82% of men and 92% of women earning less than Rs 10,000 per month. The report presents another feature of India's unemployment that there is a high rate of open unemployment means high rate of unemployment in the educated youth.
- As per the list provided by Report on Fifth Annual Employment-Unemployment Survey (2015–16) from [Ministry of Labour and Employment, Government of India](#) the state wise rate of unemployment can be presented below. As per this data the highest rate of unemployment exist in Tripura and the lowest in Himachal Pradesh. The unemployment rate differs in Urban and rural area as presented below and is more in case of Rural Areas.

Table 16.1
Unemployment rate State Wise (Per 000)

S.No.	State	Total	Urban	Rural	S.No.	State	Total	Urban	Rural
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1	Tripura	197	172	203	17	Odisha	50	47	51
2	Sikkim	181	168	184	18	West Bengal	249	256	247
3	Kerala	125	126	125	19	Meghalaya	48	134	28
4	Gujarat	106	23	117	20	Haryana	47	57	43
5	Assam	96	58	150	21	Madhya Pradesh	43	40	44
6	Arunachal Pradesh	89	52	93	22	Tamil Nadu	42	36	45
7	Nagaland	85	141	69	23	Andhra Pradesh	39	44	38
8	Jharkhand	77	94	73	24	Mizoram	30	49	15
9	Uttar Pradesh	74	67	76	25	Telangana	28	62	13
10	Jammu and Kashmir	72	36	83	26	Maharashtra	21	23	20
11	Rajasthan	71	43	77	27	Chhattisgarh	19	68	11
12	Uttarakhand	70	32	81	28	Karnataka	15	19	13
13	Goa	61	101	55	29	Himachal Pradesh	9	7	10
14	Punjab	60	62	59					
15	Bihar	60	74	59					
16	Manipur	57	70	49					

16.3.6 CAUSES OF UNEMPLOYMENT IN INDIA

There are multiple causes of Unemployment. The Classical economists emphasise supply side factors as the main cause of unemployment. They argue that demand

deficient unemployment tends to be only short term in nature. If there is demand deficient unemployment then that can be removed by a cut in wage rate.

However, other Keynesian economists emphasise the importance of aggregate demand in determining unemployment. They emphasised on demand side factors as the main causes of unemployment. They argued that wage cut is not the solution of unemployment. Wages are sticky downwards; this means workers are not willing to accept a wage cut. If wages are cut, then there is a fall in consumer spending these causes a fall in Aggregate Demand. Therefore, this makes the unemployment situation worse. Efficiency Wages Theory also states that if wages are cut workers become dispirited and work less hard leading to lower output. The various causes of unemployment can be described as below:

1. Lack of the Stock of Physical Capital: The major cause of unemployment and underemployment in underdeveloped countries like India is the deficiency of the stock of capital in relation to the needs of the growing labour force. If the working force grows faster than the stock of capital of a country, the entire addition of labour force cannot be absorbed in productive employment because not enough instruments of production would be there to employ them. The resulting unemployment is known as the long- term or chronic unemployment. A nation's stock of capital can be enlarged by increased investment which in the absence of any unutilised resources requires additional saving on the part of the community.

2. Caste System: In India caste system is prevalent. The work is prohibited for specific castes in some areas. In many cases, the work is not given to the deserving candidates but given to the person belonging to a particular community. So this gives rise to unemployment.

3. Slow Economic Growth: Indian economy is underdeveloped and role of economic growth is very slow. This slow growth fails to provide enough unemployment opportunities to the increasing population.

4. Increase in Population: Constant increase in population has been a big problem in India. It is one of the main causes of unemployment. The rate of unemployment is 11.1% in 10th Plan.

5. Agriculture is a Seasonal Occupation: Agriculture is underdeveloped in India. It provides seasonal employment. Large part of population is dependent on agriculture. But agriculture being seasonal provides work for a few months. So this gives rise to unemployment.

6. Joint Family System: In big families having big business, many such persons will be available who do not do any work and depend on the joint income of the family. Many of them seem to be working but they do not add anything to production. So they encourage disguised unemployment.

7. Fall of Cottage and Small industries: The industrial development had adverse effect on cottage and small industries. The production of cottage industries began to fall and many artisans became unemployed.

8. Slow Growth of Industrialization: The rate of industrial growth is slow. Though emphasis is laid on industrialization yet the avenues of employment created by industrialization are very few.

9. Less Savings and Investment: There is inadequate capital in India. Above all, this capital has been judiciously invested. Investment depends on savings. Savings are inadequate. Due to shortage of savings and investment, opportunities of employment have not been created.

10. Defective Planning: Defective planning is the one of the causes of unemployment. There is wide gap between supply and demand for labour. No plan had formulated any long term scheme for removal of unemployment.

11. Expansion of Universities: The number of universities has increased manifold in India. There are 385 universities. As a result of this educated unemployment or white collar unemployment has increased at a fast rate.

12. Inadequate Irrigation Facilities: Even after the completion of 9th five plans, 39% of total cultivable area could get irrigation facilities. Due to lack of irrigation, large area of land can grow only one crop in a year. Farmers remain unemployed for most time of the year.

13. Immobility of labour: Mobility of labour in India is low. Due to attachment to the family, people do not go too far off areas for jobs. Factors like language, religion, and climate are also responsible for low mobility. Immobility of labour adds to unemployment.

14. Use of Capital Intensive Techniques: An important factor responsible for slow growth of employment has been the use of capital-intensive techniques of production, even in consumer goods industries where alternative labour-intensive techniques are available. Even before 1991, under the industrial policy resolution 1956, the development of consumer goods industries were left open for the private sector. However, private sector prefers to invest in highly capital-intensive plants and equipment on the basis of technology developed in labour- scarce western countries. It is argued by them the alternative labour-intensive techniques have low productivity and low-surplus-generating capacity. However, the important reason for the use of capital-intensive techniques has been the availability of cheap capital.

15. Inequitable Distribution of Land: Another cause of unemployment prevailing in the developing countries like India is inequitable distribution of land. Large number of households has no adequate access to land which is an important asset for agricultural production and employment. Sub-division of land holdings under the pressure of rapid population growth since 1951 has further reduced access to land for several agricultural households. As a result, many persons who were self-employed in agriculture have become landless agricultural labourers. In this they suffer from acute unemployment and under-employment.

16. Rigid Protective Labour Legislation: Another reason for the slow growth of employment in the organised sector has been the existence of unduly rigid protective

labour legislation which makes it very difficult to retrench a worker who has been employed for 240 days. Labour-legislation is so much rigid that it is even difficult to close down the unit and exit the industry. Thus, this excessively protective labour-legislation induces private entrepreneurs to prefer the maximum use of capital in place of labour.

17. Neglect of the Role of Agriculture in Employment Generation: An important factor responsible for slow growth of employment opportunities is the neglect of agriculture for generating employment opportunities. The general perception, as existed in the first three five year plans in India (1951-65) as well as in the theoretical models of growth for dualistic economies such as Lewis “Economic Development with Unlimited Supplies of Labour” was that agriculture already contained surplus labour and it was required to withdraw this surplus labour from agriculture and employ them in the modern industrial sector. Agriculture though containing surplus labour can generate employment opportunities if proper strategy for its development is adopted. The use of double or multiple cropping greatly enhances the opportunities of employment generation in agriculture. The experience of Punjab, Haryana and Western UP is a shining example of large employment generation in agriculture. What is needed for the generation of large employment opportunities in agriculture, the new green revolution technology should be widely diffused and adopted in the backward and lagging agricultural regions in India.

16.4 GOVERNMENT POLICY AND PROGRAMMES TO REMOVE UNEMPLOYMENT

As explained in the causes of unemployment, the unemployment may be motivated through demand side factors or supply side factors. So there are two main strategies for reducing unemployment –

- Demand side policies to reduce demand-deficient unemployment (unemployment caused by recession)

- Supply side policies to reduce unemployment

In short following policy measures may be adopted to reduce unemployment:

- Monetary policy – cutting interest rates to boost Aggregate Demand (AD)
- Fiscal policy – cutting taxes to boost AD.
- Education and training to help reduce structural unemployment.
- Geographical subsidies to encourage firms to invest in depressed or backward areas.
- Lower minimum wage to reduce real wage unemployment.
- More flexible labour markets, to make it easier to hire and fire workers

Indian Government policies and programmes to remove unemployment can be described as below:

1. Integrated Rural Development Programme (IRDP): The Integrated Rural Development Programme (IRDP) was started in 20 selected districts in the country in 1976-77. Later on in 1980, the programme was extended to all the districts of the country. The objective of the scheme is to create productive assets for the families in rural areas living below poverty line.

2. National Rural Employment Programme (NREP): This programme was launched in 1980. The main aim of the programme was to create employment opportunities by building and maintaining community assets like village roads, ponds and wells etc. The scheme was expected to generate additional gainful employment to the extent of 30 to 40 crore man-days per annum and to develop community assets. In this programme, food grains are given for the work. NREP was merged with Jawaharlal RozgarYogana (JRY) in 1989.

3. Rural Landless Employment Guarantee Programme (RLEGP): This programme was started in 1983. Its main objective was to provide 100 days of assured employment in a year to rural landless labour families. They were to be employed in job creating community assets. This scheme was sponsored by Union Govt. In 1989, this J scheme was merged in JRY.

4. Training of Rural Youth for Self-Employment (TRYSEM): This scheme was started in 1979. The objective of the scheme was to help unemployed rural youth between the age of 18 and 35 years to acquire skills for self-employment. Priority was given to SC/ST Youth and Women. After the completion of training, credit was provided to the trained youth to set up their own business and trade. 3.6 lakh youth were trained under TRYSEM in 1996-97.

5. Jawahar Rozgar Yojana (JRY): This scheme came into existence in April 1989. The previous schemes NREP and RLEGP were merged into this scheme. The main objective of JRY was to create additional employment for rural under-employed and unemployed.

6. Employment Assurance Scheme (EAS): This scheme was launched in 1994 covering 1752 blocks where modified public distribution system was in operation. It aims at providing 100 days' work for unskilled physical workers especially in rural areas during slack agriculture season. It is a scheme to remove the seasonal unemployment. The funds for the scheme are shared by the central and states on 80:20 ratio basis. Employment is given on demand.

7. Small and Cottage Industries: Special measures have been taken by the Government to develop small and cottage industries with a view to removing poverty and unemployment. Large amount is being spent to promote self-employment.

8. Minimum Needs Programme (MNP): Minimum Needs Programme was launched during fifth plan to raise the standard of living of the poor. The programme covers primary education, adult education, rural health, rural water supply, rural roads, rural electrification, rural housing and ecological improvement & urban slums.

9. Indira Awas Yojana (LAY): Indira Awas Yojana was started in 1985-86 to provide residential units free of cost to SC and ST and freed bonded labour. This scheme was extended to non-SC/ST Categories from 1993-94. In 1995-96 families of armed forces and paramilitary forces killed in action brought under this scheme. DRDA is the coordinating agency.

10. Million Wells Schemes (MWS): Million wells scheme was launched on 1st January 1996. The main aim of this scheme was to increase the irrigation facilities and assist in the development of the land of the marginal farmers belonging to SC/ST castes. In 1999, this scheme was merged with Swaran Jayanti Gram Swarozgar Yojana.

11. Prime Minister's Rozgar Yojana (PMRY): Prime Minister's Rozgar Yojana (PMRY) was launched in 1993. It is a self-employment scheme meant for the educated unemployed youth. It is meant for poor families having income less than Rs. 25,000 per annum. Each educated unemployed youth is eligible for a loan of Rs. 1 lakh to start a small business. 22.5% reservation is given to SC/ST candidate and 27% reservation is given to OBC 15% of total amount is given as subsidy.

12. Jawahar Gram Samridhi Yojana (JGSY): Jawahar Gram Samridhi Yojana was started on 1st April 1999 to create rural infrastructure, like roads, bridges etc. The main objective was to create wage employment for the unemployed rural youth. DRDA was the co-ordinating agency. The scheme was sponsored by Centre Govt. The expenditure was shared between centre and state in the ratio of 80:20.

13. Sampooma Gramin Rojgar Yojana (SGRY): This scheme was started in Sept. 2001 by Prime Minister. The main objective of this scheme was to provide gainful employment & food security to villagers. Employment Assurance Scheme (EAS) and Jawahar Gram Samridhi Yojana (JGSY) have been merged in this scheme because both have the same objectives. DRDA is the nodal agency for this scheme. The expenditure for this scheme is shared by the centre and state in the ratio 80:20.

14. Swarna Jayanti Gram Swarozgar Yojana (SGSY): Swarna Jayanti Gram Swarozgar Yojana (SGSY) was launched on 1st April 1999. It is the single self-employment programme for rural poor. The objective of SGSY is to provide the opportunities of self-employment to rural poor. It aims at establishing a large number of small enterprises in rural areas. It replaces many previous schemes related to employment generation.

16.5 CHECK YOUR PROGRESS

Answer the following Multiple Choice Questions on the basis of Unemployment:

Q.1 If people are made unemployed because of a fall in aggregate demand this is known as:

- a) Frictional unemployment
- b) Seasonal unemployment
- c) Cyclical unemployment
- d) Structural unemployment

Q.2 Supply-side policies are most appropriate to cure:

- a) Involuntary unemployment
- b) Cyclical unemployment
- c) Voluntary unemployment
- d) A fall in aggregate demand

Q.3 If there is cyclical unemployment in the economy the government might:

- a) Increase interest rates
- b) Encourage savings
- c) Cut income tax
- d) Reduce government spending

Q.4 Less demand in the economy may increase unemployment; this may lead to less spending which may reduce demand further. This process is called:

- a) The upward accelerator
- b) The downward multiplier
- c) The upward PPF
- d) The downward mpc

Q.5 Reducing involuntary unemployment:

- a) Helps the economy move on to the Production Possibility Frontier
- b) Helps shift the economy's Production Possibility Frontier inwards
- c) Helps the economy move along its Production Possibility Frontier
- d) Helps the economy move inside the Production Possibility Frontier

16.6 SUMMARY

In almost all underdeveloped countries where per capita income is very low poverty, income inequality and unemployment are the common features. In India in spite of all the efforts of government these problems are still prevalent in Indian Economy. This chapter discusses the problem of unemployment. Unemployment represents the number of people in the work force who want to work but do not have a job. It is generally stated as a percentage and calculated by dividing the number of people who are unemployed by the total work force. The work force is made up of those people who want to work; it excludes people who are retired, disabled, and able to work but not currently looking for a position; for instance, they may be taking care of children or going to college. The willingness to do work is an important factor for the determination of rate of unemployment. The work force is made up of those people who want to work. It means willingness of persons to work at the prevailing wage rate is an important factor in the calculation of percentage of unemployment. There are different definitions of unemployment as discussed in the chapter. Unemployment is of different types which can be described as below. Unemployment in India prevails in rural as well as urban areas. In rural areas unemployment is usually classified as open and chronic unemployment, seasonal unemployment and disguised unemployment. On the other

hand, in urban areas unemployment can be unemployment among industrial workers, unemployment among urban educated people, technological unemployment and unemployment among youth. Unemployment rate in India increased to 3.52 percent in 2017 from 3.51 percent in 2016. Unemployment rate in India averaged 4.05 percent from 1983 until 2017, reaching an all-time high of 8.30 percent in 1983 and a record low of 3.41 percent in 2014. As per the data provided by World Bank India's unemployment rate has increased 3.52% in December 2017 from 3.51% in December 2016. The rate of unemployment from 2008 to 2018 remained on an average rate of 3.81%. The rate was as high as 4.12 % in December 2008 and after that it has fallen. It was lowest in December 2014 as 3.41%. There are multiple causes of unemployment. The Classical economists emphasise supply side factors as the main cause of unemployment. They argue that demand deficient unemployment tends to be only short term in nature. If there is demand deficient unemployment, it can be removed by a cut in wage rate. However, other Keynesian economists emphasise the importance of aggregate demand in determining unemployment. They emphasised on demand side factors as the main causes of unemployment. They argued that wage cut is not the solution of unemployment. Wages are sticky downwards; this means workers are not willing to accept a wage cut. If wages are cut then there is a fall in consumer spending these causes a fall in aggregate demand? Therefore, this makes the unemployment situation worse. Efficiency Wages Theory also states that if wages are cut, workers become dispirited and work less hard leading to lower output. The unemployment may be motivated through demand side factors or supply side factors. So there are two main strategies for reducing unemployment –Demand side policies to reduce demand-deficient unemployment (unemployment caused by recession), Supply side policies to reduce unemployment.

16.7 KEY WORDS

Unemployment represents the number of people in the work force who want to work but do not have a job. It is generally stated as a percentage and calculated by dividing the number of people who are unemployed by the total work force.

Jawahar Gram Samridhi Yojana (JGSY) was started on 1st April 1999 to create rural infrastructure, like roads, bridges etc. The main objective was to create wage employment for the unemployed rural youth. DRDA was the co-ordinating agency.

Sampoorna Gramin Rojgar Yojana (SGRY) scheme was started in Sept. 2001 by Prime Minister. The main objective of this scheme was to provide gainful employment & food security to villagers. Employment Assurance Scheme (EAS) and Jawahar Gram Samridhi Yojana (JGSY) have been merged in this scheme because both have the same objectives.

Swarna Jayanti Gram Swarozgar Yojana (SGSY) was launched on 1st April 1999. It is the single self-employment programme for rural poor. The objective of SGSY is to provide the opportunities of self-employment to rural poor.

16.8 SELF-ASSESSMENT QUESTIONS

- Q1. What is Unemployment? Discuss the different forms of Unemployment.
- Q2. Discuss different methods of measurement of employment.
- Q3. Discuss the problem of unemployment in India with the support of certain facts and figures. Explain the causes of unemployment.
- Q4. Elaborate in detail the different programmes initiated by Government of India to reduce the quantum of unemployment.

16.9 ANSWERS TO CHECK YOUR PROGRESS

Q.1 C, Q.2 C, Q.3 C, Q.4 B, Q.5 A

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Course Code: MC-104	Vetter: Dr. N.S. Malik
Lesson: 17	MONETARY POLICY

STRUCTURE

- 17.1 Learning Objective
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17.1 Learning Objective

On learning this lesson, the students will be able to understand the concept of monetary policy, its objectives, instruments, use of monetary policy during inflation and deflation and the limitations of monetary policy.

17.2 Concept of monetary policy

In advanced countries, central authority or central bank only performs the function to control money market in order to bring reasonable degree of stability. On the contrary, in developing countries it plays a pioneer and dynamic role in accelerating economic growth with stability and social justice. It not only controls the money market but also provides adequate resources for development. Here it must be noticed that central banks are faced with countless problems and have to bear new responsibilities. Therefore, central bank works carefully to bring stability by controlling credit activities of the commercial banks and promoting smooth conditions for economic development. Again, monetary policy takes steps to control inflation and maintains economic growth. Thus, they have to follow the policy of credit expansion and credit control simultaneously.

In a narrow sense, monetary policy means monetary measures and decision of a country which aim at controlling the volume of money, influencing the level of interest rates, public spending, use of money and credit while, in a broader sense, it refer to the monetary system which deals with all those monetary and non-monetary measures and decisions having monetary effects. Therefore, monetary policy implies those measures designed to ensure an efficient operation of the economic system or set of specific objectives through its influence on the supply, cost and availability of money. For this purpose, monetary authority involves the deliberate and conscious management of monetary instruments like bank rate, open market operations, change in reserve ratio and qualitative credit controls.

17.2.1 Objectives of monetary policy

Objectives of monetary policy have been different in different countries and in different times depending on the nature of problems faced by the monetary authorities of a country. Sometimes, these objectives are not found compatible with one another. However, important objectives of monetary policy are:

- (a) Neutrality of money.

- (b) Stability of exchange rates.
- (c) Maintaining price stability.
- (d) Obtaining satisfactory rate of economic growth by controlling business cycles.
- (e) Generating employment.
- (a) **Neutrality of money-** Those who advocate neutral money maintains that the variations in the quantity of money can generate oscillations in the economic system. If the banks follow a cheap money policy, brings down the rates of interest, create more money and dishoarding of idle assets, it will bring, in turn, a state of prosperity. On the other hand, if the banks follow a dear money policy, raise the rate of interest, encourage hoarding and destruction of credit money tends to have a depressing effect on the economic activities being performed in the economy. Neutrality of money, however, does not mean that the supply of money is fixed or should remain fixed. The objective of the monetary authority in relation to the neutrality of money is simply to counterbalance the changes in the velocity of circulation of money so that the hoarding and dishoarding activities or the cheap or dear money policies do not cause serious fluctuations in real economic variables.

Economists like Wicksteed, Hayek, Robertson feel that the main objective of the monetary policy is the neutrality of money. The policy of neutral money aims at doing away with the disturbing effects of the changes in the quantity of money on important economic variables like income, output, employment and prices. This policy implies that the quantity of money could be so controlled as to have no negative effect on the prices, output and employment. According to this theory money is to remain neutral, i.e., to cause no fluctuations. The advocates of neutral money believe that the worst disturbances in the modern economy are those originating in monetary changes. In their view creation and destruction of money spoil the

equilibrium between demand, supply, production, consumption, etc. but when neutral money is followed under a monetary policy there will be no fluctuations but only comparatively smooth adjustments. As such the main aim of the monetary policy is not to deviate from the neutrality of money. In other words, monetary authority must keep the quantity of money perfectly stable- which means it must be kept constant under all circumstances.

- (b) **Exchange rate stability-** The traditional objective of monetary policy has been the achievement of stable exchange rates. This objective was primary, while stability of prices and output was secondary owing to the paramount importance of international trade in the economies of leading countries like England, Denmark, Japan, etc. For this, maintenance and proper conduct of the gold standard was considered to be the primary function of the monetary authorities. This way, minor changes in exchange rates were easily noticed. These led to a lot of speculation and consequent dislocation of economies. This imposed on them periods of inflation and deflation. This objective is now considered to be of only secondary importance except in case of countries like Japan and England, whose prosperity still depends upon foreign trade. However, in under-developed countries the relationship between economic growth and exchange stability occupies special importance because an underdeveloped country has to import materials and equipments for development, besides, heavy borrowings. The exchange rate, therefore, has to be so adjusted that the balance of payments position does not worsen.
- (c) **Price stability-** In the thirties, during and after the great depression (1929-33), price stability and control of business cycles became important objectives of monetary policy. Fluctuations in prices in the upward direction and more so in the downward direction create difficult problems of production and distribution, besides great economic unrest and political

upheavals. But this objective of monetary policy proved to be short-lived on the grounds that it was difficult to determine a satisfactory price level at which the general price level should be stabilised. Price stabilisation policy is beset with many practical difficulties; it may remove indirect business incentives which come through a rise in prices. Moreover, the prices of different sectors and groups in the economy vary considerably and exhibit different trends. Again, stability of prices does not lead to stability of business conditions. Keeping in view the great stress laid by transactions and cash balance theorists upon the evil consequences of inflation and deflation, some tried to enquire into the relationship of the full employment objective with that of the objectives of price stability. It may be noted that these two objectives are quite closely related though they are by no means identical. Economic welfare would perhaps be maximum if we could attain full employment and keep price level stability simultaneously- this might be described as the ideal objective of the monetary policy.

- (d) **Objectives of generating employment and economic growth-** The objective of price stabilisation are good but it is not always desirable. We happen to live in an age of welfare states and full employment policies. There was a time, when exchange and price stabilities were considered important objectives of monetary policies, but in recent years both price and exchange stabilities have been relegated to the background and full employment— its attainment and maintenance— has assumed greater importance as the goal of monetary policy. It is argued that the achievement of full employment includes automatically price and exchange stabilities. Prof. Crowther is of the opinion that the main object of monetary policy of a country is to bring about equilibrium between saving and investment in the country at the level of full employment. Keynes was one of these economists who directed his efforts to discover, not only how and how well or ill a

nation's economy in any period is, but also what policies and decisions are needed on the part of the government to enable the economy to work as well as possible. He was interested not only in diagnosing the ailments of the economy but also in prescribing right remedies for them. The Pre-Keynesian classical type of monetary policy tried to accomplish the results in depression simply by making more central bank funds available at low rates of interest. But the ineffectiveness and inadequacy of such a policy in a depression was demonstrated both by the Keynesian analysis and the actual experience of depression of the thirties, when the desire for liquidity made it impossible to increase funds for investment. Thus, monetary policy is designed and used not only to cope with the acute booms and slumps when they have already taken place but to counteract the less extreme fluctuations in their initial stages. An appropriate monetary policy can, therefore, lessen fluctuations in general economic activities and can also reduce or prevent the degeneration of the economy.

Advanced economies like U.K. and U.S.A. may work normally at full employment level; the problem in such economies is how to maintain full employment, of avoiding fluctuation in the level of employments and production. In other words, how to have economic growth with stability. On the other hand, the main problem of an underdeveloped country is how to achieve full employment. Such an economy has to overcome underemployment of the entire agricultural population and has to remove unemployment of a large number of people who are without jobs for want of employment opportunities. Hence, a monetary policy designed to promote full employment through increased investment shall have to be followed. Such a policy is the cheap money policy, which in turn, lowers the rate of interest so as to stimulate borrowing for investment, which through multiplier and acceleration effects goes to increase the level of employment.

Once the level of full employment has been achieved, then through the equality of saving and investment, monetary policy tries to maintain it. For, if investment is greater than saving at full employment, inflation will set in, and if investment is less than saving, deflation will appear. It is, therefore, clear that the maintenance of full employment will also imply stable cost-price structure as also stable exchange rates. For full employment is a very delicate situation and may be upset by changes in exchange rates or prices, which in turn, will lead to fluctuations in the balance of general economic activities. Thus, achieving and maintaining full employment is definitely superior in that all other objectives are automatically attained. Both in advanced as well as underdeveloped economies the objectives of exchange and price stability cannot be ignored. But they can be sacrificed to some extent in the short-run in favour of full employment and satisfactory growth. Moreover, they may, to some extent, be conflicting in short period over the long-run they are all complementary.

17.2.2 Instruments of monetary policy

Broadly, instruments or techniques of monetary policy can be divided into two categories:

- (a) Quantitative or general methods.
- (b) Qualitative or selective methods.

(a) Quantitative or general methods

- 1. Bank rate or discount rate-** Bank rate refers to that rate at which a central bank is ready to lend money to commercial banks or to discount bills of specified types. Thus by changing the bank rate, the credit and further money supply can be affected. In other words, rise in bank rate increases rate of interest and fall in bank rate lowers rate of interest. During the course of inflation, monetary authority raises the bank rate to curb inflation. Higher

bank rate will check the expansion of credit of commercial banks. They will be left with fewer reserves which would restrict the credit creating capacity of the bank. On the contrary, during depression, bank rate is lowered, business community will prefer to have more and more loans to pull the economy out of depression. Therefore, bank rate or discount rate can be used in both type of situation is inflation and depression.

- 2. Open market operations-** By open market operations, we mean the sale or purchases of securities. As is known that the credit creating capacity of the commercial banks depend on the cash reserves of the bank. In this way, the monetary authority (Central Bank) controls the credit by affecting the base of the credit-creation by the commercial banks. If the credit to be decreased in the country, the Central Bank begins to sell securities in the open market. This will result to reduce money supply with the public as they will withdraw their money with the commercial banks to purchase the securities. The cash reserves will tend to diminish. This happens in the period of inflation. During depression, when prices are falling, the central bank purchases securities resulting expansion of credit and aggregate demand also increases and prices are also risen.
- 3. Variable reserve ratio-** The commercial banks have to keep given percentage as cash-reserve with the central bank. In lieu of that cash ratio, it allows commercial bank to contract or expand its credit facility. If the central bank wants to contract credit (during inflation period) it raises the cash reserve ratio. As a result, commercial banks are left with fewer amounts of deposits. Their power to credit is curtailed. If there is depression in the economy, the reserve ratio is reduced to raise the credit creating capacity of commercial banks. Therefore, variable reserve ratio can be used to affect commercial banks to raise or reduce their credit creation capacity.

4. **Change in liquidity-** According to this method, every bank is required to keep a certain proportion of its deposits as cash with it. When the central bank wants to contract credit, it raises its liquidity ratio and vice-versa.

(b) Qualitative or selective method

1. **Change in margin requirement-** Under this method, the central bank change in the margin requirement to control and release funds. When the central bank feels that prices are rising on account of stock-piling of some commodities by the traders, then the central bank controls credit sanctioned by the method of raising margin requirement (Margin requirement is the difference between the market value of the assets and its maximum loan value). Let us suppose, a borrower pledged goods worth Rs. 1000 as security with a bank and get a loan of amounting to Rs. 800. This margin requirement is 200 or 20 per cent. If this margin is raised, the borrower will have to pledge of greater value to secure loan of a given amount. This would reduce money supply and inflation would be curtailed. Similarly, in case of depression, central bank reduces margin requirement. This will in turn raise the credit creating capacity of the commercial banks. Therefore, margin requirement is significant tool in the hands of central authority during inflation and depression.
3. **Direct action-** This method is adopted when some commercial bank do not co-operate the central bank in controlling the credit. Thus, central bank takes direct action against the defaulter. The central bank may take direct action in a number of ways as under:
 - i) *It may refuse rediscount facilities to those banks that are not following its directions.*
 - ii) It may follow similar policy with the bank seeking accommodation in excess of its capital and reserves.

iii) It may change penal rates over and above the bank rate.

iv) Any other strict restrictions on the defaulter institution.

4. Rationing of the credit- Under this method, the central bank fixes a limit for the credit facilities to commercial banks. Being the lender or the last resort, central bank rations the available credit among the applicants. Generally, rationing of credit is done by the following four ways:

i) *Central bank can refuse loan to any bank.*

ii) Central bank can reduce the amount of loans given to the banks.

iii) Central bank can fix quota of the credit.

iv) Central bank can determine the limit of the credit granted to a particular industry or trade.

5. Moral persuasion or advice- In the recent year, the central bank has used moral persuasion as a tool of credit control. Moral persuasion is a general term describing a variety of informal method used by the central bank to persuade commercial banks to behave in a particular manner. Moral suasion takes the form of directive and publicity. In fact, moral persuasion is a sort of advice. There is no element of compulsion in it. The central bank focuses on the dangerous consequences of the credit expansion and seeks their cooperation. The effectiveness of this method depends on the prestige enjoyed by the central bank on the degree of co-operation extended by the commercial banks.

6. Publicity- Publicity is also another qualitative technique. It means to force them to follow only that credit policy which is in the interest of the economy. The publicity generally takes the form of periodicals and journals. The banks are not kept informed about the type of monetary policy, the central bank regards good for the economy. Therefore, the main aim of this method to bring the banking community under the pressure of public opinion.

17.2.3 Monetary policy in inflation

Inflation occurs when there is wave of optimism. It means MEC (Rate of profitability) is high on account of rising prices. As such the banks create more credit than requirements. The businessmen facing the scarcity of stocks of goods further reduce the supply. The banks cannot cope with the increased demand for credit. Under these circumstances, the aim of monetary policy is to slow down the money supply. Another reason due to which the credit would expand is the high values of securities on the stock exchanges. The increase in money supply would raise the fixed capital, plant and machinery. One may feel that it would go on for ever. But in reality it does not happen so. Both consumers spend and investment spending reaches a high pitch making credit conditions restrictive. Thus banks cannot cope up with increased demand.

Monetary policy is effective in controlling inflation if it is induced by demand pull. The monetary authority can reduce the reserves of the commercial banks by raising interest rates, by selling securities, by raising reserve ratio, by raising margin requirements and controlling consumer credit. Thus monetary policy can control inflation by controlling monetary supply and raising the cost of borrowing. Such a monetary policy during inflation is necessary to stabilise the economy and to avoid sudden fall.

The monetary policy can be more effective during inflationary pressures. It is easier to raise interest rates than to lower them. If consumption and spending are not reduced in spite of all-out efforts to reduce money supply through 'General Measures', the monetary authority has to resort to 'Qualitative measures'. The monetary policy would be effective if it is applied quickly and continuously in checking the booms from developing into inflation.

The various methods adopted to contain inflation as under:

- i) **To check money supply-** In order to control inflation one of the most significant method is to control the supply of money. This can be done if the Central Bank of the country or the monetary authority reduces the currency.
- ii) **To raise the interest rate-** In order to control inflation, dear money policy should be followed. This can be done if the Central Bank of the country raises the bank rate. The increase in the bank rate would raise the interest rate. This would raise cost of borrowings and hence the borrowings would fall. This would check prices from further increase.
- iii) **Credit control-** In order to reduce money supply, credit must be controlled. In order to control money supply, the Central Bank adopts many quantitative and qualitative measures to control credit. In case of quantitative measures, bank rate is increased, securities are sold in the open market and liquidity ratio is increased. Similarly in case of qualitative measures, marginal requirement is raised, credit is rationed, further publicity and moral suasion also help in reducing money supply.
- iv) **Demonetisation of old currency-** In case of excessive money supply, the government can demonetise a part of money supply. This can be done if notes of high denomination are banned. This will help the economy to make a large sum of money useless. This would help in checking black money also.

No doubt, above stated method can go a long way in controlling inflation, but experience shows that monetary policy has not been very useful in averting inflationary pressures. This lack of success has been partly the result of factors inherent in monetary policy and partly due to various neutralising effects. The effectiveness of monetary policy during inflation will depend on changes in the velocity of circulation of money because these changes sometimes may completely offset the restrictions imposed by the central bank on the supply and cost of money.

The policy makers cannot ignore the differential effects and aspects of dearer money policy on different sectors of the economy.

17.2.4 Monetary policy in deflation

During the Great Depression of 1929-30, there was a serious decline in the scope of monetary policy as an instrument of economic policy. It was stated that recovery from depression was severely limited than in controlling boom and inflation. This view emerged from the experience of the 'Great Depression' and the publication of Keynes 'General Theory' of Income, Price and Employment.

Depression refers to a continuous process of falling economic activities. Under this situation, price level falls continuously. Due to excessive aggregate supply, the problems of over-production and general unemployment exist. Under depression, the aim of the monetary policy is to boost aggregate demand. This is done by raising money supply, reducing interest rate and hence to raise credit.

Due to fall in prices, MEC (rate of profitability) is low, due to which income, output and employment fall and result in uncertainties. It is a period of low interest rates and high liquidity preference: The objectives of monetary policy during depression are to neutralize the fall in velocity of money, to satisfy demands for precautionary and speculative motives, to strengthen the cash position of banks and non-bank groups. This is meant to bring the interest rates down with a view to encouraging investment, etc.

Following measures are adopted in order to overcome deflation in the economy:

- i) **Cheap money policy** i.e. lowering of rate of interest, followed with a view to increasing aggregate demand, using excessive saving for development, boosting the prices of securities and confidence of security market. Reduction in the rate of interest is easier than the reduction in wages. The reduction in the rate of interest also raises consumption by encouraging a hire purchase system and credit. A fall in the interest rates in under-developed countries may

adversely affect the savings and may not promote investment or allocation of resources.

- ii) **Increase in money supply**- In order to control depression, aggregate demand has to be raised. This can be done by raising money supply. Money supply can be raised by minting more currency. The government can also raise money supply by raising expenditure. This can be done if the government follows deficit financing.
- iii) **Credit expansion**- Under depression, the Central Bank should expand credit through its liberal policies. This will help in increasing money supply. This would be possible if bank rate is reduced due to which interest rate would fall, the securities should be bought from the open market and liquidity ratio be reduced. That way, commercial banks would create more credit.

In short, during depression monetary policy was very little application. The rate of interest during depression is already very low. To reduce it further is again a problem. The profit margins during depression are very low. Businessmen borrow when business is expanding and not when it is declining. During depression, the businessmen are scared because of falling profits, so even fall in the interest rate would not raise investment. One can carry a horse to water but cannot make it drink. Even if the rate of interest falls, there is a limit to the fall. The minimum interest rate is referred as 'Liquidity Trap'. Thus monetary policy pursued during depression is rendered ineffective and helpless. Even if the central bank is able to follow cheap money policy, it has hardly any significant effect on the aggregate spending. From this, it should not be concluded that monetary policy is totally ineffective or useless. It does work if it is handled carefully and properly.

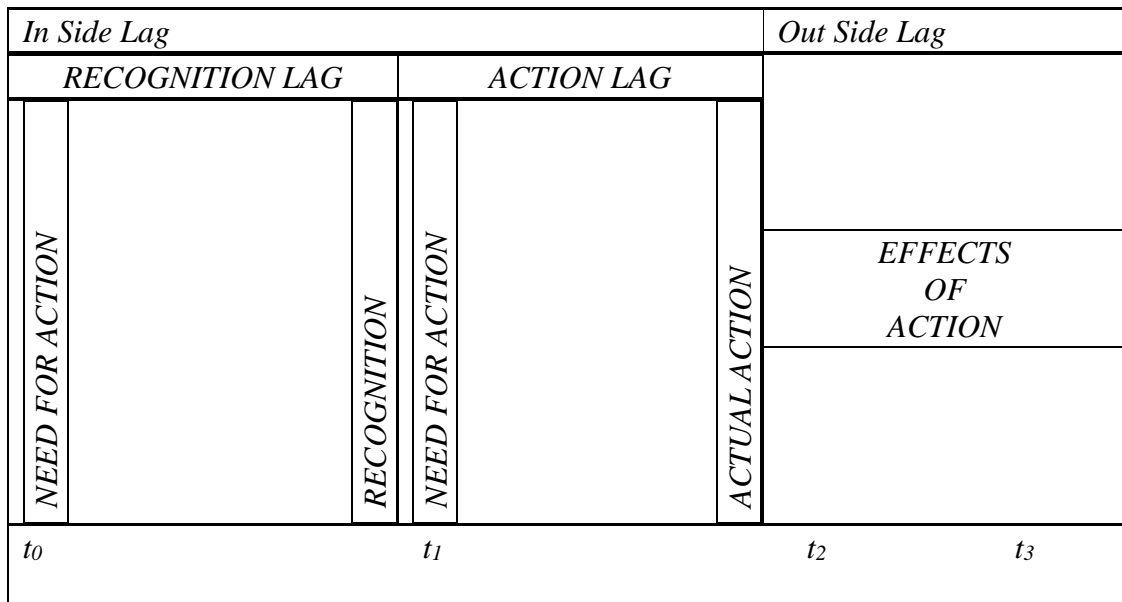
17.2.5 Effectiveness of monetary policy

Different methods of monetary policy seem to be quite simple but its implementation is a complex task. Let us evaluate the effectiveness of monetary policy as below:

1. **Changes in velocity-** Changes in velocity of money greatly influence the effectiveness of monetary policy. In case, regulatory authority reduces the supply of money with a view of reducing credit but at the same time, people make more use of money i.e. increase in velocity, then supply of money instead of diminishing, may increase. Again, if speculative demand also declines due to a fall in the prices of bonds. This type of decrease in demand for money also results in increasing the velocity of circumstances. Under these circumstances, effectiveness of monetary policy does not prove much effective.
2. **Non-banking financial institutions-** The policy adopted by non-banking financial institutions also affects the effectiveness of monetary policy to a greater extent. If the working of these institutions does not in accordance of monetary policy, then it can get much success. However, Prof. Gurley and Shaw attached much more significance to these institutions which sometimes limit to the smooth working of monetary policy.
3. **Lags of monetary policy-** The changes in monetary policy do not have a direct link with the changes in aggregate spending. The links between these two are through the supply, cost and availability of money. It requires a long time for monetary policy to have its effect on aggregate demand. It means monetary policy cannot bring quick changes to achieve economic stability. Some economists suggest that the central bank should not put in efforts for short-run economic stabilisation. Rather the central bank should change the money supply in accordance with the needs of the economy.
4. **Problem in forecasting-** The formulation of an appropriate monetary policy requires that the magnitude of the problem- recession or inflation is correctly assessed, as it helps in determining the dose of the medicine. What is more important is to forecast the effects of monetary actions. In spite of advances

made in forecasting techniques, reliable forecasting of macroeconomic variables remains an enigma.

Monetary-lags depend on the time period taken between initial and final results, say changes in money supply to changes in aggregate demand. If a longer period is taken the longer are the lags in monetary policy and vice versa. We can say that if interest rate falls, the spending may rise out only after some time because lag has been illustrated in the following figure:



The lag in the effect of monetary policy can be divided into many parts:

- (i) **Recognition Lag-** It means some time period is required to recognise the changes in the economy so as to change the policy. In the figure, we find that there is recession in economic activity in period t_0 . But it will take some time for the policy makers to recognise it. The recognition must be supported by evidence for some period. If the recession which starts in t_0 is recognised in t_1 this gap between t_0 to t_1 is called recognition lag. The time lag taken in 3 months.

- (ii) **Action lag-** Once the necessity of change in policy is required, there is need of some time to make suitable adjustments or changes in the policy. Some time is required for working out details and implementing them. The policy action may be controversial. In that case some delay is inevitable. The delay may be caused by political pressures. There may be many other reasons for delay. The action lag period is taken quite close to zero.
- (iii) **Inside lag-** The total of recognition lag and action lag is known as inside lag. Inside lag = Recognition lag + Action lag. ($t_0t_2 = t_0t_1 + t_1 t_2$). The length of this lag depends on the ability of policy makers to recognise, taking action for the same and what is used as a basis for computation. As regards the duration of inside lag, the length of this period is generally believed to be more than three months.
- (iv) **Outside lag-** After change in the policy, there is need for some time for these changes to work and affect aggregate spending and income. Outside lag is t_2 to t_3 . It is very difficult to analyse the causes of outside lag because of the involvement of complete inter-relationship in the economic system. The outside lag can be estimated by statistical inference or direct estimate method as suggested by Thomas Mayer.

Thus the total lag period includes inside and outside lag i.e. t_0 to t_3 . Milton Friedman uses statistical inference or direct estimate method as suggested by Thomas Mayer to estimate total lag. The total time lag may vary from six months to two years. The time lags must be reduced to ensure economic growth with stability.

17.3 Problems or limitations of monetary policy in less-developed and developing countries

Monetary policy does not work effectively in the underdeveloped countries on account of the following reasons:

- 1. Under-developed money market-** The money market in less developing countries is highly under-developed. Due to the unorganised nature of the money market and lack of its integration with the central bank, the traditional methods of credit control like bank rate policy, open market operations and variations in the reserve ratio etc. have got limited effect. The central bank extends its control only to the organised sector and not to the unorganised sector. This creates several complicated problems for the central bank when it tries to control the money market of the country. The money market is also conspicuous by the absence of a well-developed bill market.
- 2. Non-monetized sector-** Due to the existence of an extensive non-monetized sector, changes in the money supply of the country or the changes in the interest rates do not have any effect on the level of economic activity. It is because money does not enter into this sector and all the transactions conducted therein are merely better exchanges. Therefore, non-monetized sector creates many problems in the smooth working of the monetary policy.
- 3. Lack of integrated interest rate structure- The various types of interest rates** prevalent in the money market do not bear any definite relationship with the bank rate of the country. Any changes affected in the other interest rate do not produce proportional changes in the other interest rates. The result is that the central bank of the country is unable to control the money market in an effective manners and monetary policy fails in its operation.
- 4. Proportion of credit to money-** The proportion of credit to money in the monetized sector is very small. Nearly a 70-75% money supply consists of currency in active circulation. The bank deposits in such an economy form only a small and insignificant portion of the total money supply. This seriously limits the working of monetary policy.

5. **Shortage of real factors-** Another problem in developing countries exists that there is a shortage of real factors like capital, entrepreneurial ability etc., therefore, monetary policy can do nothing about it.
6. **Lack of banking facilities-** In a developing economy, adequate banking facilities are not available specially to those areas in the country which are either un-banked or under-banked. The idle savings of the people cannot be mobilised. Moreover, sometimes commercial banks do not cooperate with the central bank. Thus lack of banking facilities creates number of problems in the way of monetary policy.
7. **Existence of inflation-** A developing economy is highly sensitive to inflationary pressure. Government incurs huge expenditure on various types of development projects. It increases the effective demand much more than the output of consumer goods. The result is a sharp rise in the internal price level. Moreover, during the course of hyper inflation, tools of monetary policy fail to work properly.
8. **Black money-** In underdeveloped countries, large quantity of black money exists due to political and economic factors. Black money is used for activities such as hoarding and speculative motives etc. As a result, it hinders the time spirit of the various objectives of monetary policy.
9. **Non-banking financial institutions-** According to Gurley and Shaw, non-banking financial institutions like Life Insurance Corporation, State Financial Institutions, and other Credit Financial Institutions, greatly hamper to achieve the objectives of monetary policy in an less developed country.
10. **Deficit financing-** In the modern world, deficit financing is the main source of financing development activities. But heavy does of deficit financing has proved in operative to achieve the objectives of monetary policy. For example, monetary authority wants to check the supply of money while deficit financing

helps to increase its supply. Thus how both factors can operate simultaneously?

11. **Only persuasive policy-** Generally monetary policy in underdeveloped countries is soft, lenient, persuasive and this leads to ineffectiveness. As its role is not compulsive but permissive only which creates serious limit on the efficacy of monetary policy?
12. **Disequilibrium in balance of payments-** In less developed countries, monetary expansion generally leads to increased imports and unfavourable balance of payments. This puts a limitation on the monetary policy.
13. **Investment in unproductive channels-** The well-to-do people do not deposit money with banks but use this money in buying jewellery, gold, real state, and in conspicuous consumption etc. In other words, investment is made in unproductive channels instead of productive channel and as a result, it retards the economic development of underdeveloped countries.
14. **Limited application of weapons of credit control-** In the developing economies, people policy mostly rely on currency in circulation and bank deposits form only a small proportion of money policy. This being the case, weapons of credit control has only limited application.

17.4 Check Your Progress

Answer the following Multiple Choice Questions based on Monetary Policy:

Q.1 Which of these is NOT a monetary policy tool?

- | | |
|---------------------|---------------------------|
| a) Discount Rate | b) Open Market Operations |
| c) Balance Accounts | d) Reserve Requirements |

Q.2 The goals of monetary policy do NOT include the promotion of___.

- | | |
|-----------------------|--------------------------------------|
| a) Maximum employment | b) Low Taxes |
| c) Stable Prices | d) Moderate long-term interest rates |

Q.3 Who controls the supply of money and bank credit in India?

- | | | | |
|--------|-------------------------------|---------|------------------|
| a) RBI | b) Indian Banking Association | c) SEBI | d) None of These |
|--------|-------------------------------|---------|------------------|

Q.4 What is the main objective of monetary policy in India?

- a) Growth with Stability
- b) Reduce Poverty and Achieve Stability
- c) Overall Monetary Stability
- d) None of These

Q.5 The RBI sells government securities to control the _____:

- a) Flow of Finance in banks
- b) Flow of Credit
- c) Flow of Governmental Securities
- d) None of These

17.5 Summary

Central bank works carefully to bring stability in the economy by controlling credit activities of the commercial banks and promoting smooth conditions for economic development. Again, monetary policy takes steps to control inflation and maintains economic growth. Thus, they have to follow the policy of credit expansion and credit control simultaneously. Therefore, monetary policy implies those measures designed to ensure an efficient operation of the economic system or set of specific objectives through its influence on the supply, cost and availability of money. For this purpose, monetary authority involves the deliberate and conscious management of monetary instruments like bank rate, open market operations, change in reverse ratio and qualitative credit controls.

17.6 Keywords

Bank rate or discount rate- Bank rate refers to that rate at which a central bank is ready to lend money to commercial banks or to discount bills of specified types.

Rationing of the credit- Under this method, the central bank fixes a limit for the credit facilities to commercial banks.

Outside lag- After change in the policy, there is need for some time for these changes to work and affect aggregate spending and income i.e. known as outside lag.

Cheap money policy- Cheap money policy means lowering the rate of interest, followed with a view to increasing aggregate demand, using excessive saving for development, boosting the prices of securities and confidence of security market.

17.7 Self-Assessment Test

1. What is meant by monetary policy? Discuss its objectives? What are the instruments of monetary policy?
2. Define monetary policy. Discuss the role of monetary policy during inflation and deflation.
3. What are the limitations of monetary policies? What are the factors that determine the effectiveness of monetary policy.

17.8 Answers to Check Your Progress

Q.1 C, Q.2 B, Q.3 A, Q.4 A, Q.5 B.

17.9 References/Suggested readings

1. Shapiro, Edward, Macroeconomic Analysis, Galgotia Publications, New Delhi.
2. Diulio Eugene, Macroeconomic, Tata McGraw Hill Publishing Company Ltd., New Delhi.

Lesson: 18 Fiscal Policy

Structure

- 18.1 Learning Objectives
- 18.2 Introduction of fiscal policy
 - 18.2.1 Objectives of fiscal policy
 - 18.2.2 Instruments of fiscal policy
 - 18.2.3 Fiscal policy in inflation
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- 18.3 Problems or limitations of fiscal policy
- 18.4 Check Your Progress
- 18.5 Summary
- 18.6 Keywords
- 18.7 Self-Assessment Test
- 18.8 Answers to Check Your Progress
- 18.9 References/Suggested readings

18.1 Learning Objective

After learning this lesson, the students will be able to understand the concept of fiscal policy, its objectives, instruments, use of fiscal policy during inflation, deflation and problems.

18.2 Introduction to Fiscal Policy

It is now widely accepted that the State has a *sin qua non* in the regulation of economic activity along the desired lines. Fiscal policy is traditionally concerned with the determination of state income and expenditure policy. However, in recent

times, with the expanding role of state with particular reference to the need for a rapid economic growth, public borrowings and deficit budgeting has also become a part of fiscal policy. The crux of an effective fiscal policy is related to the policy decision with regard to the entire financial structure of the government such as expenditures, transfers, loans, tax revenues and debt management etc. They all are kept in a proper balance so as to achieve the best possible results in terms of economic objectives. In the ultimate sense, fiscal policy tries to achieve its objectives by regulating the working of the market mechanism while retaining the mechanism itself. In short, the extent of its success entirely depends upon numerous factors such as marking of market forces, economic stability, proper use of its tools and the flow of foreign capital and trade.

In simple words, fiscal policy concerns itself with the aggregate effects of government expenditure and taxation on income, production and employment. In other words, it refers to the instruments by which a government tries to regulate or modify the economic affairs of an economy keeping in view its objectives. Again, we can say that fiscal policy is a package of economic measures of government regarding its public expenditure, public revenue and public debt or public borrowings. It also outlines the influence of the resource-utilisation on the level of aggregate demand through affecting the level of aggregate consumption and investment expenditure in the economy. Moreover, it also suggests measures to control the economy fluctuations which may become violent and create great upheavals in the socio-economic structure of the economy.

Traditionalist view of fiscal policy

The classical economists had a firm belief in the policy of laissez-faire. The Say's Law of Market was the corner-stone of all economic policies which propounds that supply creates its own demand and as a result, there is no question of general over-production or involuntary unemployment. They intend to the size of the public sector by reducing the functions of the government to the minimum possible so that

the operation of market mechanism is not hindered. Thus, they believe that the free operation of market forces would achieve full-employment and ensure an optimum allocation of resources in a country. In their views, taxes were nothing more than that of unproductive expenditure resulting in a wrong diversion of resources. They felt that fiscal arrangements should not go beyond the point where the optimum allocation gets disturbed. They consider it most desirable that the government should perform only minimum essential functions and should not interfere in the working of the economic system. In other words, they repeatedly stressed that the fiscal policy should be neutral in its impact upon the economic system. For the principle of sound finance, they advocated that government is the best judge which spends the least and imposes the lowest amount of taxes. They laid down certain conditions as:

- (a) Government should spend the least and tax the little.
- (b) Taxation should have minimum adverse effect on production.
- (c) Public expenditure should be on productive fields.
- (d) There must be a balanced budget.

Further the traditionalist had the confirmed opinion regarding the principle of a balanced budget and surplus or deficit budget as undesirable. Prof. Hansen envisages two things for the principle of fiscal neutrality as:

- i) The reduction of government spending to a certain limit; and
- ii) A tax structure that leaves the product and factor prices undisturbed.

Similarly, Samuelson also favoured fiscal neutrality on the following grounds:

- a) nation's budget should be administered on the same lines as a private budget.
- b) tax system should not cause distributional changes.
- c) taxation should fall on current consumption so that private savings and investments are encouraged thus resulting in higher rate of growth.

Modern views of fiscal policy

Prof. Keynes, A.P. Lerner, G. Myrdal gave a new shape to the fiscal policy. They refuted the classical economists' concept that supply creates its own demand. As

such, there is no possibility of unemployment and the equilibrium in the economy. The same are automatically achieved because of market forces, asserted famous economist Say. However, Keynes believed that in an advance economy, the propensity to consume tends to diminish as income increases. In other words, propensity to save increases with increase in income. The gap between less consumption and larger saving results in lowering demand for goods and services produced at one time, which leads to disequilibrium in the economy. Therefore, to maintain equilibrium level of income and employment, it is a pre-requisite to off-set the effects of decrease in demand and its impact on output due to decrease in consumption by a corresponding increase in public expenditure. Therefore, it is the prime duty of the government to increase public expenditure directly by undertaking public works programme on a large scale. In this manner, modern economists stress that the government has to play a positive role to regulate and control the economy by decisive economic activities. They call it the principle of functional finance. To put it in a different sense, such financial activities are called fiscal policy which are undertaken to correct either deflation or inflation.

Keynes view on fiscal policy

Fiscal policy has been developed under the great influence of J.M. Keynes. Post-Keynesian popularity of fiscal policy has also been due to non-effectiveness of monetary policy as an instrument of removing of economic stability and control was first of all emphasised in his well known work. 'The general Theory- Employment, interest and money'. Primarily, Keynes made a fundamental departure from the traditional fiscal neutrality. He intended that the government should interfere in an economic system through fiscal instruments for bringing stability at a higher level of employment and income. Keynes, however, did not mean to discourage private investment and enterprise. He wanted the state to play a 'balancing role' and supplement the activities of private investors through public spending.

18.2.1 Objectives of fiscal policy

Fiscal policy aims at a number of objectives depending upon the circumstances in a country. Important objectives of fiscal policy are:

- (a) **Optimum allocation of economic resources-** It means that the fiscal policy should be framed to increase the efficiency of productive resources like men, money, materials, etc. It also means that the government should spend on those public works which give the maximum employment and are beneficial to society.
- (b) **Equitable distribution of wealth and income-** It means that difference in payments to the factor of production should be reduced to the minimum and fiscal policy should be designed to bring about an equality of income between different groups by imposing tax on rich and spending more on poor.
- (c) **To maintain price stability:** Another important objective of fiscal policy may be to maintain price stability. A fall in prices leads to a sharp decline in business activity. On the other hand, inflation may hit hard the fixed income classes and may benefit the speculators and traders. Fiscal policy has to maintain a reasonable and stable general price level to benefit all sections of the society.
- (d) **Full employment:** The most important objective of fiscal policy is the promotion and maintenance of full employment; because through it all other objectives are automatically achieved. For this, fiscal authorities should start programmes of removing unemployment. For the moment, it suffices to say that fiscal policy aimed at full employment envisages the erection of a tax structure, not with a view to raising revenue but with a view to noticing the effects that specific kinds of taxes will have on consumption, saving and investment; and the determination of the volume and direction of government spending not to provide certain services only but also to know

how it will fit into the general pattern of total spending currently taking place in the economy.

These objectives are not always compatible, particularly price stability and full employment. The objective of equitable distribution of income may come in conflict with the objective of economic efficiency and economic growth. Fiscal policy may transfer wealth from the rich to the poor through the use of taxation with a view to bringing about a redistribution of income, but it may be criticised on the ground that the transfer of income from the rich to the poor will affect savings and capital formation, which in turn, would affect investment and employment. Fiscal policy as a means for influencing the flow of income may involve either a change in the level of taxes or a change in the level of government expenditures or a combination of the two. Whatever method is adopted the basic consequences are the same. To impose restraint increased taxes or reduced expenditures may result in a surplus if tax revenues over expenditures. To encourage expansion, reduced taxes or increased spending may cause a deficit of revenue as compared to expenditures.

18.2.2 Instruments of fiscal policy

Fiscal policy through variation in government expenditure and taxation profoundly affects national income, employment, output and prices. An increase in public expenditure during depression adds to aggregate demand for goods and service and leads to large increase in income. On the other hand, a reduction in public expenditure during inflation reduces aggregate demand, national income, output and prices. Similarly, an increase in taxes tends to reduce national income and vice-versa. Thus, the government can control inflationary and deflationary pressures in the economy by judicious combination of expenditure and taxes. Thus, the various instruments or measures which influence the economic stability of an economy are described as:

Budget

The budget of a nation is a useful instrument to assess the fluctuations in an economy. Different budgetary principles have been formulated by the economists, prominently known as (1) annual budget, (2) cyclical balanced budget and (3) fully managed compensatory budget. Let us briefly explain them.

- 1. Annual balanced budget-** The classical economists propounded the principle of annually balanced budget. They defended it with force till the deep rooted crisis of 1930's. The Keynes and other economist criticise the concept of balanced budget.
- 2. The cyclically balanced budget-** The cyclical balanced budget is termed as the 'Swedish budget'. Such a budget implies budgetary surpluses in prosperous period and employing the surplus revenue receipts for the retirement of public debt. During the period of recession, deficit budgets are prepared in such a manner that the budget surpluses during the earlier period of inflation are balanced with deficits. The excess of public expenditure over revenues are financed through public borrowings. The cyclical balanced budget can stabilise the level of business activity. During inflation and prosperity, excessive spending activities are curbed with budgetary surpluses while budgetary deficits are curbed during recession with raising extra purchasing power. This policy is favoured on the following account:
 - i) The government can easily adjust its finances according to the needs;
 - ii) This policy works smoothly in all times like depression, inflation, boom and recession;
 - iii) Cyclically balanced budget simply ensures stability but gives no guarantee that the system will get stabilised at the level of full employment.
- 3. Fully managed compensatory budget-** This policy implies a deliberate adjustment in taxes, expenditures, revenues and public borrowings with the

motto of achieving full employment without inflation. It assigns only a secondary role to the budgetary balance. It lays down the emphasis on maintenance of full employment and stability in a price level. With this principle, the growth of public debt and the problem of interest payment can be easily avoided. Thus, the principle is also called 'functional finance'. The fully managed compensatory budget got widespread approval from the economists and businessmen. It was embodied in the Employment Act of 1946 in United States.

Taxation

Taxation is a powerful instrument of fiscal policy in the hands of public authorities which significantly affect the changes in disposable income, consumption and investment. An anti-depression tax policy increases disposable income of the individual, promotes consumption and investment. Obviously, there will be more funds with the people for consumption and investment purposes at the time of tax reduction. This will ultimately result in the increase of spending activities i.e. it will tend to increase effective demand and reduce the deflationary gap. In this regard, sometime, it is suggested to reduce the rates of commodity taxes like excise duties, sales tax and import duty. As a result of these tax concessions, consumption is promoted. Economists like Hansen and Musgrave, with their eye on raising private investment, have emphasised upon the reduction in corporate and personal income taxation to overcome contractionary tendencies in the economy. No doubt, these steps will push the disposable income, yet their impact upon investment is uncertain. In the opinion of Prof. Kalecki, when general economic situation is demoralising in depression, even tax reduction cannot provide stimulus strong enough to guide entrepreneurs to alter their decision to undertake more investment. Therefore, Kalecki has totally disapproved the method of tax reduction for stimulating private consumption and investment.

Public expenditure

The active participation of the government in economic activity has brought public spending to the front line among the fiscal tools. The appropriate variation in public expenditure can have more direct effect upon the level of economic activity than even taxes. The increased public spending will have a multiple effect upon income, output and employment exactly in the same way as increased investment has its effect on them. Similarly, a reduction in public spending can reduce the level of economic activity through the reverse operation of the government expenditure multiplier.

Public expenditure in inflation- During the period of inflation, the basic reason of inflationary pressures is the excessive aggregate spending. Both private consumption and investment spending are abnormally high. In these circumstances, public spending policy must aim at reducing the government spending. In other words, some schemes should be abandoned and others be postponed. It should be carefully noted that government spending, which is of productive nature, should not be shelved, since that may aggravate the inflationary dangers further. However, reduction in unproductive channels may prove helpful to curb inflationary pressures in the economy. But such a decision is really difficult from economic and political point of view. It is true, yet the fiscal authority can vary its expenditure to overcome inflationary pressure to some extent.

Public expenditure in depression- In depression, public spending emerges of greater significance. It is helpful to lift the economy out of the morass of stagnation. In this period, deficiency of demand is the result of sluggish private consumption and investment expenditure.

There are two concepts of public spending: (i) Compensatory public spending, and (ii) Pump priming.

- (i) **Compensatory Public Spending-** It means that public spending is undertaken with a clear view to compensate for the decline in private investment. The basic idea is that when private investment declines, public expenditure expands and as long as private investment is below normal, public compensatory spending would continue. These expenditures will raise the level of income, output and employment. Public spending implies that the government should undertake additional expenditure with specific object of compensating the deficiency in aggregate demand. The compensatory public spending may assume different forms such as relief expenditure, subsidy, social insurance payments and public works. However, certain conditions of compensatory public spending are stated below:
- (ii) **Pump Priming-** Pump priming refers to increase in private investment through an injection of fresh purchasing power into income stream. It is believed that public expending will help to start and revive the economic activity which later on may set in motion a process of recovery from the conditions of depression. Thus, through such a spending, the economy may move itself at a satisfactory level without further assistance from the government. It is like a little water poured into a pump to prime it, it may supply an endless flow of water. Similarly, if once the government spends some money, the flow of economic life would continue smoothly for ever. Therefore, the main criterion to determine the amount of pump priming is that the system may operate continuously afterwards on its own motive force.

Public works

Keynes General Theory highlighted public works programme as the most significant anti-depression device. There are two forms of expenditure i.e. Public Works and Transfer Payments. Public Works according to Prof. J.M. Clark, are durable goods,

primarily fixed structure, produced by the government. They include expenditure on public works as roads, rail tracks, schools, parks, buildings, airports, post offices, hospitals, irrigation, canals etc. Transfer payments are the payments such like interest on public debt, subsidy, pension, relief payment, unemployment, insurance and social security benefits etc. The expenditure on capital assets (public works) is called capital expenditure.

Public works are supported as an anti-depression device on the following grounds:

- (i) They absorb hitherto unemployed workers.
- (ii) They increase the purchasing power of the community and thereby stimulate the demand for consumption goods.
- (iii) They help to create economically and socially useful capital assets as roads, canals, power plants, buildings, irrigation, training centres and public parks etc.
- (iv) They provide a strong incentive for the growth of industries which are generally hit by the state of depression.
- (v) They help to maintain the morale and self respect of the work force and make use of the skill of unemployed people.
- (vi) The public works do not have an off setting effect upon private investment because these are started at a time when private investment is not forthcoming.

Limitations of expenditure on public works-

1. **Difficult forecasting-** The effectiveness of public works programmes always rests upon accurate forecasting of the ensuing depression or boom, but prediction of accurate forecasting is very difficult.
2. **Timing of public works-** Another serious problem relates to the timing of public works with the moment of cycle. Due to lack of accurate forecasting, proper timing is neither feasible nor possible. Thus this factor alone undermines the significance of public works as an instrument of stabilisation.

3. **Delay in starting-** Public works programmes is not something which can be started immediately. Actually, it is a long term programme which requires proper planning with regard to the finance and engineering. In this way, delay is the natural cause.
4. **Scarcity of resources-** The undertaking of public works programme may pose a serious threat due to non-availability of resources. It is likely that scarcity of resources may further aggravate the crisis instead of giving the pace of smoothness.
5. **Misallocation of resources-** As the slump gets deepened, there is wide spread unemployment of manpower and equipment. Generally, public works are located in only few selected areas. Thus, they may prove to be inadequate to cope with the requirements. Again, immobility in factors of production may also prevent the economic utilisation of available resources. As a result, they reduce the efficiency of public works programme.
6. **Burden of public debt-** The public works programme, generally, is financed through borrowing during depression. This will saddle the country with a heavy burden of repayment of principle amount and interest therein.
7. **Cost price maladjustments-** The public works programme may perpetuate cost price maladjustments in heavy industries where public expenditure is concentrated. During the period of boom, wages and prices in construction industries have a strong upward tendency while in recession or depression, prices move downward, wages and costs relatively remain sticky. In short, such distortion in cost price structure brings more instability in the economy.
8. **Effect on private enterprise-** In certain areas, the construction programmes; undertaken by the public agencies may complete with private investment. As a result, the latter is driven out of business. In such a case, public works will prove to be self-off setting and the aggregate demand will possibly fail to increase.

9. **Control over public works-** The success of public works mostly depends on the nature of control over them. If public works are controlled by the central authority, delay is likely to arise in selected projects.
10. **Political considerations-** Public works are often started in democratic countries in certain areas not on account of economic reasons, but because of the political pressure at national, state and local levels. Consequently, the economic utility of such works remains very limited.

Public Debt

Public debt is a sound fiscal weapon to fight against inflation and deflation. It brings about economic stability and full employment in an economy. The government borrowing may assume any of the following forms mentioned as under:

(a) **Borrowing from Non-Banking Public-** When the government borrows from non-banking public through sale of bonds, money may flow either out of consumption or saving or private investment or hoarding. As a result, the effect of debt operations on national income will vary from situation to situation. If the bond selling schemes of the government are attractive, the people induce to curtail their consumption, the borrowings are likely to be non-inflationary.

If the government bonds are purchased by non-banking individuals and institutions by drawing upon their hoarded money, there will be net addition to the circular flow of spending. Consequently, the inflationary pressures are likely to be created. But funds from this source are not commonly available in large quantity. Its main implication is that borrowings from non-banking public are more advantageous in an inflationary period and undesirable in a depression phase. In short, the borrowings from non-banking public are not of much significant magnitude whether it comes out of consumption, saving, private investment or hoarding.

(b) **Borrowing from banking system-** The government may also borrow from the banking institutions. During the period of depression, such borrowings are

highly effective. In this period, banks have excessive cash reserves and the private business community is not willing to borrow from banks since they consider it unprofitable. When unused cash lying with banks is lent out to government, it causes a net addition to the circular flow and tends to raise national income and employment. Therefore, borrowing from banking institutions has desirable and favourable effect especially in the period of depression when the borrowed money is spent on public works programmes.

(c) Drawing from treasury- The government may draw upon the cash balances held in the treasury for financing budgetary deficit. Since, it demonstrates dishoarding result in a net addition in the supply of money, it is likely to be inflationary in nature. But, generally, there are small balances over and above what is required for normal day to day requirement. Thus, such borrowings from treasury do not have any significant result.

(d) Printing of money- Printing of money i.e. deficit financing is another method of public expenditure for mobilising additional resources in the hands of government. As new money is printed, it results in a net addition to the circular flow. Thus, this form of public borrowing is said to be highly inflationary. Deficit financing has a desirable effect during depression as it helps to raise the level of income and employment but objection is often raised against its use at the time of inflation or boom. Here, it must be added that through this device, the government not only gets additional resources at minimum cost but can also create appropriate monetary effects like low interest rates and easy money supply and consequently economic system is likely to register a quick revival.

18.2.3 Fiscal policy in inflation

Keynes has laid stress on the role of fiscal policy to check inflation. Basically, inflationary situation occurs due to the condition of excessive demand when the private spending on consumption and investment of goods and foreign spending exceed the full employment output. Keynes says that true inflation only starts after

full employment. But in actual practice, inflationary pressures are realised even before full employment due to the other bottlenecks and rigidities of factor supply. For checking such situations in the economy, the following fiscal measures can be adopted:

- 1. Control over public expenditure-** The best solution to curb inflation is the control over public expenditure. Therefore, efforts should be made to curtail unnecessary expenditure to the maximum possible extent.
- 2. Increase in Taxes-** Another way to check inflation, government should impose new taxes. The rate of old taxes may also be raised. But the government must be careful that taxes should not adversely affect the production in the country.
- 3. Increase of public borrowing-** In order to reduce private expenditure, steps may be taken to mop up the purchasing power of the private sector through public borrowing. This can be done by the sale of bonds, shares and debentures.
- 4. Delay in the payment of old debts-** To check inflation, government should try to defer the repayment of old debts. This will restrict the current flow of money in the country.
- 5. Surplus budget-** Still another method to check inflation which can be adopted by the government is to prepare surplus budget. People will have less purchasing power when the revenue of the government is more than its expenditure. As a result, demand and price level will fall.

18.3.4 Fiscal policy in deflation

During deflation, there is a tendency for the prices to fall. Hence, following measures can be adopted to control deflation.

- 1. Increase in Public Expenditure-** Under depression, public expenditure must increase. As a result, demand will increase. Increased demand will check the tendency of the prices to fall. Therefore, additional doses of public expenditure will help to lift the economy out of the morass of stagnation.

2. Decrease in taxes- During depression taxes should be decreased. As a result of decrease in direct taxes like income tax, corporation tax etc., investors will prompt more investment and spend more on consumption. Thus, the aggregate demand will increase and depression be brought under control.

3. Increase in social welfare expenditure- Government should spend more on such social welfare activities as education, public health and medical services, social security, grants, roads, canals etc., which in turn raise public welfare. Such government spending serves as compensatory spending. It will encourage investment and increase aggregate demand. Thus tendency of falling prices would be checked.

4. Prices support policy- Another method to control deflationary forces, is the price support policy. It is because prices generally fall heavily. Therefore, government has to pursue price support policy. During this period, government buys itself and stocks/essential at a fixed price is called support price. By this method, tendency of the falling prices is arrested.

5. Deficit financing- The additional doses of deficit financing can help to increase aggregate demand. This will push the prices upward.

6. Pump priming- Pump priming means to increase private investment through an injection of fresh purchasing power into income stream. As we know that private investment is at lowest ebb during depression. To increase it, public investment is essential which set in motion a process of recovery and move itself at a satisfactory level. It encourages investment in two ways:

(i) In order to increase public investment government borrows from the banks. The banks lend their idle cash to the government. Thus, credit is created by the banks and investment gets boosted.

(ii) On account of increase in public investment there is many times more increase in total income under the impact of multiplier. It also promotes private investment. Because of multiple increases in income there is also a corresponding

increase in effective demand. Therefore, pump priming proves very effective in increasing private investment especially during depression.

18.3 Problems or limitations of fiscal policy

Although fiscal policy gained prominence during world depression of 1930's, yet its practical application has a number of problems or limitations. In view of such a situation, let us understand fully and limitations which are associated with a fiscal policy. They are:

1. Policy lags- During the recent times, there is not much argument about the desirability or otherwise of a discretionary fiscal policy. The burning question in this context is related with the timing of the fiscal measures. Unless the variations in taxes and public expenditure are neatly timed, the desired counter-cyclical effects cannot be realized. There is generally some interval between the time when a particular action is needed and the time when a fiscal measure has its impact felt. The duration of this interval determines the extent to which a specific fiscal measure can be effective. This time interval comprises of following three types of lags:

(a) Recognition Lag- This is the interval between the time when action is needed and when it is recognized that action is needed. This lag may exist when a change in the economy and report concerning the change do not coincide. Such a lag has duration of 3 months. It can be reduced if the forecasting is satisfactory.

(b) Administrative lag- This is the interval between the time when need of an action is recognized and the time when the action is actually taken. This is perhaps the most difficult lag to deal with. Even when the need of action has been recognised, the sanction from legislature and executive must take some time and that may involve about 1 to 15 months of time. In order to reduce such a lag and to minimize the legislative and executive red-taps, it is important to keep a shelf of public works in readiness. The recognition and administrative lags together

determine the inside lag of the fiscal policy and its length, according to some experts, is 4 to 18 months.

(c) **Operational lag-** The time interval between when action is taken and when it has its impact on income and employment is known as the operational or the outside lag. Albert Ando and E.C. Brown has pointed out that the change in personal income taxes produce significant changes in disposable money income and consumption within a month or two; changes in the corporate tax structure produce changes in corporate spending in about 3 or 4 months. Willes was of the view that the outside lag of fiscal policy has a short duration of 1 to 3 months only. J.G. Ranlett, however, considers that these estimates need modification. On the basis of U.S. income tax data of 1960's, he emphasized that the variation in income tax rates affected changes on consumption spending with a lag of about 3 to 9 months. Even this estimate of outside lag of fiscal policy is much lower than that of the monetary policy.

2. Forecasting- Another most serious limitation of fiscal policy is the practical difficulty of observing the coming events of economic instability. Unless they are correctly observed the amount of revenue to be raised, the amount of expenditure to be incurred or the nature and extent of budget balance to be framed can not be suitably planned. In fact, success of fiscal measures lastly depends on the accurate predictions of various economic activities. In its absence, it proves to be a little bit erratic.

3. Correct size and nature of fiscal policy- The most important necessity on which the success of fiscal policy will depend is the ability of public authority to frame the correct size and nature of fiscal policy on the one hand and to foresee the correct timing of its application on the other. It is, however, too much to expect that the government would be able to correctly determine the size, nature of composition and appropriate execution-time of fiscal policy.

4. Fiscal selectivity- When monetary policy is general in nature and impersonal in impact, the fiscal policy, in contrast, is selective. The former permits the market mechanism to operate smoothly. The latter, on the contrary, encroaches directly upon the market mechanism and gives rise to an allocation of resources which may be construed as good or bad depending upon one's value judgements. A particular set of fiscal measures may have an excessively harsh impact upon certain sectors, while leaving others almost unaffected.

5. Inadequacy of fiscal measures- In anti-depression fiscal policy, the expansion of public spending and reduction of taxes are always more elements. The question arises naturally, whether a specific variation in public spending or taxes will bear the desired results or not. In case the injections or withdrawals from the circular flow are more or less than what are required, the system will fail to move in the desired direction. This results exaggeration of instability in the economy.

6. Adverse effect on redistribution of income- It is felt that fiscal policy-measures redistribute income, the actual effect will be uncertain. If income is redistributed in favour of the low-income classes whose marginal propensity to consume is high, the effect will be increase in total demand; but the fiscal action will be contractionary if larger part of the additional income goes to people having higher marginal propensity to save.

7. Reduction in national income- Balanced budget multiplier as a fiscal weapon can be gainfully applied during depression is conditioned by the fact of marginal propensity to spend of the recipients of public expenditure being larger than or, at least, equal to that of the tax-payers. In case it becomes smaller than for the taxpayers, the fiscal programmes under balanced budget will bring about reduction in the national income.

8. No solution for unemployment- The purpose of fiscal policy will be defeated if the policy can not maintain a rising supply level of work effort. The national income will rise with increase in productive efficiency and increased supply

of work effort. But if the tax measures are stringent and too high, they will certainly affect the incentive to work. This is an important limitation of fiscal policy.

9. Adverse psychological reaction- Large deficit programmes financed by borrowings bring about adverse psychological reactions. Rumours of government bankruptcy discourage investors and often flight of capital takes place.

10. Hardships in U.D.C.- The creation of additional income through compensatory fiscal measures are not easily possible in underdeveloped countries as in advanced economies. This is mainly because a stagnating agricultural sector dominates the largest part of their economy where marginal propensity to consume is so high that most of the additional income is consumed in the peasant farm and the marketable surplus is the least.

11. Administrative problems in democratic countries- In a democracy fiscal policy measures must be a time-consuming process. Legislative actions, administrative tasks and the executive process are often delayed and the original estimates of revenue earnings and government expenditures often become irrelevant. The operational lag relating to fiscal measures results in a considerable erosion of effect and the gap between expected achievement and the real attainment often becomes vast.

Limitations in under-developed countries- In U.D.C., there are other several limitations which act as an obstacle in the successful working of fiscal policy. They are summarised below:

In under-developed countries, there are other several limitations which act as an obstacle in the successful working of fiscal policy. They are summarised below:

- (a) Tax evasion leading to generation of black money.
- (b) Existence of barter Economy.
- (c) Poor performance of public sector.
- (d) Limited scope due to wide-spread poverty and unemployment.

- (e) Lack of confidence and sense of cooperation among people towards fiscal measures.
- (f) Low elasticity of taxes.
- (g) Dominance of non-monetised sector.
- (h) Narrow and unorganised money and capital market.

In view of the above-mentioned inflexibility, limitations and shortcomings, the role of fiscal policy cannot be underestimated. Fiscal policy, if properly planned and coordinated, may yield desired results to bring economic stability. Prof. Musgrave has rightly pointed out that fiscal policy has now its days. Therefore fiscal mechanism can play a vital role in economic development in conjunction with other policy instrument like monetary policy and income policy.

18.4 Check Your Progress

Answer the following questions:

Q.1 Point out which of the following is not an instrument of fiscal policy:

- a.** An increase in the interest rate
- b.** A cut in unemployment compensation
- c.** An increase in tobacco taxes
- d.** A cut in the marginal rates of IRPF

Q.2 The function of investment spending shifts to the left if:

- a.** The interest rate rises
- b.** The interest rate falls
- c.** Business expectations improve
- d.** Business expectations get worse

Q.3 The government spending multiplier is as higher as:

- a.** Higher is the government spending
- b.** Higher is the MPC
- c.** Lower is the MPC
- d.** Lower is the tax revenue

Q.4 An increase in the interest rate:

- a.** Shifts the aggregate demand curve to the left
- b.** Shifts the aggregate demand curve to the right
- c.** Has no effect
- d.** Moves the economy along the aggregate demand curve

Q.5 A cut in direct taxes on households' income:

- a. Has no effect
- b. Shifts the aggregate demand curve to the left
- c. Shifts the aggregate demand curve to the right
- d. Moves the economy along the aggregate demand curve

18.5 Summary

Fiscal policy is traditionally concerned with the determination of state income and expenditure policy. However, in recent times, with the expanding role of state with particular reference to the need for a rapid economic growth, public borrowings and deficit budgeting has also become a part of fiscal policy. The crux of an effective fiscal policy is related to the policy decision with regard to the entire financial structure of the government such as expenditures, transfers, loans, tax revenues and debt management etc. They all are kept in a proper balance so as to achieve the best possible results in terms of economic objectives. Fiscal policy may transfer wealth from the rich to the poor through the use of taxation with a view to bringing about a redistribution of income, but it may be criticised on the ground that the transfer of income from the rich to the poor will affect savings and capital formation, which in turn, would affect investment and employment. Fiscal policy as a means for influencing the flow of income may involve either a change in the level of taxes or a change in the level of government expenditures or a combination of the two. Whatever method is adopted the basic consequences are the same.

18.6 Keywords

Fiscal policy- Fiscal Policy concerns itself with the aggregate effects of government expenditure and taxation on income, production and employment.

Pump Priming- Pump priming refers to increase in private investment through an injection of fresh purchasing power into income stream.

Budget- It is an estimation of revenue and expenses over a specified future period of time.

Inflation- It is a quantitative measure of how quickly the price of goods in an economy is increasing.

Deflation- It occurs when too many goods are available or when there is not enough money circulating to purchase those goods.

18.7 Self-Assessment Test

1. What is meant by fiscal policy? What are its objectives? Explain the instruments of fiscal policy.
2. How the fiscal policy can be useful during inflation and deflation? What are the limitations of fiscal policy.
3. Explain Taxation as an instrument of fiscal policy.
4. What are the major drawbacks of fiscal policy in India?
5. How can be fiscal policy used during the period of Inflation and Deflation?

18.8 Answers to check your progress

Q.1 A, Q.2 D, Q.3 B, Q.4 A, Q.5 C.

18.9 References/Suggested readings

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LESSON: 19

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CONTEMPORARY ISSUES IN ECONOMIC ANALYSIS

STRUCTURE:

- 19.1 Learning Objective
- 19.2 Introduction
- 19.3 Global and Asian Economies' Scenario
 - 19.3.1 Indian Economy and Sustainability in terms Of Economic Growth
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 - 19.3.3 Privatization
 - 19.3.4 Disinvestments and Foreign Direct Investments
 - 19.3.5 Indian Agriculture in Market Friendly Regime
 - 19.3.6 Social Justice, Human Rights Vs. Market Friendly Economic Policy
- 19.4 India under Globalization and its Future
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- 19.9 Answers to check your progress
- 19.10 References/Suggested Readings

19.1 Learning Objective

After going through this lesson the students should be able to explain the economic scenario of India and potential of Indian Economy at global level.

19.2 INTRODUCTION

India has come a long way since its independence in 1947. Its economy has been characterized by a diversified industrial base, a growing, world-class IT and software development sector and a relatively large and sophisticated financial sector, with a population of over one billion to support. India has been gradually transforming its economic base from agrarian to industrial and commercial. The agricultural sector accounts for 25 percent of GDP, the industrial sector 34 percent, and services sector 51 percent. India's economic performance over the past several decades is generally thought to have lagged that of China, its northern neighbor. However, a close look at what India has accomplished over the past decade when it began to seriously pursue economic reform suggests that it has also made dramatic progress. What is especially remarkable is that India has made such great economic progress under a democratic governmental structure that protects the individual freedom of its citizens. Such a task is pretty unusual in recent times, especially in the Asian region, where rapid economic progress has often been the precursor to political reform and liberalization. For many years after independence, Indian economic policy emphasized central planning, with the government setting goals for, and closely regulating, private industry. In the late 1970s, the government began to reduce state control of the economy, but made very slow progress toward this goal. By 1991, the government still ran many of the major industries and maintained most of the infamous 'government permit raj' that required government permission for many routine business decisions. During the Persian Gulf conflict in 1991, India faced a financial crisis because of rising oil prices, which stimulated economic reforms and liberalization. These reforms removed most of the government regulations on investment, including many on foreign investment, and eliminated the quota and tariff system that had kept trade at low levels. Reforms also de-regulated a number of industries and privatized many public enterprises. Apparently, the reforms were good for the economy; GDP grew at an average of more than six

percent through the year 2000. The economy even weathered the Asian financial crisis in 1997-98 with only a slight depreciation of the rupee and a bit less foreign direct investment. Perhaps the major reason for India's avoidance of the contagion that swept through Southeast Asia during the crisis is that it never opened its economy to free movement of international capital or made the rupee fully convertible. The recognition that its institutions were not fully ready for the rigors of internationally mobile capital was, in retrospect, a great blessing. Private investment has been the fuel for India's recent economic success; domestic savings and investment now run at about 22 percent of GDP. While foreign direct investment reached a record high of US\$3.6 billion in 1997, 20 times higher than it was before the reforms in 1991, inflows of direct and portfolio investment from abroad are miniscule as compared to those received by China. India has more work to do to become a truly attractive destination for foreign investment. An earthquake on January 26, 2001, in Gujarat state collapsed villages, homes and high rises and killed an estimated 30,000 people. Tens of thousands more were injured and hundreds of thousands left homeless. The government estimated damage at more than US\$4.2 billion, equivalent to well over one percent of GDP. And, the impact of the dramatic global slowdown in IT-related investment hit India's software/technology sector—a major exporter to just those markets most affected by the IT investment depression. Agricultural output growth was also very low in 2001. Yet, the economy still managed to grow five percent on the strength of consumption and domestic investment demand. The BJP-led coalition government is not in a strong position to push the further reforms the economy needs to avoid a further slowdown in growth. Fiscal policy cannot be used to stimulate growth because the budget deficit is already too high. Real progress needs to be made in getting real interest rates lower, de-regulating agriculture, getting reasonably-priced and reliable electricity service more widely established and eliminating restrictive, outmoded labor practices. An

outbreak of domestic violence between Hindus and Muslims in early 2002 is a most unfortunate distraction for the nation's political leaders from urgent reform business.

19.3 GLOBAL AND ASIAN ECONOMIES' SCENARIO

The global economy stimulated by strong monetary and fiscal measures recorded robust growth and favourable economic expansion. It facilitated the Indian economy to continue in the accelerated growth path with considerably improved performance of industry and services sectors for the second consecutive year. Despite a commendable performance, both the global and domestic economies were plagued by inflationary pressure during 2004-05 as a result of persistently high oil prices. Consequently, inflation coupled with less than normal South-West monsoon had an adverse effect on the performance of the Indian economy. This section discusses the macro economic and developmental changes in agriculture and rural economies of the world in 2004 and in India during 2004-05.

The world output is projected to have grown at 5.1 per cent in 2004, the highest in three decades, on account of robust growth in both advanced and emerging market economies. The growth of output in 2004 in the advanced economies and Newly Industrialized Asian Economies (NIAEs) was higher by 1.4 and 2.4 percentage points, respectively, compared to 2003. The growth impetus emanated from buoyant performances by USA, Japan and NIAEs. Other emerging markets and developing economies and the Commonwealth of Independent States (CIS) exhibited positive growth trends (Table 19.1).

Table 19.1: Overview of Global Economy (Percent)

Growth	2003	2004*	2005*
A. GDP (Real)			
a. World	4.0	5.1	4.3
b. Advanced Economies	2.0	3.4	2.6
i. United States	3.0	4.4	3.6
ii. European Union	0.5	2.0	1.6
iii. Japan	1.4	2.6	0.8
iv. Newly Industrialised Asian Economies	3.1	5.5	4.0
c. Other Emerging Markets and Developing Economies	6.4	7.2	6.3
i. Asia (Developing Nations)	8.1	8.2	7.4
ii. China	9.3	9.5	8.5
iii. India	7.5	7.3	6.7
iv. ASEAN - 4@	5.4	5.8	5.4
d. Commonwealth of Independent States (CIS)	7.9	8.2	6.5
B. World Trade Volume (goods & services)	4.9	9.9	7.4

* Projected.
@: Includes Indonesia, Malaysia, Philippines and Thailand
Source: World Economic Outlook, IMF, May 2005

Among Asian nations, China continued its robust growth in 2004 contributing significantly to the growth momentum of the region.

The impressive increase in global output manifested itself in an increase in the demand for merchandise exports, resulting in a sharp increase of 5 percentage points in the volume of world trade in 2004. However, despite encouraging recovery of the global economy, high oil prices and its uncertain supply continue to threaten the sustainability of the global growth process. The world food grains production increased to 2.31 billion tonnes (7.9%) in 2004 from 2.14 billion tonnes in 2003. This was due to substantial increase in food grains production in Europe (29.2%), N.C. America (9%) and Asia (3.9%) (Table 19.2).

Table 19.2: Share of Continents in World Production of Agricultural Commodities (Million Tonnes)

Region/Year	Cereals		Pulses		Foodgrains		Oilseeds		Fibre Crops	
	2003	2004*	2003	2004*	2003	2004*	2003	2004*	2003	2004*
Asia	997.0	1,034.7	27.0	28.9	1,024.0	1,063.6	59.4	64.0	16.1	17.7
Africa	129.8	128.1	9.4	9.3	139.2	137.4	7.2	7.3	1.8	2.0
Europe	355.0	460.8	7.8	8.0	362.8	468.8	14.5	15.1	0.7	0.7
N.C. America	435.6	474.0	7.0	8.6	442.6	482.6	18.7	22.4	4.1	5.1
S. America	123.0	118.0	4.2	3.9	127.2	121.9	20.5	19.7	1.3	1.8
Australia	38.0	35.2	2.1	2.2	40.1	37.4	0.7	0.7	0.3	0.4
World	2,078.4	2,250.8	57.5	60.9	2,135.9	2,311.7	121.0	129.2	24.3	27.7

* Provisional
Source: Agricultural Database, FAO, 2004.

The world production of oilseeds and fibre crops also witnessed an increase of 6.8 and 14 per cent, respectively. Further, as in 2003, the world cereals production constituted 97.4 per cent of the world food grains production.

Rice, wheat and coarse cereals constituted 27, 26 and 44 per cent, respectively, of the total world food grains production in 2004. India accounted for 15 per cent of world production of rice. Despite being the primary food source of Asian economies, rice production is facing serious constraints such as decline in yield, depletion of natural resources, gender-based conflicts, etc. Keeping this in view, the United Nations General Assembly declared 2004 as the International Year of Rice with the theme 'Rice is life', drawn from an understanding that rice-based systems are essential for food security. Further, rice based production systems and their associated post harvest operations employ nearly one billion rural people in developing countries and about four-fifth of the world's rice is grown by small - scale farms in low income countries. India continued to be one of the fastest growing economies among the major emerging nations, despite facing constraints like the deficient South-West monsoon, hardening of international oil and steel prices and extensive damage to life and property due to the tsunami along her southern coast. As per the advance estimates of Central Statistical Organization (CSO), growth of the economy was projected at 6.9 per cent during 2004-05 (Table 19.3).

Table 19.3: Economic Indicators

Particulars	2002-03	2003-04	2004-05
Growth in (%)			
(a) Overall GDP	4.0 ^P	8.5 ^Q	6.9 ^A
(b) GDP from Agriculture & Allied Activities	-7.0 ^P	9.6 ^Q	1.1 ^A
(c) Agriculture Production	-16.0	21.3	-0.6
(d) Foodgrains Production	-18.9	23.0	-1.2
(e) Industrial Production	6.6 ^P	6.5 ^Q	8.3 ^A
(f) Services	7.9	8.9 ^Q	8.6 ^A
(g) Exports	20.3	21.1	24.9
(h) Imports	19.4	27.3	48.4
Gross Domestic Savings (as % of GDP)	26.1 ^P	28.1 ^Q	24.2 ^A
Gross Domestic Capital Formation (as % of GDP)	24.3 ^P	26.3 ^Q	NA
Inflation as measured by WPI	3.4	5.4	6.4 ^E
Gross Fiscal Deficit (as % of GDP)	5.9	4.5	4.5 ^R
Trade Balance (US \$ billion)	-10.7	-15.5	-38.1
Foreign Exchange Reserves (US \$ billion)	71.9	107.4	141.5
External Debt (US \$ billion)	105.4	111.7	123.3
<i>P : Provisional Estimates A : Advance Estimates</i>			
<i>Q : Quick Estimates R : Revised Estimates E : Estimated</i>			
<i>NA : Not Available</i>			
<i>Sources : 1. Economic Survey 2004-05</i>			
<i>2. CMIE, Monthly Review of the Indian Economy, May 2005</i>			
<i>3. RBI Bulletin, May 2005</i>			

The growth in industry and services sectors was broad based at 8.3 and 8.6 per cent, respectively, during 2004-05. The growth in GDP from agriculture and allied sector, however, declined to 1.1 per cent during 2004-05 from 9.6 per cent during 2003-04, on account of the deficient South-West monsoon, certain supply side constraints, etc. The share of agriculture and allied activities in total GDP (at 1993-94 prices) declined from 21.7 per cent during 2003-04 to 20.5 per cent during 2004-05, while that of industry and services sectors increased from 21.6 and 56.7 per cent to 21.9 and 57.6 per cent, respectively, during the same period. On account of reduced public dissavings and improved private savings (household and corporate), the savings rate improved to 28.1 per cent during 2003-04 from 26.1 per cent during 2002-03. Similarly, investments also improved to 26.3 per cent from 24.8 per cent during the same period mainly due to increased private sector investments. The fiscal deficit as a proportion of GDP declined sharply to 4.5 per cent during 2003-04 from 5.9 per cent during 2002-03, and is estimated at 4.5 per cent during 2004-05. Revenue deficit also declined to 3.6 per cent during 2003-04 from 4.4 per cent during 2002-03 and further to 2.7 per cent during 2004-05, owing mainly to various fiscal consolidation measures and reforms initiated by GoI. The Fiscal Responsibility and Budget Management (FRBM) Act, 2003, and State Level Value Added Tax (VAT) became operational from July 2004 and April 2005, respectively. India's overall balance of payments improved from US\$ 17 billion during 2002-03 to US\$ 31.4 billion during 2003-04 due to current account surplus and expanding capital account. The foreign exchange reserves registered an increase of 31.8 per cent to US\$ 141.5 billion during 2004-05 compared to 2003-04 (Table 20.3). Improved reserves and continuous surge in capital inflow in the preceding two years caused hardening of the domestic currency in the foreign exchange market. The Indian rupee appreciated vis-à-vis the US dollar by 5 and 2.2 per cent and the average exchange rate worked out to Rs.45.83 and Rs.44.84 during 2003-04 and 2004-05, respectively. Though India's outstanding external debt increased by 6 per

cent to US\$ 111.7 billion as at end-March 2004 compared to the previous year, the total external debt to GDP ratio improved to 17.8 per cent, indicating consolidation of external debt. By March 2005, the ratio reached to 17.4 per cent. B.

Poverty

Poverty estimates by the Planning Commission, based on the 55th Round of NSSO, revealed that the number of people living below poverty line (BPL) declined significantly from 328.9 million (51.3%) during 1977-78 to 260.3 million (26.1%) during 1999-2000. Further, while the proportion of poor people (BPL) in rural areas declined from 53.1 per cent during 1977-78 to 27.1 per cent during 1999-2000, it declined from 45.2 to 23.6 per cent during the same period in urban areas. The GoI introduced the Swarnajayanti Gram Swarozgar Yojana (SGSY) in 1999 by restructuring various poverty alleviation and self-employment programmes, viz., IRDP, TRYSEM, SITRA, DWCRA, etc., envisaging the formation of SHGs by 'swarozgaris' and financing them by banks at different stages. Since its inception, a total number of 20.03 lakh SHGs have been formed of which 2.15 lakh groups have been assisted to take up economic activities. During the year, 2.62 lakh SHGs were formed, of which 0.43 lakh SHGs were assisted. So far, 56.96 lakh swarozgaris, including individuals have been assisted. NABARD is a member of the Central Coordination Committee, State and District Level SGSY Committees as also the Central Monitoring Committee on SGSY, constituted by Ministry of Rural Development (MoRD), GoI, and convened by RBI, to assess the ground level operational problems in implementation of the scheme.

Inflation

The annual average rate of inflation, as measured by the wholesale price index (WPI), was 5.4 per cent during 2003-04 compared to 3.4 per cent during 2002-03. From a low of 4.5 per cent in April 2004, it inched up to 8.5 per cent in August 2004. However, it exhibited a declining trend thereafter and the annual average rate of inflation during 2004-05 was estimated at 6.4 per cent. Inflationary pressures

were, *inter alia*, due to hardening of international crude oil prices, minerals and metal related products, while inflation in the case of agro-based products was caused due to erratic and delayed monsoon with uneven distribution of rainfall over time and space.

Trade Prospects

The Foreign Trade Policy: 2004-09, aims to achieve an export target of US\$ 150 billion by 2008-09, thus, implying an annual growth of 20 per cent, with maximum emphasis on sectors having prospects for export expansion and potential for employment generation. India's trade witnessed robust growth during the year, with exports registering an increase of 24.9 per cent, up by 3.8 percentage points over 2003-04 and also higher by 8.9 percentage points than the targeted 16 per cent for 2004-05. This could be attributed to good industrial performance. During 2004-05, imports also grew at a rate of 48.4 per cent, up by 21.1 percentage points from 2003-04 and higher than the export growth rate by 23.5 percentage points.

Employment

As per the results of the 55th Round (1999-2000) of the Survey conducted by NSSO, the rate of growth in employment at aggregate level, on Current Daily Status basis, declined from 2.7 per cent (1984-94) to 1.1 per cent (1994-2000) (Table 19.4), mainly on account of near stagnation of employment in agriculture.

Table 19.4: Annual Growth in Employment

Particulars	(Per cent)					
	1983-84 to 1993-94			1993-94 to 1999-2000		
	Rural	Urban	All India	Rural	Urban	All India
Population	1.79	3.04	2.00	1.67	2.74	1.95
Labour Force	2.15	3.33	2.43	0.96	2.40	1.31
Workforce	2.40	3.59	2.70	0.67	2.32	1.07
No. of Unemployed	-1.19	0.49	-0.08	5.26	3.45	4.74
<i>Source : Planning Commission</i>						

As a result, the share of agriculture in total employment declined from 60 per cent during 1993-94 to 57 per cent during 1999-2000.

Small Scale Industries Sector

The number of Small Scale Industries (SSIs) units (registered and unregistered), increased to 122.5 lakh (4%) during 2004-05 from 114 lakh during 2003-04. During 2004-05, the value of production and employment increased by 11.5 per cent and 4.4 per cent to Rs.3, 99,020 crore and to 28.3 million persons, respectively, over the previous year. GoI also initiated measures during the year to encourage the development of SSIs, such as formation of the National Commission on Enterprises in the unorganized/informal sector, raising the investment limit in plant and machinery to Rs.5 crore from Rs.1 crore and the composite loan limit from Rs.50 lakh to Rs.1 crore. Further, 85 items were dereserved from the SSI list reducing the total number of reserved items to 605.

19.3.1 INDIAN ECONOMY AND SUSTAINABILITY IN TERMS OF ECONOMIC GROWTH

The Indian economy has continued its buoyant performance in the first half of 2005-06. GDP in the first quarter has accelerated to 8.1 per cent with strong manufacturing growth (12.1 per cent) and every observer is busy revising the GDP forecast for the year upwards to 7-7.5 per cent. With a near normal monsoon, agricultural revival is certain. The buoyant performance of the manufacturing sector continues, as seen from the trends in commercial credit. The services sector continues to perform well. Thus, the growth is all-round - in the primary, secondary, as well as services sectors. The optimism is not confined to growth performance alone. Despite persisting fiscal imbalances and a steep increase in oil prices, there are no immediate dangers to macroeconomic stability.

The RBI predicts the inflation rate to be 5 to 5.5 per cent for the year. Although interest rates may slightly harden with increasing commercial credit, overall it is likely to remain benign. Increasing oil prices may create a current account deficit of about 2 per cent of GDP during the year, but an increasing flow of invisibles will

ensure comfortable external payments. The savings rate has reached 28 per cent of GDP in 2003-04, and in later years, further fiscal improvements must have enhanced it further. What is needed is a more efficient intermediation of savings into capital formation to increase it from the stagnant level of 23 per cent. While the optimism in the present environment is natural, it would be inappropriate to ignore the risks. The persisting fiscal imbalance may worsen if the expected revenues are not realized and the competitive populism of coalition politics causes expenditure profligacy. Another major risk factor is infrastructure bottlenecks.

The important sectors presenting binding constraints include power, transport, including ports, railways, and airports, and urban infrastructure. An important external shock that has added to the risk is the sharp increase in the international price of crude. When the effect of this works itself out, it could constrain manufacturing growth and increase the price level. The most worrisome issue is the difficult political environment for reforms. The buoyant performance of the economy for the third consecutive year has raised expectations that the economy has accelerated to a higher growth trajectory. Many now feel that achieving 8 per cent growth during the Eleventh Plan period is no longer a dream.

It has been suggested that there has been significant productivity growth in Indian manufacturing, and demographic as well as institutional factors support higher growth. Is this optimism well-founded? If it is, then it is a case of growth acceleration without reforms, which is nothing less than a miracle. Unfortunately, such things do not happen. Even in the past, there were spurts in growth, but they were temporary. The growth of the agricultural sector continues to depend on monsoons and manufacturing growth has shown wide fluctuations since the middle of the 1990s. Since 1997-98, almost 70 per cent of the growth was contributed by the services sector, the sector in which liberalization was effective. If the economy has to grow at 8 per cent during the Eleventh Plan, both agriculture and manufacturing should show better performance. Continued stagnation in agriculture

will not only drag the overall performance of the economy but will also result in jobless growth and stagnation in the material living conditions of the majority of the people. Similarly, lasting performance in the manufacturing sector will require larger investments and increase in productivity.

It is important to understand that the sustained growth of the services sector was possible because the reforms have liberalized this sector. Accelerating growth and sustaining it in agriculture and manufacturing would require implementing reforms. Wide-ranging reforms to free the agricultural sector from the shackles of various controls on the movement and sale of products, increased investments in harnessing water resources in a sustainable manner, creating enabling conditions for contract farming through a promotional and regulatory framework, promoting agricultural extension, and ensuring adequate credit are some of the measures.

On the manufacturing side, reforms are required to make the sector competitive in the international market. This requires significant improvement in infrastructure through increased public investments, creating enabling conditions for public-private partnerships, and reforms to enhance productivity. In areas such as power supply and policy, institutional reforms will have to continue. Other important measures required include ensuring more flexible labour market conditions, further small-scale industry de-reservation and creating an enabling environment for attracting foreign direct investments. Indeed, excessive protection given to 7.5 per cent of the workforce has placed serious constraints on expanding employment opportunities for the rest. Fiscal reforms are critical in accelerating growth. The Finance Commission has recommended a restructuring plan and the central government should show leadership in adhering to it. Reforms in the tax system are necessary not only to improve revenue productivity but also to remove micro level inefficiencies. The important tax reforms include rolling back many of the exemptions and tax preferences, continued improvements in the tax administration and information system, and the levy of full-fledged VAT. The objective of the last

measure should be to create an unhindered common market in the country. A recent NIPFP study has shown that the annual cost of exemptions and concessions could be as high as Rs 48,000 crore (Rs 480 billion).

19.3.2 GLOBALIZATION

Globalization broadly speaking means “integration of economies and societies through cross-country flows of information, ideas, technologies, goods, services, capital, finance and people. The essence of globalization is connectivity.” This laudable concept originally intended to sub-serve a more just and equitable world order. The implementation of NEP in India was also on the same note. But this very concept on the one hand, destroyed the traditional web of Indian economy, and on the other hand, it is unable to fulfill the very promise it made at its inception. Increasing export – orientation of national economies, the dismantling of tariff barriers to imports, the linking of national currency to International markets, the privatization of nationally owned assets etc. lead to severe contraction of public expenditure.

The gains and losses from globalization can be analyzed in the content of the three types of channels of economic globalization.

- (i) Trade in goods and services
- (ii) Movement of capital and
- (iii) Flow of finance.

Rapid development of capital market and expansion in foreign exchange market are the important features of globalization. In the last decade, what the experts analyzed is of great concern. According to them poverty ratio had decreased considerably in last decade. Quality products with consumer friendly rates are available in the market. Therefore, opting out of globalization is not a viable choice at all. “Through the Bretton Woods Conference (1944) marked the beginning of a New World Trade Order which triggered economic changes based upon a paradigm shift implicit in the

draft crafted by Arthur Dwnkel, eventuating in the Uruguay Round and the Final Act. One of the major objectives of this Dwnkel Draft Text was the creation of a new world wide market grab system – the hidden agenda – highlighted by the Orwellian Double speak: “globalization” “liberalization” and “privatization”. The thrust of course, was the capture of world markets by the International Corporate Power incarnate, under the hegemony of American Incorporated.¹⁸ We are going ahead towards Globalization without realizing the very effect of it on Indian economy. Though we are not in a position to go back but certainly, we have to control the implication of Globalization according to our norms and means. On the contrary, WTO, IMF and other great economic giants are controlling not only the economic policies of India but they are also influencing the political decisions of Indian political system. Our foreign economic policy is being directed by the WTO regulations, which are binding on us. In the words of honorable justice V. R. Krishna Iyer, “Globalization is the latest game of corporate cannibal trying to occupy the economic space of the third world, a déjà vu of the old East India Company but with exponential potential aided and abetted by fifth columnist enterprises. The world is one. It is united by market hungry multinational corporations of the first world monopolizing the resources of third world, with the single Global objective of maximum profits and dismantling national private pigmies and public sector industries.”

19.3.3 PRIVATIZATION

Another important concept and phenomenon which is continuously influencing the Indian Economic System is Privatization. Adam Smith was the first to adduce economic reasons to justify privatization. He observed: “no two character seem more inconsistent than those of trader and sovereign. In the words of S. R. Maheshwari, “Privatization is the transfer of control of ownership from the public to private sector, such a transfer being necessarily associated with market liberalization

and deregulation, changing the macro economic context, the competitive environment and the labor market of the country. It refers to “full conversion of property rights from the state of collective owners to private owners.” Privatization is an emotionally charged term in countries like India and is viewed as an ideologically and politically explosive issue. In the words of Samir Amin Globalization and Imperialism is nothing new. The history of capitalism since the very beginning has been the history of imperialist expansion. And the system was always global – globalization has always been imperialist globalization. It has never been achieved by peaceful and equal negotiations between peoples. Over this, Rightist has their own view. According to them “change is always for better and happens spontaneously Change is always painful, but it is always transitional. The market, that is capitalism, will itself solve the problem in the long run when everybody is dead.” It is not ideology but propaganda. G-7, W. H. O., I. M. F., and World Bank is not global organizations but organization of Global North. Privatization is the backbone of globalization. In India privatization of crucial and core industries had already taken place. Blind privatization of each and every industry is not the proper solution for hanging Indian economy. Innovative solutions are needed to solve this problem. Indeed, evidence from all over the world is accumulating to declare that the private sector has failed miserably in urban water supply. Yet, the Asian Development Bank (ADB), the World Bank and the WTO/GATT’S continue to push this policy exhibiting an ostrich - like attitude to the realities. There is no doubt that public systems failed miserably in providing efficient water services to the poorer sections of society because of lacking managerial skills, inefficient, corrupt and ineffective officials. Yet, this is not the correct cause to privatize water industry. According to Hon’ble justice V.R.Krishna Iyer, “It is unconstitutional, unethical and violative of Human Rights to sell or negotiate disposal of publicity owned water resources for mineral water rackets by industrial giants. The locus classicus on this point is blazed in M. C. Mehta v/s

Kamal Nath. “The notion that public has a right to expect certain lands and natural areas to retain their natural characteristics is finding its way into the laws of the land. The ancient Roman Empire developed a legal theory known as the ‘Doctrine of Public Trust’. The Public Trust Doctrine primarily rests on the principle that certain resources like air, sea, waters and the forests have such a great importance to the people as a whole that it would be wholly unjustified to make them a subject of private ownership. The said resources being a gift of nature, they should be made freely available to every one irrespective of the status on life.” The Pamba of the Malampuzha (the Ganga or the Narmada) belong to the people and the state cannot abandon its fiduciary obligation. It is unconstitutional, unethical and violative of human rights to sell or negotiate disposal of publicly owned water resources for mineral water rackets by industrial giants. Unfortunately, the liberalization ideology has become a synonym with privatization of not only the economy as a whole but also of marketisation of governmental functions and public services thus, resulting in creation of a ‘ police state’ which is against the ethos of a welfare state. Surprisingly entire world is converted into a big market.

19.3.4 DISINVESTMENTS AND FOREIGN DIRECT INVESTMENTS

Disinvestment of public sector units (P. S. U’s) was the next step taken by the Indian economic and political policy makers. Disinvestments of government’s equity in P.S.U have opened closed areas for private participation. The government on March 8, 2002 opened the gates for more private sector companies, to market petrol and diesel across the country. This led to the end of exclusive rights of HPCL, IOC, IBP and BPCL in market transportation fuels. The Effluvia of globalization can be clearly felt now. The end of small-scale industries led to the downfall of number of indigenous industrialists. Now even cooperative societies have to face the siren of Multinational Companies. India is showing the clear signs of egress from welfare

model. The present global village has forced even the European countries to form a union to survive; while we are trying our best to destroy the beautiful well knit country into bits and pieces, as if the previous invaders had not done enough to damage the Indian culture. After the disinvestments of public sector units and privatization of number of firms such as Delhi Vidhyut Board (DVB), Mahanagar Telephone Nigam Ltd. (MTNL) etc; now foreign direct investment (FDI) is the another step towards the process of globalization. Government on March 7,2002 permitted 100% foreign direct investment (FDI) in the automobile policy. In view of the highly competitive automobile industry in India, the new policy does not prescribe any minimum investment norms. Foreign direct investment in the country by M. N. C's and non-resident Indians (NRIs), public disinvestments policy undertaken by the Union government and several state governments etc., have forced the state to withdraw not only from the economic sphere but also from the social field.

19.3.5 INDIAN AGRICULTURE IN MARKET FRIENDLY REGIME

India is an Agricultural country. India's main source of income is agriculture. Being a member of W. T. O. and under the influence of Globalization, India adopted the provisions of the Agreement on Agriculture (AOA). The 'Human Development in South Asia 2002: Agriculture & Rural Development report' reveals that the real challenge before the region is to build a system of agriculture and rural development that is both growth oriented and human centered. As per Mahbub-ul-haq, compiler of report, human development and economy are linked with each other intrinsically. Human development can only be achieved through the equitable distribution of the benefits of economic growth among the people. Human development report 2002 draws a few logical conclusions:

1. High levels of human development cannot be achieved, if, development priorities do not focus on the occupation of the majority of the people,

that is, farm and non-farm employment, and where they live that is, rural areas.

2. The focus of the policies for food security is on the “welfare” of the people instead of their “empowerment”. The availability of and access to food must have close association with the people’s purchasing power.
3. The region’s agriculture is facing cultivable land constraints and the negative consequences of over-dependence on chemical inputs; future agriculture productivity increases must come from an advancement of agricultural research, technology and extension services.
4. Small farms should be the center of the revival of agriculture and rural development. The incentive system that is being offered to corporate farming in South Asia should not be at the expense of the vast majority of the rural populace.
5. South Asian Agriculture marketing and trading systems have not been effective and efficient owing to both internal constraints and an inequitable external trading environment.

In Kerala, the A. K. Antony government set up a commission on W. T. O concern in Agriculture in 2001. Primary aim of this commission is to search new opportunities out of WTO regulated trading system, which is “inherently asymmetric in its impact. The experience of the last eight years has shown that the WTO. has no visible agenda for resource poor farming families. It is clear that the AOA needs to be redesigned on a pro-poor, pro-small farmer, pro-livelihoods and pro-environment framework.” Commission has made 19 specific recommendations for Kerala. To promote Trade and Intellectual Property Rights literacy is one of the most important recommendations made by the commission. Agriculture is proving to be the principal bottleneck for those within and outside the World Trade Organization (WTO) trying to push through a new international trade agreement. The Cairns group of exporting countries (Argentina, Australia, Bolivia, Brazil, Canada, Chile,

Columbia, Costa-Rica, Guatemala, Indonesia, Malaysia, New Zealand, Paraguay, Philippines, South Africa, Thailand, Uruguay) has proposed an efficient agenda of liberalization in the agricultural area. Through “Swiss Formula”, they proposed to reduce Tariffs sharply. According to ‘Swiss Formula’ the larger the proportionate reduction in the tariff rate, the higher is the bound or applied tariff in a country. WTO is strictly Business oriented Organization. An immediate result of this type of International Rural Politics is that close to half of rural families have gained very little from the process of planned development all the rhetoric about the commitment of the state and polity to the cause of the poor.

Indian agriculture is suffering the most under these WTO regulations because our emphasis is on the industrial sector. But the ground reality is that India is much suited for the agricultural reforms. The cut in farm subsidies are surely going to affect the farmers. Now the problem is that India actually adopts these policies under the pressure of WTO. The era of giving subsidies or benefits to the individuals is over. The WTO regulations have wiggled the traditional web of Indian welfare model. Therefore, the development of infrastructure is the first important step, which should be taken by the Indian policy makers.

19.3.6 SOCIAL JUSTICE, HUMAN RIGHTS VS. MARKET FRIENDLY ECONOMIC POLICY

Human Rights are more than legal concepts: they are the essence of the man. A decade back, we have a different traditional concept of human rights. There we have violations of human rights by the Police persons, Military officials, and Terrorists etc. Now with these traditional violators of human rights, we have certain other deadliest partners too. The advent of Globalization and privatization add certain intriguing causes, which are violating human rights quite consistently in developing countries under the umbrella of WTO. Within the past few years, the world has

witnessed numerous changes. The major change was the upcoming of MNC'S and Trans-National Corporations at the upfront.

The term 'health' signifies more than absence of sickness. In the words of Steinbeck the fields were fruitful, starving men moved on the roads. The granaries were full and the children of the poor grew up rachitic, and the pustules of pellagra swelled on their side. The great companies did not know that the line between hunger and anger is a thin line. Life in good health and free from disease is the foremost human right. Supreme Court in a case observed that the right to health is an integral facet of meaningful right to life, to have not only a meaningful existence but also robust health and vigor without which worker would live life of misery; lack of health denudes livelihood. Health is the very basic of development. Due to the advent of MNC'S the rich is becoming richer and the poor is becoming poorer. The right to health is hampered by the TRIPs. Multinational Corporations (MNC'S) having no soul and working strictly on the one ground of accumulating capital have no concern for the health of the masses. Environmental pollution, ecological destruction, human rights violations, etc. have no concern for the MNC'S. Monopolies are market-friendly and morality-deadly. When a few corporations control the access to markets, there is very little to prevent them from manipulating the market to maximize profits, forcing prices down to buy up the commodity cheap from producers and then pushing them up so as to unload at a nice profit. The 'Humanistic jurisprudence', has nothing to do in a corporate society. Our Republic, with an ancient composite culture and modern socialist texture, suffered a value torture in the 90s of the 20th century. Socialism slumbered in the constitution; secularism slowly lost its vigor and re-colonization 'red in tooth and claw' pressured the mughals in Delhi to abandon the marvelous values of humanism and compassion and substitute them with globalization, liberalization, privatization and marketisation.

The constitution of India made India an egalitarian country. We consider an existing income distribution relatively egalitarian when the differences between the highest and lowest incomes are relatively small. To restructure the social order of India by giving egalitarian direction is to fulfill the spiritual mission of Marx and Mahatma. In the words of Mahatma Gandhi, "Working for economic equality means abolishing the eternal conflict between capital and labor. It means the leveling down of the few rich in whose hands is concentrated the bulk of the nation's wealth on the one hand, and the leveling up of the semi-starved, naked millions on the other. A non-violent system of government is clearly impossible so long as the wide gulf between the rich and the hungry millions persists. The contrast between the palaces of New Delhi and the miserable hovels of the poor laboring class nearby cannot last one day in a free India in which the poor will enjoy the same power as the richest in the land. A violent revolution and bloody revolution is a certainty one day, unless there is a voluntary abdication of riches and the power that riches give and sharing them for the common good. Social Justice has an intrinsic value and a missionary message for the developing country like India. The Constitution was to foster the achievement of many goals; transcendent among them was that of social revolution. Through this revolution fulfilled the basic needs of the common man, and, it was hoped, this revolution would bring about fundamental changes in the structure of Indian society- a society with a long and glorious cultural tradition, but greatly in need, Assembly members believed, of a powerful infusion of energy and nationalism. The theme of social revolution runs throughout the proceedings and documents of the Assembly. The ultimate thing is that we have to go with the WTO, if we have to survive in this global world. Below we will see how we can sustain ourselves.

19.4 INDIA UNDER GLOBALIZATION AND ITS FUTURE

Do not find fault find remedy. There are at present 142 members in the WTO. What is needed is to evolve an appropriate framework to wrest maximum benefits out of international trade and investment. This framework should include (a) making explicit the list of demands that India would like to make on the multilateral trade system, (b) measures that rich countries should be required to undertake to enable developing countries to gain more from international trade, and (c) steps that India should take to realize the full potential from globalization. To get the fruits of globalization is not a tough task at all. We have to maintain a healthy environment in which both (MNC'S and local companies) will survive in a proper way. The only requirement is to build a state of the art infrastructure. WTO has given ample time to the developing countries to comply with the requirements of the WTO regulations. Though India to an extent fulfilled the requirements of WTO still a lot is required to do. In the words of Justice V.R.Krishna Iyer," the deeper diagnosis of the sinister syndrome of dastardly contradictions is easy and uneasy.' Boneless wonders' in political office, under pressure from the North, are in power as proxies of the MNC.- IMF. - World Bank Axis! Swadeshi is dead, Socialism is *bete noire*, the Barabasque Order is in Command and Jesus is on the Cross? The middle class, under the circean spell of foreign life style, is collaborating in this echelons are tending to be MNC. limpets. Courts are casinos, dockets are log-jammed and litigation is pauperization. Where is hope?" Therefore, the problem is not without but within. The flexible and boneless politicians of India are only involved in the game of coalition politics.

The Indian economy is going on target. Though, the profound psychology of the public is against the phenomenon of globalization as such. The reason may be the very fact that media is reluctant to accept the ever increasing globalization. Journalists are often mere messengers of news and views to brainwash the public and fail to convey the great message needed for the people. Will our rulers trade our freedom in the guise of free Trade? The time to protest is late. Mark Twain holds good for the Indian intelligentsia: It is by the goodness of the God that in our

country we have those three unspeakably precious things: freedom of speech, freedom of conscience, and the prudence never to practice either of them.

The entrance of globalization in India proved good for us. Now even Indian companies become conscious of the fact that they have to not only manufacture the quality products but also have to control the prices of the products too. This proves beneficial for the consumers because they are getting superior goods at the cheaper price. Truly, “thoughts are things,” and powerful things at that, when they are mixed with definiteness of purpose, persistence, and a burning desire for their translation into material desires. Opportunity has a sly habit of slipping in by the back door, and often it comes disguised in the form of misfortune, or temporary defeat. Perhaps this must be the reason why India fails to capitalize the opportunity of developing one self. India must use all its sources to utilize the resources we have. Infrastructure must be modernized with immediate effect. A committee will be organizing with the scholars and professionals to look after the reforms require in the infrastructure of the country. With the help of organized planning we can crystallize our desire of a strongest economy of the world. Success requires no explanations and a failure permits no alibis. Now we are living in the global world and we have to develop ourselves so as to compete with the world economy.

India now being the member of number of International Conventions and Treaties is in a better position to utilize the benefits of transfer of technologies. Development is human right, not an elite luxury. There is no achievement without preparation. India should prepare herself for the globalization. There is no other way out. Global finance, which is highly mobile, does not move with the purpose of “development” but on the strength of “conditionalities”. We have to use this highly mobile money according to our own norms. The adoption of NEP was a good step towards development. But unless the public sector moves out of the control of politicians and bureaucracy sitting on the revolving chairs, with short tenures and hence little commitment to the enterprise there is no hope for an improved performance from the

public sector. We can utilize the benefits of this buzzword globalization only when a state regulated Market Economy will come forward. Retreat of the state is not the ideal condition in fact this thin line between the liberalization and the state must be broadened so as to put India in to the driver seat of the World Economy. Organized planning is the need of the hour. Definiteness of purpose is the starting point of all achievement. Indian Economy is no more bounded in red tapism as such; it also opened its feathers to touch the limits of the sky. Now we have to think positive and made our infrastructure capable enough and flexible to the extent so that we can accommodate foreign giants in India too but on our norms and regulations. We have to apply the real meaning of the term “development”. The concept of justice as fairness must be seen in a broader perspective. Where on the one hand the social and economic justice required perspective reorientation, on the other hand implementation of the Liberalization needs total commitment from the citizens of India as a whole.

19.5 Check Your Progress

Answer the following questions based on the issues in economic analysis:

Q.1 Which of the following explains the term economic growth?

- a. Increase in per capita production
- b. Increase in per capita real income
- c. structural change in the economy
- d. all the above are right

Q.2 An underdeveloped economy is characterized by

- a. High per capita real income
- b. Large proportion of labor force in the tertiary sector
- c. State of deprivation of large proportion of population
- d. All the above

Q.3 The component/s of HDI is/are:

- a. Life expectancy index
- b. Infant mortality rate
- c. Population growth rate
- d. All the above

Q.4 The Multidimensional Poverty Index has been developed by:

- a. The UNDP b. Oxford HDI c. The UNO d. Morris D Morris

Q.5 The investment by government to create socio-economic infrastructure is

- a. Induced investment b. Autonomous investment
c. Incremental COR d. None of the above

19.6 Summary

It is appreciable that the Indian economy has continued its buoyant performance in the first half of 2005-06. GDP in the first quarter has accelerated to 8.1 per cent with strong manufacturing growth (12.1 per cent) and every observer is busy revising the GDP forecast for the year upwards to 7-7.5 per cent. With a near normal monsoon, agricultural revival is certain. The buoyant performance of the manufacturing sector continues, as seen from the trends in commercial credit. The services sector continues to perform well. But, we have to concentrate on the critical areas of infrastructure reforms including the railways, power, urban infrastructure, ports, and airports. The railways have been used to distribute political patronage by successive ministers, with little heed to commercial performance and reinvestment for renewal and expansion. The time has come to corporatise the sector and remove political control over it. Similarly, the monopoly status provided to the Airports Authority of India has done little to ensure adequate investments and performance in the sector. These are only some of the important reforms needed to set the economy on a higher growth trajectory. If the reforms indicated above are implemented, the economy can grow consistently at 8 per cent, or even 10 per cent during the Eleventh Plan. The critical question is, whether the special interest groups will allow the reforms to be carried out, and will we be able to create an enabling environment to unleash creative energies to improve the living standards of the people?

19.7 Keywords

Poverty- Poverty is a state or condition in which a person or community lacks the financial resources and essentials for a minimum standard of living.

Inflation- Inflation means an increase in the cost of living as the price of goods and services rise.

Unemployment- Unemployment occurs when a person who is actively searching for employment is unable to find work.

Economic Sustainability- Economic sustainability refers to practices that support long-term economic growth without negatively impacting social, environmental, and cultural aspects of the community.

Economic Growth- Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another.

19.8 Self-Assessment Test

1. Explain the global view of Indian economy.
2. What do you mean by LPG concept in Indian Economy?
3. How can India compete at international level in different sectors?
4. Explain the different sectors of Indian economy, which can be focused in future.

19.9 Answers to Check Your Progress

Q.1 D, Q.2 C, Q.3 A, Q.4 B, Q.5 B.

19.10 References/Suggested Reading

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